The role of health promotional leadership for employee health and work engagement in South Africa

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Compulsory Declaration
This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, cited and referenced.

Signature: B.Glenny Date: 04/02/2024

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Abstract

Poor employee health and work disengagement have costly repercussions for organisations. To understand better how employers could support employee health, the study presented in this dissertation tested if employee's direct supervisors could do so when they show health promotional leadership behaviours. Additionally, it explored if such behaviours might also increase work engagement via physical and psychological wellbeing as mediator variables. The study employed a descriptive, quantitative survey design. Employees who reported to a leader in South Africa (N = 169) completed an online questionnaire which measured how they perceived their leader's role in health promotion and their own levels of work engagement and wellbeing. Linear regression analysis supported the hypotheses: Greater health promoting leadership was related to greater employee work engagement and this relationship was mediated by wellbeing. This suggests that leaders should take note of the importance of those leadership behaviours which promote employee's health and that it might be beneficial to train leaders to show these behaviours. The study findings suggest that health promoting leadership might not only benefit employees, but also the employing organisation due to its link with greater work engagement via greater mental and physical health. Further research should test this assumption as the study's descriptive design merely shows that the variables of interest are related, but not which one causes the other.

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Chapter 1

Introduction

Globally, there has been a decline in health following the SARS-CoV2 pandemic (Aburto et al., 2021; Blasco-Belled et al., 2022; Luy et al., 2019). Based on their systematic review on this topic with regards to mental health, Blasco-Belled et al.'s (2022) urge for mental health policies which focus on combatting the psychological effects of the pandemic through encouraging wellbeing practices and which consider the protective role of wellbeing against psychological ill-health.

This is relevant to organisations as research has consistently shown that taking care of employees both, physically and mentally, boosts employee's levels of engagement at work and extends employee tenure (Jiménez et al., 2017; Jordan et al., 2011; Montano et al., 2016). In addition, a systematic review and meta-analysis on work engagement interventions by Knight et al. (2017) revealed that lower wellbeing is related to lower work engagement, and Knight et al., (2019) reported that employee health and wellbeing are linked with work engagement. Work engagement matters, as it relates to positive organisational outcomes, such as lower absenteeism and job satisfaction (Bakker et al., 2011; Saks, 2006) as well as organisational commitment (Schaufeli et al., 2007).

It is thus especially important in the post-pandemic context to find ways in which employers can find ways to assist in boosting – or at least maintaining – their employees' wellbeing. Jiménez et al. (2017) proposed that the behaviour displayed by leaders plays a crucial role as leaders can shape the work environment in such a way that it promotes employees' psychological and physical health. In their health-promoting leadership (HPL) model they proposed seven aspects leaders need to consider. These are health awareness, adequate workloads, giving employees a sense of control over their work, providing adequate rewards, creating a sense of community, fairness, and behaving in line with health-promoting values.

Mokoaleli (2022) employed this model in the South African context. She considered the role of the seven HPL dimensions for (a) supporting wellbeing (b) reducing emotional exhaustion (an element of burnout) and (c) reducing health complaints among South African employees who had to quickly adapt to virtual work as a result of the SARS-CoV2 pandemic.

She found that HPL indeed related to employee wellbeing with greater levels of perceived HPL being related with greater wellbeing, but not with burnout or health complaints. She concluded that HPL might be relevant to maintain employee wellbeing, but may not provide a cure for employees who already experience poor emotional and physical health.

The research explored in this dissertation expanded on Mokoaleli's (2022) research by investigating if HPL could also promote organisational-level outcomes, in this case work engagement levels due to its link with wellbeing. As wellbeing relates to work engagement – as outlined above – a health-promoting work environment might thus be a way in which to prevent employee disengagement (Montano et al., 2016). This gave rise to the research question which guided the research presented in this dissertation.

1.1 Research Question

To what extent do the seven dimensions of Jiménez et al.'s (2017) HPL model predict work engagement amongst employees in South African organisations via HPL's link with employee wellbeing?

The research question is addressed in the following chapters. In Chapter 2, the literature on health-promoting leadership and its effects on work engagement and wellbeing is reviewed. Included is a review of literature which has considered the role of leadership in work engagement and wellbeing. The chapter concludes with the hypotheses which were drawn from existing literature in the field. In the Methods Chapter (Chapter 3) the procedures and manner in which the empirical data used to test the hypotheses was gathered and analyzed are explained. The empirical findings are presented in Chapter 4. Potential reasons for these results are discussed in Chapter 5. The research limitations, suggestions for additional study, and theoretical and practical applications are also included in this chapter which ends with a general conclusion.

Chapter 2

Literature review

After an overview of the conceptualisations of work engagement and wellbeing, the main theoretical framework, health promoting leadership, that guides this dissertation is outlined in this chapter. A summary of the research on health-promoting leadership and its connection to work engagement and wellbeing are also included. The hypotheses derived from the literature reviewed in the chapter are offered at the end.

2.1 Work Engagement and Disengagement: A definition

The dependent variable of this study, work engagement is discussed and defined in the following section, followed by an outline of the consequences of engaged and disengaged employees for the individual employee and the organisation.

2.1.1 **Work Engagement**

The term engagement in relation to work was first used by Kahn (1990). He considered personal engagement as the behaviours which employees show to bring their selves into the performance of work tasks, in other words as the degree of self-in-role. He described engaged employees as those who brought themselves into their work roles cognitively, physically, and emotionally. He viewed engagement to be important based on the idea that self-expression is a fundamental human need (Alderfer, 1972; Maslow, 1954). His conceptual model stipulated three psychological conditions under which employees show personal engagement: They need to feel that the task is meaningful, that they are safe to express themselves and that they have the resources available to bring their preferred selves into the role. Kahn's remained a theoretical model, however, in that it was not tested empirically.

Maslach and Leiter (1997; 2007) deemed engagement as the reverse of burnout, implying that burnout and engagement form opposite ends on a burnout-engagement continuum. They described engagement as an energetic state of involvement in activities which are fulfilling and increase professional efficacy. As they had defined burnout as consisting of three dimensions (exhaustion, cynicism or depersonalisation and reduced achievement), they assumed engagement to comprise three opposite components, which they termed, energy,

involvement, and efficacy. High engagement levels were thus indicated by low scores in burnout in their measures.

However, work engagement was described by scientists as: "…a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption" (Schaufeli et al., 2002, p. 74). Schaufeli et al. (2002) described engagement as a relatively persistent state and pervasive across tasks and adopted Maslach et al. (1996)'s three-dimensional conceptualisation, but they contested that it was the reverse of burnout. They thus developed a specific engagement measure. It measures *vigour* as high levels of energy and mental resilience when engaging in work tasks, and as putting effort into and persisting on tasks. *Dedication* goes beyond merely identifying with one's work and its tasks. It includes an affective and cognitive component relating to a sense to enthusiasm, inspiration, significance, pride and challenge. *Absorption* refers to high concentration levels at work which are accompanied by being engrossed in work tasks (see also Bakker et al., 2008). While not uncontested, today, Schaufeli et al. (2002)'s engagement conceptualisation as related to, but distinct from, burnout is the most common. Mokoaleli (2022)'s results in a South African sample supported the idea that burnout and engagement are indeed separate constructs as they related differently to HPL. Schaufeli et al. (2002)'s engagement definition was thus also adopted in this study.

2.1.2 **Outcomes of Work engagement and Disengagement**

Although much research has been conducted suggesting that engagement has positive outcomes such as job satisfaction (Kossyva et al., 2023; Schaufeli et al., 2008) and disengagement negative impact, e.g., higher employee turnover and lower productivity (Montano et al., 2016), recent debates have brought this into question. In their systematic review of literature on disengagement, Afrahi et al. (2022) found that there could also be positive aspects arising from employee disengagement. This suggests that high levels of work engagement are not always desirable. Employees' disengagement from work, for example, might be an appropriate coping technique in instances in which employees experience prolonged periods of work-overload. Equally so, disengagement might be beneficial for employees in uncontrollable situations such as the COVID-19 pandemic as discussed by Hubley and Scholer (2022). Here disengagement from goals which have become unattainable due to changed external circumstances is an effective self-regulatory coping mechanism – and greater self-regulation supports wellbeing. Kahn (1990, p.694) defined personal

disengagement as “the uncoupling of selves from work roles; in disengagement people withdraw and defend themselves physically, cognitively, or emotionally during role performances”. For employers, disengagement by employees could mean performance losses, however. Even though it is adaptive for employees, employers might want to avoid their disengagement.

This is as disengagement has been found to have negative organisational outcomes, Bhana and Suknunan’s (2021) mixed method study conducted in South Africa which explored leadership factors that influenced work engagement and disengagement, found that a higher presence of employee disengagement led to workplace stress, more frequent employee departures and low productivity of employees. In support of the negative impact of disengagement from an organisational perspective, a study conducted in the United States of America highlighted that high levels of workforce disengagement cost organisations hundreds of billions of dollars per annum, in particular because of the high employee turnover, the cost of recruiting and training new employees and lost revenue due to poor productivity (Myers, 2018). Two questions that may need to be answered is why these employees were disengaged, and what the causes of disengagement were, given the costly impact.

Wolff (2019) found that employee disengagement linked to how valued the employee felt, the alignment of personal talent to organisational goals, whether employees understood how their work impacted the vision and mission of the company, and how fairly employees felt treated. Wolff investigated how Acme Corp. reduced employee disengagement from 71% to 26% through focussing on helping executive leadership understand the root causes of disengagement and finding solutions. The outcomes explained why teambuilding, social events, salary increases and other interventions that did not address the root causes of employee disengagement had been unsuccessful. Wolff concluded that if employers are serious about generating high levels of engagement, they need to address the causes of employee disengagement.

In support of this thinking, a study by Moyo (2020) showed that during the Covid-19 pandemic, which created changed work circumstances globally based on health-concerns, work engagement could be maintained when employers demonstrated that they prioritised employee health. The study showed that engagement was higher when employees felt that their health and safety was a priority. Based on these results Moyo (2020) urged employers to take care of

their employees' health and safety needs should they wish to influence positive behavioural outcomes.

In organisational psychology, the term *wellbeing* is often considered alongside employee health and a healthy workplace; for example, the PATH Model (Practices for the Achievement of Total Health) used by the American Psychological Association (APA) for the *Psychologically Healthy Workplace Award program* is a framework for investigating healthy workplace practices in connection to employee wellbeing, and organisational enhancements. The categories within this model are considered indicators of healthy workplace practices (Grawitch et al., 2006). However, there are different conceptualisations of the wellbeing construct and the following section provides an overview of these and presents the definition adopted in this study.

2.2 Wellbeing: A definition

In this section, the wellbeing construct is discussed and defined. It includes a rationale for the choice of subjective wellbeing in this study.

The understanding of wellbeing and its relationship to physical and mental health varies widely, even within organisations. The World Health Organisation (WHO), for example, defined a healthy workplace as "one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and wellbeing of all workers and the sustainability of the workplace-" (WHO Healthy Workplace and Framework Model, 2010; p.6.), thus separating "health" from "wellbeing". In 2020, its definition suggested that health is not equivalent to, but comprises wellbeing, implying that health is an overarching term: It defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2020; p. 1). Finally, while health is seen as an overarching term in the latest WHO definition, Bennet et al. (2017) considered wellbeing as the overarching concept: They saw positive physical and mental health, the ability to offer and receive support, and leading a meaningful life as components of wellbeing. It is thus important to carefully outline how wellbeing is understood when conducting wellbeing research.

In psychology, subjective wellbeing (SWB) models are the most common. They concentrate on the ways that internal (personal) and external (social) elements affect an individual's self-perceived wellbeing (Das et al., 2020). The most widely used SWB model is Ed Diener's (Diener, 1984; Diener et al., 2002; Diener & Ryan, 2009; Diener, 2013). He

defined SWB as “a person’s cognitive and affective evaluations of his or her life as a whole” (Diener et al., 2002, p.63). Affective evaluations are based on emotional reactions to events, cognitive evaluations refer to assessments of the person’s life satisfaction and fulfilment. SWB is thus a wide concept that includes having pleasant and little negative emotions and moods, low levels of negative emotions and moods, and being satisfied with one’s life. This definition of wellbeing relates to the way a person feels and thinks about their life, encompassing both positive and negative thoughts and was thus adopted in this research because of the benefit that positive emotions have on health.

2.3 The relevance of subjective wellbeing at individual, societal and organisational levels: A brief overview

Numerous positive effects of SWB – and negative consequences of a lack thereof – have been demonstrated empirically. Drawing on the results of a systematic review and meta-analysis of research published between January and December 2020 which considered wellbeing and psychological distress prevalence during the SARS-CoV2 pandemic, and the role of SWB as a protector against mental ill-health, for example, Blasco-Belled et al. (2022) urged for health agendas to incorporate strategies to promote health and wellbeing. That wellbeing research is considered important for society was also highlighted in the nomination of the three wellbeing researchers Richard Easterlin, Andrew Oswald and Richard Layard for the Nobel peace prize in 2022 (Wellbeing Research Centre, 2022). As organisations are embedded and actors in society they have a responsibility towards society. It can thus be argued that, it is important for them to contribute towards the wellbeing of their employees. In addition, organisations themselves also benefit from employee wellbeing. Scherer and Maier (2018), for example, reported that workplace wellness initiatives not only enhanced staff members’ health and wellbeing, but were also related to lower absenteeism and turnover, and boosted job satisfaction and engagement. Equally so, greater wellbeing is related to higher work engagement (Shimazu et al., 2015). When employees are well, the cost to company is thus reduced, due to lower absenteeism and greater productivity while also reducing healthcare costs (McLellan, 2017). Employers may therefore aim to achieve the safest, healthiest, and most productive workforce possible for both, business and altruistic, objectives. This might explain why organisational wellness programmes such as Employee Assistance Programs (EAP’s), Health Promotion Programs (HPP’s) and health interventions are common. For example, in the United States of America, four out of five large organisations offered

workplace wellness initiatives to encourage healthy behaviour, with the goal of reducing and managing healthcare costs (Abraham, 2019). The following section provides an overview of role leaders can have on the wellbeing of employees.

2.4 The Health Promoting Leadership (HPL) Model as a Theoretical Framework

Bennet et al. (2017) outlined why leaders can influence employee wellbeing-levels. One reason is that leaders can formulate policies that address wellbeing and health. Leaders also have the power to include wellbeing into the organisation's strategy and present the vision, mission and values of the organisation to employees in a way that not only promotes wellbeing but also work engagement. In addition, leaders are able to influence the culture of the organisation through the way in which they behave and, treat employees to build trust and psychological safety. Psychological safety exists when individuals believe they can speak up, ask for assistance, own up to mistakes, or challenge the status quo in their workplace without fear of facing negative repercussions for doing so (Edmondson & Lei, 2014).

Nielsen et al.'s (2017), showed that the outcomes of healthy leader-employee relationships were frequently researched. They found that resources at the leadership level were significantly related to both employee wellbeing and employee performance. Their findings indicated that interventions focussing on leadership resources may be effective in enhancing both employee wellbeing and performance. As a guide to the kind of behaviour which leaders should show to create healthy work environments, Jiménez et al.'s (2017) proposed the health promoting leadership (HPL) model. The next section provides an overview of this model which has been chosen as the theoretical framework for the research presented in this dissertation.

The term "health-promoting leadership" (HPL) primarily refers to the actions and attitudes of those in positions of authority who foster a positive workplace culture, encourage healthy employee behaviour, and create settings that support both, physical and mental, health (Jiménez et al., 2017). In their HPL model, Jiménez et al. do not describe a specific leadership style or approach, but a set of behaviours which leaders can show to alter the work environment and thus influence employees' health indirectly. Its value lies in it having been derived from existing literature in the field. Specifically, Jiménez et al., based their model on the six organisational risk factors for employee burnout which Maslach and Leiter (2008) had identified and propose that an absence of these risks support employee wellbeing. The model thus postulates that leaders need to ensure the following six conditions are met:

- workloads are sustainable
  (leaders need to ensure sufficient time for recovery to offset demanding workloads)
- employees feel they have control over their work
  (leaders need to enable employees to exert control over their work, e.g., by involving them in problem-solving)
- efforts, contributions, and achievements are rewarded
  (leaders need to appreciate achieved work, notice efforts made and acknowledge contributions)
- there is a sense of community among employees
  (leaders need to create positive social interactions at work)
- employees perceive the work environment as fair
  (leaders need to ensure that procedures, decisions, and outcomes are seen as fairly distributed)
- regular communication of values
  (leaders should communicate the organizational values regularly and highlight consistencies between employees' and the organisation's values)

To these, Jiménez et al. (2017) added health awareness as a seventh dimension. It refers to the leader's attitude towards their own health and health in general. The reason is that they assumed that leaders' health awareness might transfer to and be modelled by employees. To measure these behaviours, Jiménez et al. amended Leiter and Maslach's (2003) areas of worklife scale and added self-developed health awareness items. This resulted in the HPL conditions (HPLC) questionnaire which can be administered to leaders as a self-assessment or to employees as an external assessment of their leader's HPL behaviours (Yao et al., 2021).

2.5 The link between HPL, subjective wellbeing and work engagement

The positive effects of SWB for individuals, organisations and society have been sketched out in Section 2.3. At an organisational level, these included lower absenteeism and turnover (Scherer & Mayer, 2018). In section 2.4, evidence supporting the role of leaders in creating a health promoting work environment has been outlined. In this section the relationships between leadership in general and HPL in particular, SWB and work engagement are explored.

According to Carasco-Saul et al. (2015), even though leadership is one of the subjects most explored in organisational sciences, and even though employee and work engagement has been a focus of research for the past 30 years, research on the role of leaders in creating or maintaining work engagement is sparce. The research that does exist shows that leaders have an important influence, though. One such study is Sarwar et al.'s (2020). They found that perceived ethical leadership among individuals working in Italian and Pakistani hospitality industries (N = 697) related to wellbeing and work engagement. They assumed that this is as unethical leadership behaviour may be perceived as toxic behaviour, such as taking ownership of other people's efforts, blaming subordinates for leadership failures, unfair treatment or preferential treatment to certain employees. The resulting toxic work environment may trigger a decline in wellbeing and work disengagement may occur as it causes anxiety and stress. In this way, Sarwar et al. (2020) hypothesised that it is the work environment which leaders create through their behaviour that impacts employee wellbeing.

Similarly, Kaluza et al., (2020) showed that management perceptions of organizational health climate influenced work engagement and employee exhaustion. Bakker and De Vries (2021) found that as work stress increased, employees' need for stable resources increased, such as access to healthy leadership practices to assist with temporary fatigue to prevent long-term burnout. These results support the notion that when leaders prioritize employee wellbeing and foster a positive work environment, employees may be more likely to report higher SWB, which may then translate into better engagement at work.

There are a number of factors that could make SWB a useful mediator in the leadership-work engagement relationship. Employees are more likely to feel a sense of psychological safety and trust and, as a result, may feel happier and more satisfied with their lives overall when they believe that their leaders value and promote their wellness. Potter et al. (2022) found that when an environment of psychological safety is created, this has a positive impact on employee wellbeing. Employees may therefore be inspired to become more actively involved in their work and organisation as a result of this positive affective state.

Furthermore, a positive workplace culture that puts emphasis on employee wellbeing may lessen stress and burnout, which are significant obstacles to engagement. According to Aronsson et al. (2017)'s systematic review and meta-analysis on the link between working conditions and burnout, results indicated that employees were less likely to experience emotional exhaustion when they reported high levels of job support and organisational fairness.

The assumption is that employees are more engaged in their work when they are physically and psychologically well because they are better able to concentrate on their tasks and find meaning and purpose in their jobs.

Finally, SWB might guard against negative work experiences. For example, an employee who has a strong sense of SWB, may recover more quickly and continue to be interested in their work if they experience a setback or conflict. This might be as SWB is linked with greater resilience. Resilience protects individuals from the consequences associated with stress. When resilient, individuals can maintain their performance and wellbeing when exposed to stressful situations (Leon & Halbesleben, 2013, p.65). Therefore, by increasing pleasant affective states, lowering stress and burnout, and protecting against negative experiences, SWB may play a crucial role in mediating the relationship between health-promoting leadership and work engagement.

Hypotheses

Based on the literature presented in this chapter which describes the likely relationships between HPL, wellbeing and work engagement the following hypotheses have been postulated:

H1: The seven dimensions of HPL are correlated with SWB.

H2: The seven dimensions of HPL predict work engagement.

H3: SWB predicts work engagement.

H4: The relationship between HPL and engagement is mediated by SWB.

In the following chapter, the research methods used to test the hypotheses empirically are discussed, including the research design, procedures and measurement scales.

Chapter 3

Methods

This chapter outlined the research design used to test the hypotheses postulated at the end of the previous chapter. It outlines the sampling technique and describes the study participants. The research procedure, data analysis instruments, and ethics will also be explained.

3.1 Research Design

This study employed a descriptive, cross-sectional survey design as the goal was to describe relationships between variables. (Coetzee & Schreuder, 2016). By examining a sample of a population, survey research offers a quantitative, that is numerical depiction of the trends, attitudes, or opinions of that sample which can then be generalised to the overall population (Fowler, 2008 as cited in Creswell, 2014).

A self-report online questionnaire was used to collect the quantitative data at one point in time. Data was collected through the use of Qualtrics, a cloud-based survey tool. A link to the survey was distributed via the personal professional networks LinkedIn, WhatsApp and Facebook with a request to reshare the post.

3.2 Sampling and Participants

Participants were limited to individuals who worked within the geographical boundaries of South Africa and only participants who reported to a supervisor were selected, as they needed to answer items measuring health promoting leadership in relation to their supervisor. This study utilised non-probability sampling as it would have been impossible to determine the population (South African employees) from which to sample randomly (Gravetter & Forzano, 2018). The type of nonprobability sampling employed was convenience sampling, as the interest group was chosen for its accessibility (Vehovar et al., 2016). In addition to this, snowball sampling was used to increase participation and sample size by requesting those seeing the link to pass it through their social networks (Leighton et al., 2021). Participants were requested to pass on the survey link and information about the study to their networks.

All employees working in South Africa in an organisation were eligible for the study. The only boundaries were geographical, as the employee needed to be working in South Africa to be eligible to participate in the study, and had to report to a supervisor.

In total, 225 participants completed the questionnaire. However, the final sample was made up of $N = 169$ participants. Of the omitted response sets, three were from participants who did not report to a leader and a further three respondents had not provided consent. Eight individuals completed the survey as if they were participants to identify any technical issues, unclear instructions or difficulties in understanding items before the survey was sent out to collect data. After receiving their feedback, nothing was found not to be working and the survey was left unchanged. Of the omitted response sets, 42 were incomplete. Typically, age and gender are assessed to describe the sample as this may assist in interpreting the results. However, these descriptors were not considered relevant given the topic of this study and related data not collected. As indicated in Table 1, three quarters of the participants resided in Gauteng ($N = 63$) or Eastern Cape Provinces ($N = 62$). Just less than half the sample worked in the retail and distribution sector (tertiary sector in Table 1) and approximately one third in high level human service, such as government, universities or investment firms (quinary sector in Table 1).

Table 1: ***Number and Percentage of Participants per Province and Industry Sector in the Final Sample (N = 169)***

Demographic	Category	Frequency	%
Province	Eastern Cape	62	36.90
	Free State	1	.60
	Gauteng	63	37.50
	KwaZulu Natal	15	8.93
	Limpopo	2	1.19
	Mpumalanga	3	1.79
	North West	1	.60
	Western Cape	21	12.50
	Northern Cape	0	0
	Province not specified	1	0.60
Industry Sector	Primary*	8	4.79
	Secondary	23	13.77
	Tertiary	69	41.32
	Quaternary	14	8.38
	Quinary	53	31.74
	Industry not specified	2	1.19

Note: *primary sector*: industries that produce raw materials, including agriculture, forestry, fishing, and mining; *secondary sector* = businesses which use raw resources to make finished goods, e.g. the construction and manufacturing industry; *tertiary sector* = retail and distribution; *quaternary sector* = information industry, includes information technology, research and development; *quinary sector* = high-level human services in government, universities and investment houses. Source: https://en.wikipedia.org/wiki/Outline_of_industry [accessed 16 July 2023].

3.3 Procedure

A research proposal outlining the study was presented to a panel of academics from the University of Cape Town's Section of Organisational Psychology to determine the feasibility and suitability of the study in terms of topic, planned methodology, and scope. Once approved and accepted, permission was requested from the University of Cape Town's Commerce Faculty's Ethics in Research Committee. Upon its receipt, a Qualtrics survey was distributed via professional networks LinkedIn, WhatsApp and FaceBook where links to the survey were posted following an invitation to participate in the study. Data collection took place between 21 July 2022 and 8 August 2022. When accessing the link, participants were guided to the questionnaire cover letter presented in Appendix D which presented an overview of the study purpose and what participation in the study entailed.

3.4 Data collection instrument

Following the cover letter which outlined the purpose of the study and survey participation information, the first section of the questionnaire included demographic items. These were whether the participant reported to a leader (yes/no); if they were working in South Africa (yes/no); in which of the nine South African provinces the participant worked; and which industry (primary, secondary, tertiary, quaternary and quinary specified and explained as shown in the notes of Table 1). This section was followed by pre-existing scales to assess the variables of interest, health-promoting leadership (HPL), subjective wellbeing (SWB) and work engagement (WE). A copy of the full questionnaire instrument is provided in the appendix. An overview of each of the scales utilised is provided in the following sections.

3.4.1 Utrecht Work Engagement Scale (UWES-9).

Schaufeli and Bakker's (2003) nine item short version of the Utrecht Work Engagement Scale (UWES-9) was used to measure work engagement. The scale measures vigour (example item: "At work I am bursting with energy"), dedication (example item: "My job inspires me") and absorption (example item "I get carried away when I am working") with three positively worded items each. Participants provided their answers on a seven-point scale ranging from 0 (never) to 6 (every day).

Even though De Bruin et al. (2013) questioned the dimensionality and thus the construct validity of the 9-item UWES-9 scale, more recent studies relating to job performance and

engagement have found the scale to be valid as reported by Martin (2017). For this reason, the UWES-9 was used to measure work engagement in this study.

3.4.2 Health-Promoting Leadership scale

Jiménez et al's (2017) HPLQ was used to measure HPL as it aligns with the HPL model which forms the theoretical framework for this study. The HPLQ consists of 21 items. Each of the seven dimensions is measured through three items. The scale measures *health awareness* (example item: "all employees are motivated to take care of their health"), *low workload* (example item: "work under high pressure is not carried out over a longer period of time"), *control* (example item: "at work autonomous and independent action can be taken"), *reward* (example item: "efforts do not go unnoticed"), *community* (example item: "work colleagues talk openly to each other"), *fairness* (example item: "all employees are treated in a fair manner") and *values* (example item "the employees share the company's values"). The reliability measured as Cronbach's alphas was satisfactory across all dimensions in Jiménez et al.'s research. As an indication of convergent validity the HPLQ had positive correlations with Franke and Felfe's (2011) health orientated leadership scale. Participants provided their answers using the same response format as used on the UWES-9 scale.

3.4.3 The WHO-5 Well-Being Index

The WHO-5 Well-Being Index is a widely-used subjective wellbeing scale and consists of five items which provide a brief assessment of an individual's subjective wellbeing. The scale has been effectively used as a generic well-being scale across a wide range of research domains and has satisfactory validity as an outcome measure in therapeutic studies as well as a screening tool for depression. The WHO5 may be used in research studies to compare the well-being of different groups or to evaluate well-being over time, as well as in clinical practice. It was first published in 1998 and has been translated into over 30 languages (Topp et al., 2015). Participants indicate for each item how they felt over the past two weeks using a six-point Likert scale (0 = at no time; 5 = all of the time). Example items include: "I have felt cheerful and in good spirits" and "I woke up feeling fresh and rested".

3.5 Data Analysis

Data was analysed through SPSS, Version 27. Firstly, the reliability and validity of the scales was calculated. Descriptive statistics were then determined to describe the sample and central tendencies and dispersion of participants' responses on the scales. Inferential statistics were used to test the hypotheses. Specifically, linear and multiple regression was used. To conduct mediation analysis Hayes Process v3.3 macro was used.

3.6 Ethical Considerations

A cover letter informed participants of the study purpose, that the following online survey would be anonymous and participation voluntary with the option to withdraw from the study at any time. No negative consequences were anticipated for participants as the item content was not of a sensitive nature, and participation was not expected to cause harm. In particular, the WHO-5 questionnaire consisted of non-invasive items which are all positively worded. All data was kept confidential and was accessible only to the researcher through password protected files. While IP addresses are automatically collected in Qualtrics, these were deleted in the dataset used for the analyses. Additionally, participants were assured the anonymity of their answers. Furthermore, participants were not asked to reveal their names or identities.

Chapter 4

Results

The outcomes of the statistical analyses conducted are presented in this chapter. The reliability and validity of each scale were assessed, through Cronbach's alpha and exploratory factor analysis (EFA), respectively. Specifically, Principal Axis Factoring (PAF) with direct oblimin rotation was used as EFA method. The hypotheses were then tested by means of linear regression and mediation analysis.

4.1 Scale Dimensionality

For statistical tests to provide trustworthy results, the data used for the analyses needs to meet specific assumptions. For EFA, one of these include that the sample size needs to be large enough. According to Nunally (1978, as cited in Field, 2018) a minimum of ten participants per item is required. The sample size was thus large enough to test the dimensionality of the WHO-5 index (5 items) and the UWES-9 (9 items). However, the HPLQ comprised 21 items. This means that a sample size of N = 210 participants would have been required. This is larger than the study sample (N = 169). Guadagnoli and Velicer (1988, as cited in Field, 2018) reported that if a factor has four or more loadings above .60 then it is reliable regardless of sample size; factors with ten or more loadings above .40 are reliable if the sample size is more than 150. Therefore, the sample size of N = 169 might have been appropriate if the factor loading requirements were fulfilled. For this reason, EFA was run for all scales with specific attention given to the factor loadings of the HPLQ items.

The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was considered to check if the distribution of data in the sample was appropriate for EFA for each of the scales. The KMO value should be greater than .50. Bartlett's test of sphericity was computed to check if the scale's items were sufficiently correlated for the data to be regarded eligible for EFA (Field, 2018). A significant Bartlett's test of sphericity shows that the assumption has been met. As shown in Table 2 the KMO value and Bartlett's test results were adequate for all three scales.

Table 2: KMO and Bartlett's test for the Health Promoting Leadership Questionnaire (HPLQ), the short version of the Utrecht Work Engagement Scale (UWES-9) and the World Health Organisation's Wellbeing Index (WHO-5)

	KMO Value	Bartlett's test of sphericity
HPLQ (21 items)	.921	$\chi2_{210} = 2\ 652.577$***
UWES-9 (9 items)	.918	$\chi2_{36} = 1\ 327.138$ ***
WHO-5 (5 items)	.854	$\chi2_{10} = 487.458$ ***

Note * < p.05, ** p<.01 *** p < .001

EFA was then carried out on the three scales to see whether the HPLQ, UWES-9 and WHO-5 measured the theoretical variables they were meant to assess (Field, 2018; Tabachnick & Fidell, 2014). As EFA explains the underlying factor structure of scales, it enables the researcher to assess how much the variables of interest are signified by the factors discovered (Henson & Roberts, 2006). Principal Axis Factoring was the factor analytical procedure used. To enhance the clarity of the extracted factor structure for multidimensional scales, the analysis was conducted with oblique rotation (direct oblimin) to account for the fact that different factors emerging in the same scale would likely be related.

The number of factors to consider relevant was determined using Kaiser's (1960) criterion. Subsequently, factors with eigenvalues above one were retained. Following Tabachnick and Fidell's (2014) guidelines items were considered to load significantly on a factor if their factor loading was above .35. Items that loaded significantly onto more than one factor with an absolute loading difference of less than .25 were excluded from further analysis as they could not be allocated clearly to one specific factor.

4.1.1 Health Promoting Leadership

1) The initial EFA revealed that 18 out of 21 items displayed substantial communalities above the threshold of .40, suggesting a satisfactory degree of shared variance among the measured variables (displayed in Tables 13 and 14 in the appendix). However, the three items that fell below the recommended communalities level of .40 were HPLQ 4 "there is enough time left for work to be done", HPLQ 5 "work under high pressure is not carried out over a longer period of time" and HPLQ 6 "work does not significantly affect private life", indicating potential concerns regarding their contribution to the underlying constructs. Four

factors with eigenvalues above one were found (see Table 15 in the appendix). The first factor explained 48.99% of the variance, the second factor 8.42%, the third factor 5.74% and the fourth factor 5.20%. The pattern matrix highlighted that item 4 “there is enough time left for work to be done” and item 7 “the resources and scope for personal development at work can be influenced” failed to load significantly onto any factor, indicating a lack of association with the intended latent constructs and thus items 4 and 7 were removed (all item loadings are displayed in Table 15). For the **21 item** HPL scale, the Kaiser-Meyer-Olkin measure of sampling adequacy was .921, above the recommended value of .50, and Barlett’s test of sphericity was significant ($\chi 2$ 210 = 2 652.577, $p < .001$).

2) In response to these findings, a further EFA was conducted across the remaining items in the HPL scale. For the **19 item** HPL scale, the Kaiser-Meyer-Olkin measure of sampling adequacy was .920, above the recommended value of .50, and Barlett’s test of sphericity was significant ($\chi 2$ 171 = 2 505.937, $p < .001$). Three factors with eigenvalues above one were now found which explained 51.49%, 8.64%, and 6.33 % of the variance (eigenvalues and percentages of explained variance are shown in the pattern matrix in Tables 17 and 18 in the appendix). The HPL communalities are displayed in Table 16 in the appendix. The pattern matrix revealed that HPLQ Item 5 “work under high pressure is not carried out over a longer period of time” did not load significantly onto any factor and this item was removed.

3) For the **18 item** HPL scale, the Kaiser-Meyer-Olkin measure of sampling adequacy was .921 and Barlett’s test of sphericity was significant ($\chi 2$ 153 = 2457.975, $p < .001$). Three factors with eigenvalues above one again emerged explaining 53.65%, 8.63% and 6.37% respectively . HPLQ Item 6 “work does not significantly affect private life” did not load significantly onto any factor and this item was removed (eigenvalues and percentages of explained variance are shown in the pattern matrix in Tables 20 and 21, and HPL communalities in table 19).

4) The final EFA consisted of **17 items** and revealed three factors with eigenvalues above one. The Kaiser-Meyer-Olkin measure of sampling adequacy was .924 and Barlett’s test of sphericity was significant ($\chi 2$ 136 = 2430.645, $p < .001$). The analysis revealed that the first factor explained 56.79%, the second factor 8.51%

and the third factor 6.23% of the variance (eigenvalues and percentages of explained variance are shown in the pattern matrix in Table 4 below and in Tables 23 and 24 in the appendix and HPL communalities in Table 22). The first factor included the HPL items which were meant to assess *Fairness* (Q16 "all resources are fairly distributed", Q17 "all employees are treated in a fair manner", Q18 "one's career depends on competencies and not on the connections someone has"), *Values* (Q19 "the employees share the company's values", Q20 "the employees' daily activities correspond with the company's objectives", Q21 "personal career interests are in line with the objectives of the company") and *Community* (Q13 "work colleagues support each other", Q14 "there is a good cooperation between all work colleagues", Q15 "work colleagues talk openly to each other"). As these three aspects relate to an employee's work life it was labelled *Worklife Areas*. The items also closely resembled the aspects captured in the *organisational justice* construct. Greenberg (2009) defined interactional, procedural and distributive justice as the manner in which interactions, processes communicated and outcomes distributed to employees which, in turn, shapes their perception of fairness in the workplace. The second factor included the HPL *Health Awareness* items (Q1 "the health of all employees is promoted", Q2 "all employees are motivated to take care of their health", Q3 "the health of the employees is highly valued") and the third factor included the HPL items intended to measure *Reward* (Q10 "work is appreciated", Q11 "efforts do not go unnoticed", Q12 "all contributions are being acknowledged") and one item intended to measure Control (Q8 "at work autonomous and independent action can be taken").

Each participant was thus allocated three HPL scores: One indicating their perceptions of their worklife areas (by averaging the scores obtained on the items belonging to this HPL dimension), one indicating their perceptions of their health awareness, and one indicating their perception of reward. A high score in the worklife areas domain indicates that individuals perceive their leader to cultivate a supportive community-like work environment where they feel that fair treatment is highly encouraged and organisational values are in line with employee values. Participants were then allocated an overall HPL score by averaging their scores on the three HPL dimensions.

The KMO and Bartlett's values are summarised below (see Table 3). Item loadings of the 3 HPLQ dimensions on the underlying factor are displayed in Table 4.

Table 3: KMO and Bartlett's test for the Health Promoting Leadership Questionnaire (HPLQ) and Exploratory Factor Analysis Outcomes

	KMO Value	Bartlett's test of sphericity
HPLQ EFA First (21 items)	.921	$\chi 2_{210} = 2\ 652.577$***
HPLQ EFA Second (19 items)	.920	$\chi 2_{171} = 2\ 505.937$***
HPLQ EFA Third (18 items)	.921	$\chi 2_{153} = 2\ 457.975$***
HPLQ EFA Final (17 items)	.924	$\chi 2_{136} = 2\ 430.645$***
HPLQ Worklife Areas (10 items)	.909	$\chi 2_{45} = 1\ 289.601$***
HPLQ Health Awareness (3 items)	.754	$X_3 = 470.273$***
HPLQ Reward (4 items)	.742	$X_6 = 322.400$***

Note * < p.05, ** p<.01 *** p < .001

Table 4: ***Factor Loadings of 17 item HPL Scale***

Items (My leader takes care that: -)	Factor		
	Worklife Areas	Health Awareness	Reward
Q20.HPL. the employees' daily activities correspond with the company's objectives.	.896		
Q18.HPL. one's career depends on competencies and not on the connections someone has.	.845		
Q19.HPL. the employees share the company's values.	.825		
Q14.HPL. there is a good cooperation between all work colleagues.	.693		
Q15.HPL. work colleagues talk openly to each other.	.680		
Q21.HPL. personal career interests are in line with the objectives of the company	.658		
Q16.HPL. all resources are fairly distributed.	.650		
Q17.HPL. all employees are treated in a fair manner.	.641		
Q13.HPL. work colleagues support each other.	.597		
Q9.HPL. all have the necessary scope to do their work.	.439		
Q2.HPL. all employees are motivated to take care of their health.		.978	
Q1.HPL. the health of all employees is promoted.		.874	
Q3.HPL. the health of the employees is highly valued.		.784	
Q11.HPL. efforts do not go unnoticed.			.677
Q12.HPL. all contributions are being acknowledged.			.659
Q10.HPL. work is appreciated.			.553
Q8.HPL. at work autonomous and independent action can be taken.			.545
Eigenvalue	9.655	1.447	1.059
Variance Explained (%)	56.79%	8.51%	6.23%

Note: Extraction method: Principal Axis Factoring

4.1.2 WHO-5

For the WHO-5 scale, the EFA revealed one factor with an eigenvalue above one (3.542). This factor explained 70.84% of the total variance in the five WHO-5 items (all eigenvalues and explained variances are displayed in Table 25 in the Appendix). Table 5 shows the factor loadings for each of the five items. These all exceeded .70 and were thus significant.

Table 5: ***Factor Loadings of WHO-5 Wellbeing Scale***

Items	Factor
WB_1 - I have felt cheerful and in good spirits.	.852
WB_2 - I have felt calm and relaxed	.809
WB_3 - I have felt active and vigorous	.811
WB_4 - I woke up feeling fresh and rested	.759
WB_5 - My daily life has been filled with things that interest me	.754
Eigenvalue	3.542
Variance Explained (%)	70.844

Note: Extraction method: Principal Axis Factoring

4.1.3 UWES-9

The results of the EFA including the nine UWES-9 items did not provide the theoretically assumed three factor structure. Only one factor with eigenvalue above one, emerged. This eigenvalue was 6.05 and explained 67.25% of the variance in the items. A table showing all eigenvalues and explained variances is presented in Table 26 in the appendix. All nine items loaded significantly on this factor (see Table 6).

Table 6: Factor Loadings of UWES-9 Work Engagement Scale

	Factor
Items	
EE_1 - At my work, I feel bursting with energy	.844
EE_2 - At my job, I feel strong and vigorous	.824
EE_3 - I am enthusiastic about my job	.932
EE_4 - My job inspires me	.914
EE_5 - When I get up in the morning, I feel like going to work	.868
EE_6 - I feel happy when I am working intensely	.772
EE_7 - I am proud of the work that I do	.695
EE_8 - I am immersed in my work	.630
EE_9 - I get carried away when I'm working	.636
Eigenvalue	6.052
Variance Explained (%)	67.249

Note: Extraction Method: Principal Axis Factoring

4.2 Reliability analysis

Reliability analysis was performed on each of the scales. Specifically, the scales' internal consistency was determined through Cronbach's alpha. The Cronbach's alpha for each scale was above the threshold of .70 recommended by Field (2018) and all corrected item-total correlations were satisfactory with values above .30 (Warmbrod, 2014). The Cronbach alphas range resulted in satisfactory internal consistency across all scales (see Table 7 below).

Table 7: ***Internal Consistency Reliability of Scales***

Scale	No of items	Cronbach's alpha	Range of corrected item-total correlations
HPL (Worklife, HA + Reward)	17	.951	.462 < r < .861
HPL – Worklife Areas	10	.938	.650 < r < .844
HPL – Health Awareness	3	.943	.863 < r < .913
HPL – Reward	4	.835	.557 < r < .792
WHO-5	5	.895	.708 < r < .789
UWES-9	9	.938	.618 < r < .898

4.3 Descriptive Statistics

All items were answered using Likert scales ranging from 1 to 7 for the Health Promoting Leadership (HPL) scale, where 1 indicated the lowest score and 7 the highest score. High scores on the HPL scale indicated employees perceived their leaders to frequently engage in behaviours that promoted health within their organisation and low scores indicated low or no HPL behaviour from their leaders.

The WHO-5 Wellbeing Index (1998) used a 6-point Likert scale ranging from 1 to 6 from “at no time” to “all of the time” where low scores indicated employee perceived state of wellbeing to be low and high scores indicated employee perception of wellbeing to be high.

The UWES-9 work engagement survey used a 7-point Likert-response scale from “never” until “always” with scales ranging from 1 to 7, where 1 indicated the lowest score and 7 the highest score. A score of one is indicative of no engagement and a score of six is indicative of high engagement. Table 8 provides an overview of the descriptive results related to each scale and subscale.

Table 8: ***Mean (M), Minimum (Min), Maximum (Max), Standard Error (SE), Standard Deviation (SD), Skewness and Kurtosis for each of the study variables in the sample (N = 169)***

Measurement scale	M	Min	Max	SE	SD	Skewness	Kurtosis
Health-promoting							
Leadership							
HPL Overall	4.76	1.06	7	.10	1.33	-.29	-.51
HPL Worklife Areas	5.02	1.10	7	.11	1.39	-.50	-.36
HPL Health Awareness	4.12	1.00	7	.14	1.82	-.05	-.96
HPL Reward	4.59	1.00	7	.11	1.45	-.19	-.71
Wellbeing							
WHO-5	3.79	1.40	6	.08	1.07	-.36	-.68
Work Engagement							
UWES-9							
	5.00	1.22	7	.10	1.33	-.51	-.48

Note: *N = Number of respondents after listwise deletion; M =mean; Min =minimum; Max =maximum; SE = standard* error of mean; *SD = standard deviation.*

Table 17 indicates that participants experienced their leaders to facilitate their *worklife areas* frequently and most frequently of all health promoting leadership dimensions (M = 5.02; SD = 1.39). Leaders promoted *health awareness* the least frequently, but the mean was still slightly above the scale's midpoint (M = 4.12; SD = 1.82). These scores indicated that, on average, leaders were perceived to promote a working environment in which employees benefited from a sense of *fairness, clear values and community* (*worklife areas*) and

occasionally had a sense of *reward* and *health awareness*. With regards to subjective *well-being* and *work engagement*, participants, on average, occasionally experienced work-related well-being (M = 3.79; SD = 1.07, scale midpoint = 3.5) and had high levels of work engagement (M = 5.00; SD = 1.33, scale midpoint = 4).

4.4 Correlation Analysis

Before the specific hypotheses were tested, the bivariate correlations between the study variables were determined using Pearson product-moment-correlation. The first study hypothesis had been that the seven HLP dimensions hypothesised by Jiménez et al. (2017) would be related to wellbeing. The results are shown in the intercorrelation matrix in Table 9. Based on Cohen's (1988, as cited in Field, 2018) guidelines, correlations of r = .10 indicating a small effect, r = .30 a medium effect and r = .50 a large effect. The bivariate correlations between all study variables were positive, significant and large.

Table 9: ***Intercorrelation Matrix between all Variables (N* = 169*)***

		HPL Worklife	HPL Health Awareness	HPL Reward	Engage-ment	Wellbeing
HPL Overall	Pearson	.956**	.795**	.859**	.677**	.652**
	Sig. (1-tailed)	<,001	<,001	<,001	<,001	<,001
HPL Worklife	Pearson		.637**	.733**	.689**	.632**
	Sig. (1-tailed)		<,001	<,001	<,001	<,001
HPL Health Awareness	Pearson			.632**	.506**	.497**
	Sig. (1-tailed)			<,001	<,001	<,001
HPL Reward	Pearson				.514**	.559**
	Sig. (1-tailed)				<,001	<,001
Work Engagement	Pearson					.760**
	Sig. (1-tailed)					<,001
Wellbeing	Pearson					
	Sig. (1-tailed)					

Note, **p < .01

4.5 Hypothesis testing

The hypotheses were tested using multiple regression analysis. Before the analyses were conducted, it was tested if the data met the assumptions required for multiple regression to yield trustworthy results.

4.5.1 Testing of data assumptions for Multiple Regression

While the bivariate correlation indicated that the data supported Hypothesis 3 (subjective wellbeing predicts work engagement) ($r = .76$, $p < 001$, $N = 169$, see Table 9) to test whether the three HPL dimensions together predicted subjective wellbeing (hypothesis 1), work engagement (hypothesis 2), and whether the relationship between HPL and work engagement was mediated by wellbeing (hypothesis 4), multiple regression analysis was required. To be able to trust the results of multiple regression analysis, the data needed to fulfil the following conditions:

1. <u>The relationship between dependent variable and independent variables is linear</u>

If the data met this assumption the scatterplots between the dependent variable wellbeing (hypothesis 1 and 4) and work engagement (hypothesis 2 and 3) and the independent variables (the three HPL dimensions, hypothesis 1 and 2) would be linear. Visual inspection of the scatterplots indicated linear relationships between the HPL dimension and the dependent variable, work engagement; between wellbeing and work engagement; and between HPL overall and HPL dimensions and wellbeing. Thus, the assumption of a linear relationship for multiple regression has not been violated.

2. <u>The prediction errors are not correlated with one another</u>

One of the basic assumptions in the linear regression model is that the random error components or disturbances are identically or independently distributed. This means that all error observations are independent from each other. This can be determined using the Durbin-Watson statistic, which ranges from zero to four. A score close to two indicates that all error observations are independent (Field, 2018). As can be seen in Table 11, all Durbin-Watson scores were close to two, thus indicating that autocorrelation between errors was not an issue.

Table 10: ***Durbin-Watson Scores***

Hypothesis	Independent Variable	Dependent Variable	Durbin-Watson Statistic
1	HPL	Wellbeing	1.825
2	HPL	Work engagement	1.964
3	Wellbeing	Work engagement	2.039
4	HPL + Wellbeing	Work engagement	2.054

3. Normally distributed errors

In multiple regression, to check if errors in prediction are normally distributed the PP-plot is typically considered: The PP-plot depicts the expected percentage of error cases that falls below each z-value in the normal distribution against the actual percentage of cases that falls below that value. If the distribution is normal then the predicted and actual percentages form a 45-degree line (Field, 2018).

The PP-plots for wellbeing and work engagement (HPL as predictor variable) are provided in Figure 1 and Figure 2 respectively. All PP-plots indicated residuals plotted closely along the 45-degree line, suggesting that the distribution of errors approximated normal distributions. The histograms for wellbeing and work engagement are provided in Figures 3 and 4.

Figure 1: ***PP Plot for Wellbeing***

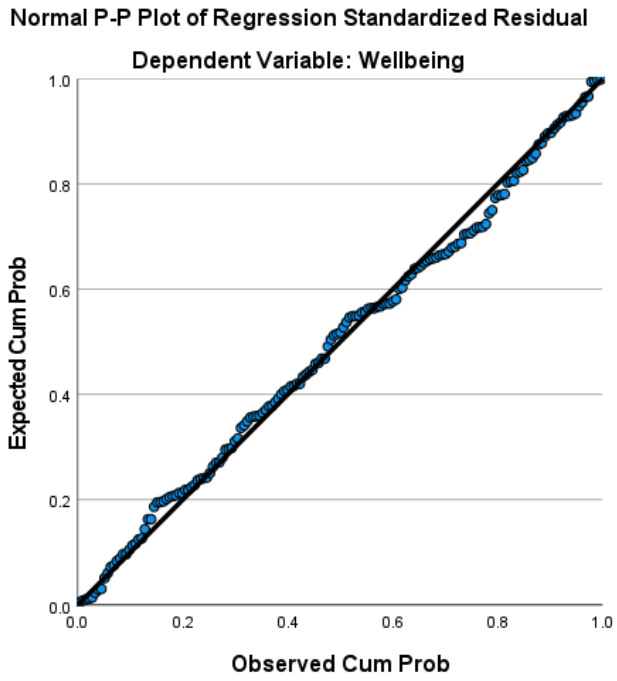


Figure 2*: PP Plot of Regression for Work Engagement*

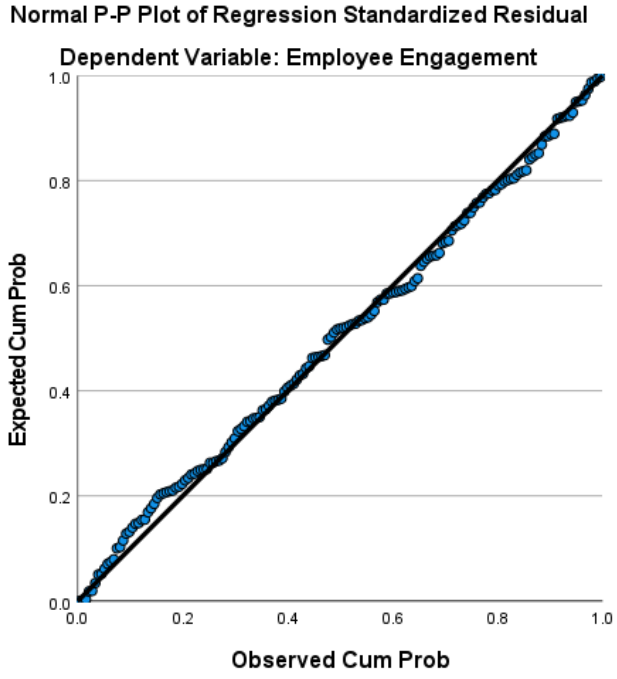


Figure 3*: Histogram for Wellbeing*

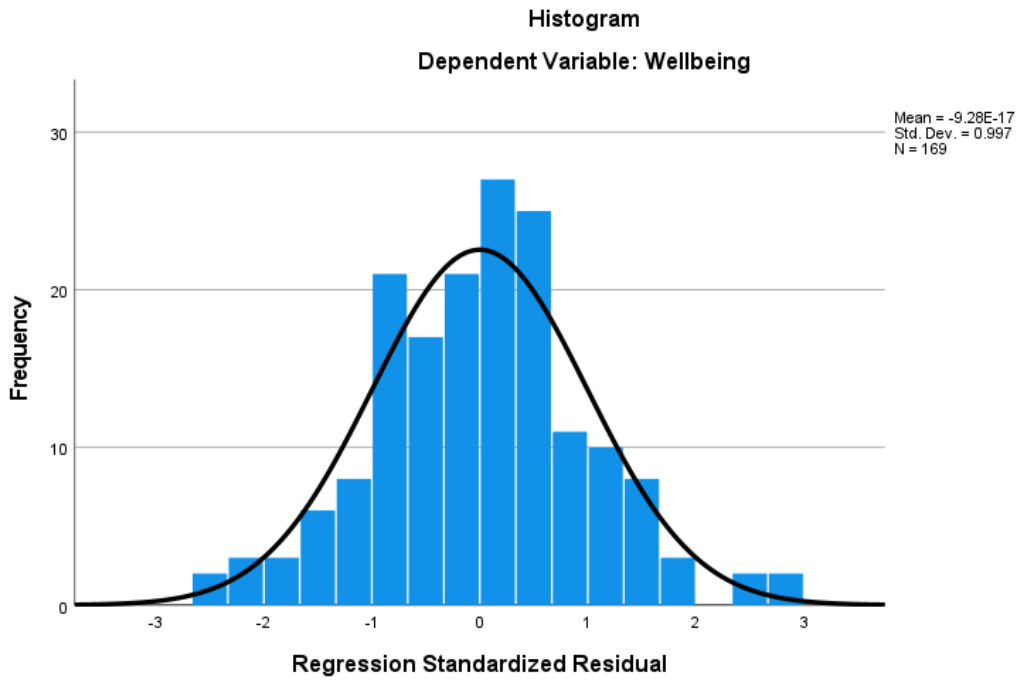
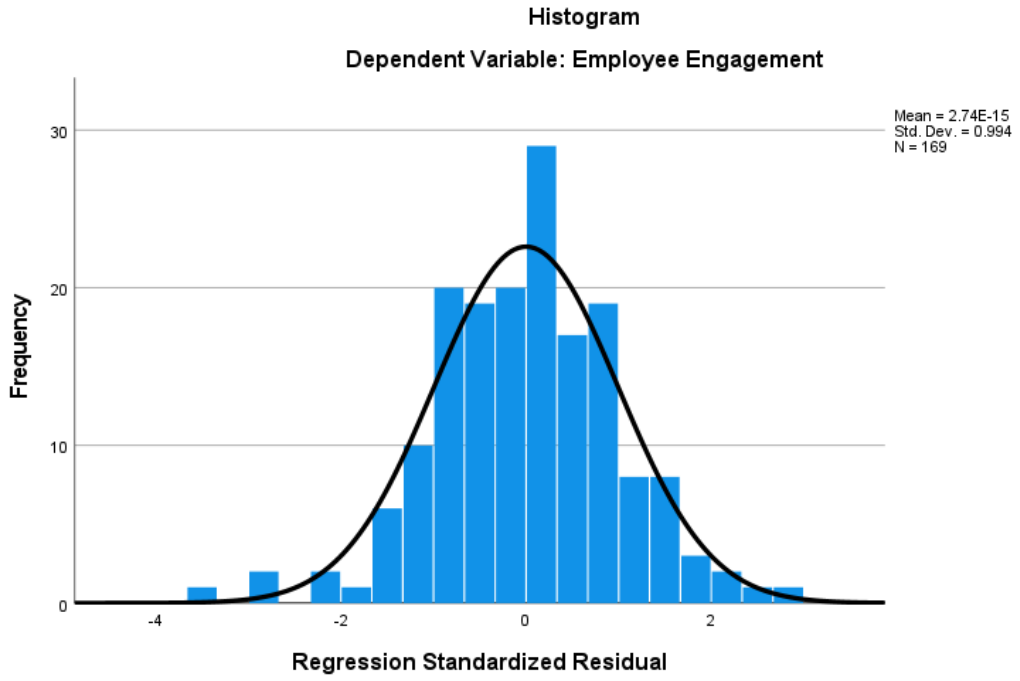


Figure 4*: Histogram for Work Engagement*



4. No multicollinearity

Multicollinearity exists if independent variables are highly correlated in multiple regression. To check that this is not the case, the variance inflation factors (VIF) were determined for the three analyses with multiple independent variables. Multicollinearity is assumed if the VIF is at least 10 (Myers, 1990 as cited in Field, 2018). Table 12 below depicts the VIF's for the three multiple regression analyses to be conducted to test the hypotheses. All VIF scores were below 10 indicating no multicollinearity and that this assumption has been met.

Table 11: ***VIF Scores***

Hypothesis	Independent variables	VIF
1 + 2	HPL Worklife	2.421
	HPL Health Awareness	1.868
	HPL Reward	2.399
4	HPL + Engagement	1.848

5. Homoscedasticity and outliers

Homogeneity of error variance or homoscedasticity in regression analysis means that the actual outcome scores are spread evenly around the predicted outcome scores at all levels of the combined predictor variables (Field, 2018). It can be assessed via a scatterplot depicting the regression model's standardized predicted values against its standardized residuals. If the homoscedasticity assumption has been met the standardized residuals are scattered equidistantly around zero at each standardized predictor value. The scatterplots for the multiple regression analyses relevant for this study are provided below in Figures 5 and 6.

The residuals formed a slightly funnelled horizontal band indicating that when higher engagement levels are predicted, the prediction is more accurate than when the equation leads to the prediction of lower engagement levels. Datapoints were approximately equally widely distributed along the values on the x-axis, the relationship between the independent variables (work engagement and wellbeing) and dependent variable HPL is likely to be linear.

Outliers are anomalous findings that stand out from the rest of the data (Maddala & Kim, 1999). They are problematic in multiple regression as they exert undue influence on the regression weights. On visual inspection of the scatterplots, in all regression equations there

seemed to be no outliers or influential cases that were too far removed from the rest of the data, as indicated by standardised residuals with unusually large distance from zero. Given that the data fulfilled the assumptions for multiple regression in all cases, the regression models required to test the three study hypotheses were determined.

Figure 5: ***Scatterplot of Work Engagement***

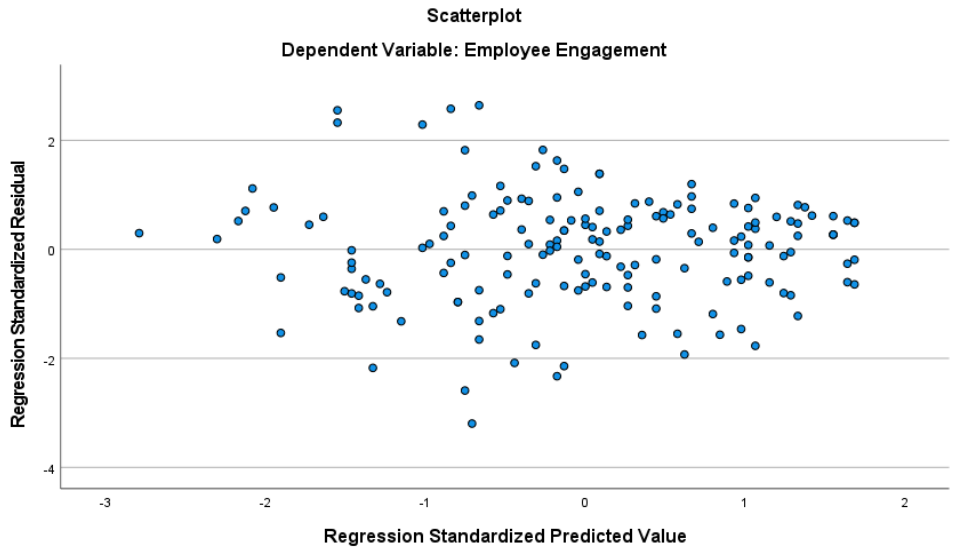
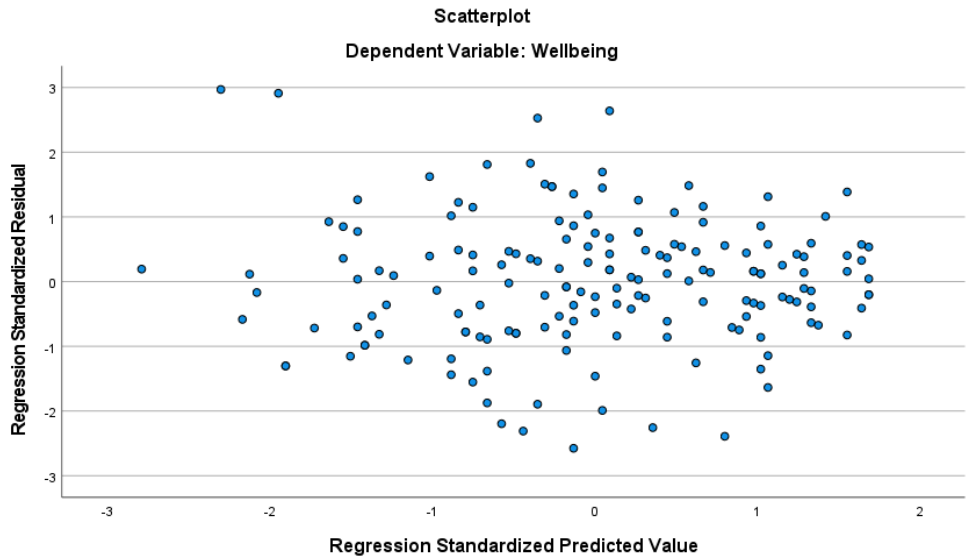


Figure 6: ***Scatterplot of Wellbeing***



4.5.2 ***H1: The seven dimensions of HPL are correlated with SWB***

The first hypothesis was not replicated as three dimensions emerged rather than the hypothesised seven dimensions by Jiménez et al. (2017). The dimensions were *Worklife areas* ($r = .632$, $p < .001$), *Health Awareness* ($r = .497$, $p < .001$) and *Reward* ($r = .559$, $p < .001$) as shown in the intercorrelation matrix in Table 9. The bivariate correlations between the study variables were positive, significant and large. Linear regression results showed that the three HPL dimensions together significantly predicted 39.1% of the variance in SWB ($R = .628$, adjusted $R^2 = .391$, $F(1,167) = 108.734$, $p < .001$).

4.5.3 ***H2: The seven dimensions of HPL predict work engagement***

Given that only three dimensions of HPL emerged in the study sample, specifically HPL *Worklife Areas*, HPL *Health Awareness* and HPL *Reward*, instead of the expected seven dimensions, the three aspects of HPL were entered into the regression equation as independent variables and work engagement as dependent variable.

Results of this analysis showed that the three HPL dimensions *Worklife Areas*, *Health Awareness* and *Reward* together significantly predicted approximately half of the variance in work engagement ($R = .694$, adjusted $R^2 = .473$, $F(3, 165) = 51.196$, $p < .001$). The three HPL dimensions together thus accounted for 47.3% of the variance in work engagement. Furthermore, the beta coefficients indicated that *Worklife Areas* ($\beta = .628$, $t = 7.205$, $p < .001$) explained the most unique variance in the model while *Health Awareness* (($\beta = .120$, $t = 1.572$, $p = .118$) and *Reward* did not predict a significant amount of variance not already explained by the remaining predictors ($\beta = -.022$, $t = -.254$, $p = .800$). In support of hypothesis 2, the three HPL dimensions together thus significantly predict work engagement, with HPL *Worklife Areas* being particularly relevant. In fact, in this sample, the regression model including the three HPL dimensions explained a roughly equal amount in variance in work engagement as the *Worklife Areas* dimension on its own ($r = .689$, $r^2 = .474$, $N = 169$, $p < .01$) suggesting that the remaining two HPL dimensions did not add value in predicting work engagement.

4.5.4 ***H3: Wellbeing predicts work engagement***

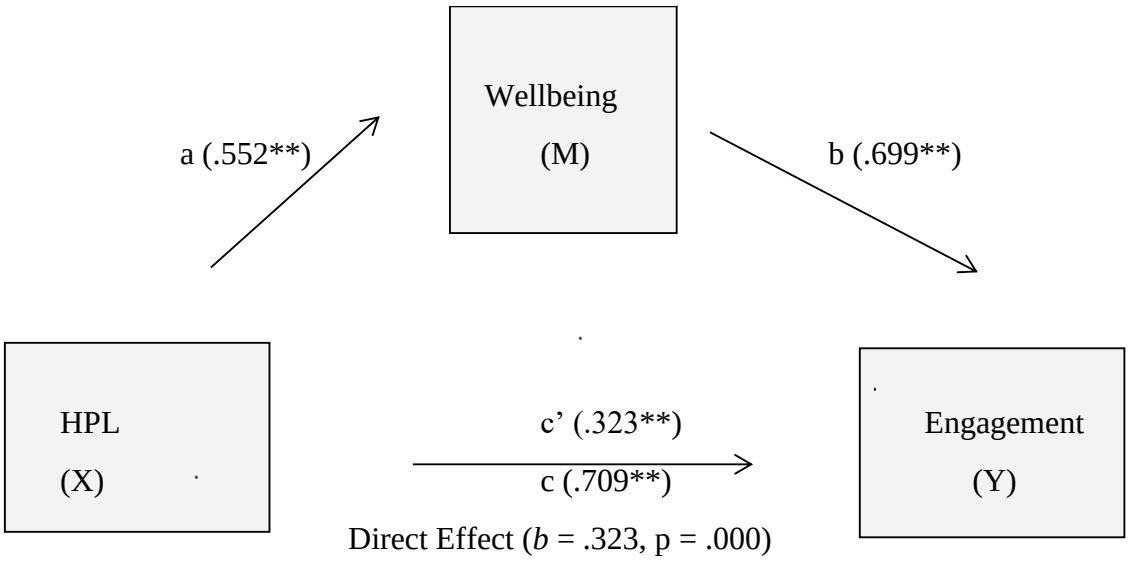
As outlined in Table 9, the correlation between *wellbeing* and *work engagement* was significant and strong ($r = .760$, $p < .001$). Wellbeing accounted for 57.7% of the variance in work engagement ($R^2 = .577$, $F(1,167) = 227.898$, $p < .001$). The beta coefficient indicated a significant influence ($\beta = 1.419$, $t = 5.763$, $p < .001$). The results show that for every one-unit increase in wellbeing, work engagement increased by 1.419 units. It can thus be concluded that wellbeing significantly predicts work engagement, supporting hypothesis 3.

4.5.5 ***H4: The relationship between HPL and engagement is mediated by wellbeing***

The macro plug-in PROCESS v4.0, developed by Hayes (2012), was used to assess the mediating effect of *wellbeing* on the relationship between *HPL* and *work engagement*. Here, HPL was considered as overall construct as Hayes' model only allows for one independent variable to be included and as all three HPL dimensions had shown the same relationship with wellbeing and engagement (see Table X in section 4.X – Intercorrelation matrix). Hayes (2012) PROCESS model combines numerous distinct techniques into one and offers an analysis for both direct and indirect effects of variables.

Figure 7 below outlines the mediation model. The direct effect (c'), indicates the effect of the independent variable on the dependent variable when the mediator in included in the prediction. The indirect effect is the effect of the independent variable on the dependent variable via the mediator (path ab). For the mediation analysis to be significant, path a, b and the overall model need to be significant. Lastly, the total effect is the simple regression weight when the independent variable predicts the dependent variable. It is the sum of ab and c'.

Figure 7: ***Mediation Analysis***



As indicated in Figure 7, the results show that HPL significantly predicted wellbeing (path a:,-b = .552, 95% CI [.453, .651], t = 11.001, p < .001;. R^2 = .420).

The result for 'path b' showed that wellbeing significantly predicted work engagement (b = .699, 95% CI [.547, .851], t = 4.921, p < .001). The positive b-values for the a- and b-paths show that the relationships were in the predicted direction, as HPL increased wellbeing increased, and as wellbeing increased work engagement increased.

The total effect of HPL on work engagement, that is path c, is the effect of the predictor (HPL) on the outcome (EE) when the mediator is not present, i.e., 'path c'. Here, again, the regression weight is significant (b = .709, 95% CI [.589, .829), t = 11.635, p < .001).

The indirect effect of HPL on work engagement is the relationship between HPL and work engagement via wellbeing as mediator (path ab). This path is also significant (b = .386, 95% BCa CI [.266, .526], p < .001).

The b-value for the direct effect, that is for path c', is the is the b-value for path c minus the b-value for path ab, so .709 - .386. The b-value for path c' is thus b = .323. As the total effect (b = .709) reduced when the mediator was considered (b = .323), wellbeing did mediate the relationship between HPL and work engagement. Path c' remained significant (t = 4.921, p < .001) indicating simple mediation (Hayes, 2018).

The results thus support the fourth hypothesis: Wellbeing mediates the relationship between HPL and work engagement.

The results presented in this chapter thus provided empirical support for all four of the hypotheses: The three HPL dimensions together predicted employee wellbeing (Hypothesis 1). Leaders providing rewards and health awareness through their behaviour did not explain additional variance to the worklife area dimension, however. The same result emerged when using the three HPL dimensions to predict work engagement (Hypothesis 2). Greater employee wellbeing was strongly related to work engagement (Hypothesis 3), and wellbeing served as a mediator in the relationship between HPL and work engagement (Hypothesis 4). The meaning of these findings and their practical and theoretical implications are discussed in the following chapter.

Chapter 5

Discussion

This study explored the degree to which the seven dimensions of Jiménez et al.'s (2017) HPL model predict engagement amongst employees in South African organisations via HPL's link with employee subjective wellbeing. Importantly, Jiménez et al's seven HPL dimensions were not replicated in the study. Instead, HPL behaviour fell into three categories, namely *Worklife Areas*, *Health Awareness* and *Reward* . HPL therefore did not emerge as hypothesized by Jiménez et al. Out of the three dimensions which emerged-, a leader's support of worklife areas was the most important, in fact, the other areas were no longer relevant after worklife areas were addressed.

The items which constitute the *Worklife* areas dimension, in particular the fairness dimension (HPLQ16 "all resources are fairly distributed", HPLQ17 "all employees are treated in a fair manner" and HPLQ18 "one's career depends on competencies and not on the connections someone has") resemble those which comprise the *organisational justice* construct; - fairness relating to outcomes, decisions and the way in which information is communicated to employees termed distributive, procedural and interactional justice (Greenberg, 2009; Mubashar et al., 2022). Organisational justice is a well-researched construct with evidence of a positive relationship between these three dimensions and engagement (Mubashar et al., 2022).

In this chapter, the study findings will be discussed and additionally limitations, suggestions for future research, practical implications outlined. This chapter ends with an overall conclusion.

5.1 Interpretation of findings

These findings are consistent with previous research that has emphasized the importance of health-promoting leadership in creating a positive work environment, promoting work engagement, and enhancing individual well-being with the exception that the seven dimensions of HPL are not that relevant as a concept – at least in the kind of employees in South Africa who participated in the study, but rather the concepts *worklife areas* and *organisational justice* were more relevant in this study.

5.1.1 Health-Promoting Leadership and subjective wellbeing

Hypothesis 1 had stipulated that the seven dimensions of HPL correlated with wellbeing. As expected, the results supported this assumption, however, the hypothesis had assumed that all seven HLP dimensions hypothesised by Jiménez et al. (2017) would be related to wellbeing. From the seven HPL dimensions, only three emerged, specifically *Worklife Areas*, *Health Awareness* and *Reward*. These three HPL characteristics were found to be positively correlated with wellbeing, showing that as wellbeing levels rose, so did each of the three HPL dimensions.

This implies that employees will view their work-related well-being to be more positive the more fairness behaviour a leader is thought to exhibit. Considering this, it follows that in order to encourage workplace wellbeing, leaders should think about modelling fairness. These results are in line with previous findings, which show that initiatives by leaders to promote health and foster a positive work environment improve employee wellbeing (Jiménez et al., 2017) and supportive leadership promotes wellbeing (Nielsen et al., 2017).

The findings also imply that the different dimensions of health-promoting leadership are mutually supportive. Employees who believe that their leaders value their work-life balance also report feeling more rewarded and conscious of their health, suggesting that there may be mutual reinforcement between the three variables. Employees may feel more supported at work when leaders, for instance, encourage a fair work environment, align employee values with organisational values, and foster a feeling of community (the three aspects of *worklife areas*). Strong perceptions of organisational justice, values and community may therefore promote wellbeing, foster positive working relationships, and help in preventing burnout. This is similar to Jiménez et al.'s (2017) findings. Hence, when leaders consider worklife areas such as creating a strong sense of community at work, ensuring fairness and that employee values are understood, these aspects might thus be important working conditions for leaders to focus on to improve wellbeing.

5.1.2 Health-promoting leadership and work engagement

The second hypothesis stated that the seven dimensions of HPL predict work engagement. From the seven HPL dimensions, only three emerged, being *Worklife Areas*, *Health Awareness* and *Reward*. The study findings indicated that together these three dimensions significantly predicted work engagement.

However, of the three dimensions, organisational fairness demonstrated by the leader related to work engagement. The main predictor that emerged from the study was *Worklife Areas*, consisting of sub dimensions Fairness, Values and Community. Although together, the three dimensions Worklife areas, Health awareness and Reward were predictors of work engagement. This implied that when leaders created an environment that promotes health, specifically relating to considering employee worklife areas of fairness, aligning organisational values to employee values and creating a sense of community that work engagement increased. This is similar to the study by Wolff (2019) in which factors associated with employee disengagement included fairness, understanding how their work influences the company's vision and mission, feeling appreciated or valued by the employer, and alignment of individual talent with organizational goals. This also aligns with the work of Maslach and Leiter (2008) in identifying early predictors of engagement through the Areas of Worklife Scale (AWS) (Leiter & Maslach, 1999), but differs in that this study did not account for all six dimensions of the AWS scale.

The Role of Health Promoting Leadership (Jiménez et al., 2017)

Health promotion as described in the 1986 World Health Organization (WHO) Ottawa Charter for Health Promotion, is a method that gives individuals more power over, and enhances their health. Health is a human resource, foundational to economic productivity and considered to be a fundamental human right by the World Health Organisation (1948). There are many sectors that are able to promote health, and the organisation is considered one of the largest sectors.

The role that leaders play is to take the opportunity to promote employee health within the organisation through following specific processes to enable employees to gain more control over their own health and wellbeing in order to improve overall employee health. In other words, to improve overall employee health, leaders could use every chance to promote

employee health within the organization by adhering to certain procedures that give employees more control over their personal health and wellness.

The function that leaders play in improving health and welfare within the company and their local and larger communities is referred to as "health promoting leadership". Although it can take on a wide variety of different forms, the term "health-promoting leadership" primarily refers to the actions and attitudes of those in positions of authority who foster a positive workplace culture, encourage healthy employee behaviour, and create settings that support both physical and mental health.

In a rapidly changing world Industrial and Organisational Psychologists or Work Psychologists are qualified to determine the organization's training needs and as a result, consider what employees want and their preferences when educating leaders to manage personnel. However, for change to occur, there must be a supportive organisational culture, continual learning, and well-developed interpersonal skills. In addition to this autonomous work groups have the power to control their own tasks and interpersonal interactions while carrying out their work. IO psychologists are well prepared to assist managers in acquiring the required skills (Cascio & Aguines, 2018).

Thus, the importance of the role of health-promoting leadership may be in its capacity to potentially influence employees' health and welfare, which could then benefit the organisation as a whole. When considering the practical implications and the role in which Health promoting leadership could be most effective in, leaders can help their employees be more productive and engaged by promoting healthy behaviours specifically relating to organisational justice and thereby supporting employee mental health and work engagement.

In addition, leadership training interventions could be designed around; - practically implementing distributive, interactional and procedural justice; emphasising the importance of creating fair work environments that align with these principles; encouragement to make decisions focussing on fairness with a primary question in mind: "How does this contribute to fairness/unfairness?"; - with the goal being of improving employee health, wellbeing, and work performance. Greenberg (2009) reported the benefits of organisational justice leadership training (i.e. role plays, case studies and discussions) and how through training, managers can acquire the skills to successfully promote fairness within the organisation. They may not have full authority to alter the organisational performance evaluation process or the reward and incentive structure, but they do have the ability to provide employees with clear explanations

communicated with dignity and respect. In this way leaders can improve the wellbeing and work engagement of employees.

5.1.3 Wellbeing and work engagement

Hypothesis 3 stipulated that wellbeing predicts work engagement. As expected the results supported the empirical evidence found in several studies that had shown a link between wellbeing and work engagement (Jiménez et al., 2017; Knight et al., 2017; Montano et al., 2016). This link between wellbeing and work engagement is not only relevant in South Africa, but also globally and aligns with recent research by Shauffeli and Bakker (2022) who had found that wellbeing is indeed linked to engagement. The importance of wellness research in the workplace is growing and studies show that prioritising wellbeing by implementing workplace wellness programs can improve employees' health and wellbeing, reduce absenteeism and turnover, and increase job satisfaction and engagement (Scherer & Maier, 2018).

5.1.4 The mediating role of wellbeing in health-promoting leadership and work engagement

The fourth and final hypothesis stated that the relationship between HPL and engagement is mediated by wellbeing. As there was not sufficient empirical evidence to support this hypothesis, the positive findings were able to add to the body of knowledge relating to this hypothesis.

This hypothesis was supported through research by Kaluza et al., (2021) on how the employees' role of self-care and employee expectations about health-orientated leadership link to wellbeing. In addition, the hypothesis aligned with and supported evidence from Bakker and De Vries (2021) who had found that when work stress increased, HPL might be such a resource. These connections are supported in that when leaders prioritize employee wellbeing and foster a positive work environment, employees reported higher levels of subjective wellbeing, which then translated into better engagement at work.

The finding is in line with previous research in which employees had been found to feel happier and more satisfied with their lives overall when they believed that their leaders valued and promoted their wellness. For example, Potter et al (2022), showed that creating a psychologically safe atmosphere had a favourable effect on employee wellbeing. This might

be because, in such an atmosphere, employees were not worried about suffering consequences and may have felt a sense of community, fairness and that they felt valued as employees (Edmondson, 1999, 2018, as cited in Potter et al., 2022). As a result of this positive affective state, employees may be motivated to engage more actively in their work and organization.

Additionally, Aronsson et al.'s (2017) study which examined the relationship between burnout and working conditions confirmed the findings that employees were less likely to experience emotional exhaustion when they reported having high levels of support from their employers and organisational fairness. The results of this study also corroborated Nielsen et al. (2017)'s empirical findings that leadership resources had a significant impact on both employee performance and wellbeing. According to their findings, leadership resource-focused interventions could improve staff performance and wellbeing.

5.2 Limitations

In relation to the limitations, it is important to note that the empirical results found in this study do not indicate causality as this study was done at a single point in time and only offers a glimpse of the relationships between these variables.

HPL may offer benefits, but rather than being a theoretical model, it provides practical guidance for how organisations can improve their overall success by the leader expressing, through specific behaviour, that employee health and wellness are valued. Through demonstrating fairness, employers may experience increased productivity and employee wellbeing. Jiménez et al. (2017) also provided an operationalisation of the HPL model elements. This allows for an evidence-based practice, in which theoretical recommendations about how leaders could create healthy work environments can – and have been – supported by empirical evidence. However, to date it is unclear if Jiménez et al., (2017) model HPL is applicable in all situations as research supporting it has been conducted in specific organisational and cultural contexts (Chen & Wu., 2023; Liu et al., 2021).

To date there is also no long-term evidence about whether HPL indeed maintains – or creates – employee wellbeing as there is only cross-sectional evidence. Goetzel et al. (2014), showed that health promotion, in general, has a positive influence on health behaviours and health culture, as well as being financially beneficial to the organisation, however.

5.3 Practical relevance

In this study, the results provided practical implications for organisations specifically relating to organisational justice, indicating that investing in health-promoting leadership practices, specifically *worklife areas*, creating *health awareness* and addressing *reward* structures can lead to improvements in work engagement and well-being.

The study results matter as there is empirical evidence that work engagement enhances job performance and improves employee wellbeing (Shimazu et al., 2015). Continual organisational improvement and forces of change may require organisations to source effective strategies to improve work engagement and promote employee health and wellbeing (WHO, 2010). While promoting workplace well-being is a creative process supported by scientific knowledge, it may be best approached by developing strategies and advice to support leaders in the application of these insights (Bennett et al., 2017). Research outcomes such as this may provide relevant empirical evidence and practical solutions to improve work engagement and wellbeing within organisations.

Even though the findings do not establish cause and effect relationships, they suggest that leaders might be able to increase work engagement by demonstrating fairness in the workplace. The subdimensions of *worklife areas* - fairness, values, and community - which also shared similarities with the organisational justice construct, were the areas that specifically predicted work engagement.

5.4 Theoretical Relevance

Theoretical Relevance

The study provides additional empirical data to test the relevance and appropriateness of Jiménez et al.'s (2017) HPL model.

The results from this study indicated that Jiménez et al (2017)'s model consisted of less than seven dimensions, where only three emerged, specifically *Worklife Areas, Health Awareness* and *Reward*. Given the results of this study and empirical evidence that modelling healthy behaviour by leaders is important, specifically relating to worklife areas, wellbeing and

work engagement. The results indicated that within HPL, organisational justice might be a relevant construct to consider for work engagement and wellbeing.

The contributions of the study calls into question the HPL construct, as the factor structure was not replicated. It also calls into question the need for HPL as a construct, as the relationship between wellbeing and engagement might be explained by organisational justice, a well-established and researched construct. Here, in this study, it was one overall dimension, where distributive justice, interactional justice and procedural justice did not emerge as separate dimensions. While HPL focuses on employee wellbeing, there may be an inherent connection between HPL practices and elements of organizational justice, as health-promoting leaders may often create environments where fairness is perceived.

The overall conclusion in these findings being that leaders create workplaces which are perceived as fair.

5.5 **Recommendations for future research**

The first recommendation suggested is to supplement the quantitative results through qualitative data to allow participants to discuss their personal experiences or perspectives. A qualitative perspective will allow researchers to have a deeper understanding of the underlying constructs as well as gaining an understanding from a practical perspective in the employees' work environment, through opening up discussions around health promoting leadership and its role in work engagement and wellbeing. Second, to use an organisational justice measure in addition to the HPL scale to assess if HPL adds to predicting work engagement above what organisational justice already explains and to substantiate whether it is indeed organisational justice which matters (rather than HPL).

Further investigation into the relationship between well-being, industry, and geographic regions in South Africa may help identify areas that may require attention from organisations to improve employee health and wellbeing. As previously mentioned, a qualitative study could be advantageous from a variety of perspectives, including those of the researcher, the employee, the organization, and the government. This would enable researchers to have a deeper understanding of the underlying constructs and to gain insight into the practical

application of these constructs in the workplace through the implementation of policies and leadership training on organisational fairness to increase work engagement and wellbeing.

The research into health in industry and geographical areas in South Africa could align with the United Nations Sustainable Development Goal 3 of good health and wellbeing, as well as Sustainable Development Goal 10 of reducing inequalities by addressing employee health and wellbeing in industries and geographical areas that historically may have higher levels of poor health and wellbeing. Furthermore, to consider if the same relationships apply in different populations, specifically employees performing manual labour, as this sample included knowledge workers.

5.6 **Conclusion**

The study's findings suggested that healthy leadership can help foster an environment at work that supports employee wellbeing and increases work engagement. It became clear in this setting that leaders should give special consideration to enhancing aspects of the workplace that directly affect work engagement, such as fairness, values, and community (labelled *worklife areas* and related to *organisational justice*). Advancements in these areas might increase employee wellbeing and work engagement and may thus, ultimately boost overall organisational performance. Due to this, instead of HPL, it might be important for leaders to behave in ways which create the perception of fairness or organisational justice if they want to increase work engagement – with the link being mediated by a work environment which is perceived as just creating greater wellbeing which then creates greater engagement. At least among employees who are knowledge workers (quinary sector) and within the retail and distribution sectors.

Additionally, the study discovered that wellbeing strongly predicted work engagement, indicating that when workers feel as though they have a sense of wellbeing, they are more likely to be highly engaged in their work and as a result more dedicated, immersed, and enthusiastic about it. Leaders' efforts to promote wellbeing are thus likely to impact staff engagement.

Overall, the empirical data presented in this dissertation have shown that all four hypotheses were supported in a South African sample. These were that health-promoting

leadership correlated with and predicted wellbeing, that health-promoting leadership predicted work engagement, that wellbeing predicted work engagement, and that wellbeing mediated the relationship between HPL and work engagement. Therefore, this study highlighted the significance of educating those in positions of leadership about how to support healthy workplace environments and improve engagement in employees.

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Appendix A

Table 2

HPL Questionnaire

Health-promoting Leadership Conditions (HPLC) Questionnaire Jiménez et al., (2017) to assess HPL from the employee perspective using a 7 point Likert-response **scale** from never until always.

My Supervisor / Manager (Leader) takes care that:

(Health Awareness)

1. the health of all employees is promoted.
2. all employees are motivated to take care of their health.
3. the health of the employees is highly valued.

(Low Workload)

4. there is enough time left for the work to be done.
5. work under high pressure is not carried out over a longer period of time.
6. work does not significantly affect private life.

(Control)

7. the resources and scope for personal development at work can be influenced.
8. at work autonomous and independent action can be taken.
9. all have the necessary scope to do their work.

(Reward)

10. work is appreciated.
11. efforts do not go unnoticed.
12. all contributions are being acknowledged.

(Community)

13. work colleagues support each other.
14. there is a good cooperation between all work colleagues.
15. work colleagues talk openly to each other.

(Fairness)

16. all resources are fairly distributed.
17. all employees are treated in a fair manner.
18. one's career depends on competencies and not on the connections someone has.

(Values)

19. the employees share the company's values.
20. the employees' daily activities correspond with the company's objectives.
21. personal career interests are in line with the objectives of the company

Appendix B

Table 3

Work Engagement Questionnaire

UWES-9 Measurement Scale, the Utrecht Work Engagement Scale (UWES), (Schaufeli, et.al., 2002).

Work & Well-being Survey (UWES) ©

The following 9 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the "0" (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

	Almost never	Rarely	Sometimes	Often	Very Often	Always
0	1	2	3	4	5	6
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

1. _____ At my work, I feel bursting with energy
2. _____ At my job, I feel strong and vigorous
3. _____ I am enthusiastic about my job
4. _____ My job inspires me
5. _____ When I get up in the morning, I feel like going to work
6. _____ I feel happy when I am working intensely
7. _____ I am proud of the work that I do
8. _____ I am immersed in my work
9. _____ I get carried away when I'm working

Appendix C

Figure 8: ***WHO-5 Wellbeing Index***

Psychiatric Research Unit
WHO Collaborating Centre in Mental Health

WHO (Five) Well-Being Index (1998 version)

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.

Over the last two weeks:	All the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1. I have felt cheerful and in good spirits	5	4	3	2	1	0
2. I have felt calm and relaxed	5	4	3	2	1	0
3. I have felt active and vigorous	5	4	3	2	1	0
4. I woke up feeling fresh and rested	5	4	3	2	1	0
5. My daily life has been filled with things that interest me	5	4	3	2	1	0

Scoring:

The raw score is calculated by totaling the figures of the five answers. The raw score ranges from 0 to 25, 0 represent- ing worst possible and 25 representing best possible quality of life.

To obtain a percentage score ranging from 0 to 100, the raw score is multiplied by 4. A percentage score of 0 represents worst possible, whereas a score of 100 represents best possible quality of life.

Interpretation:

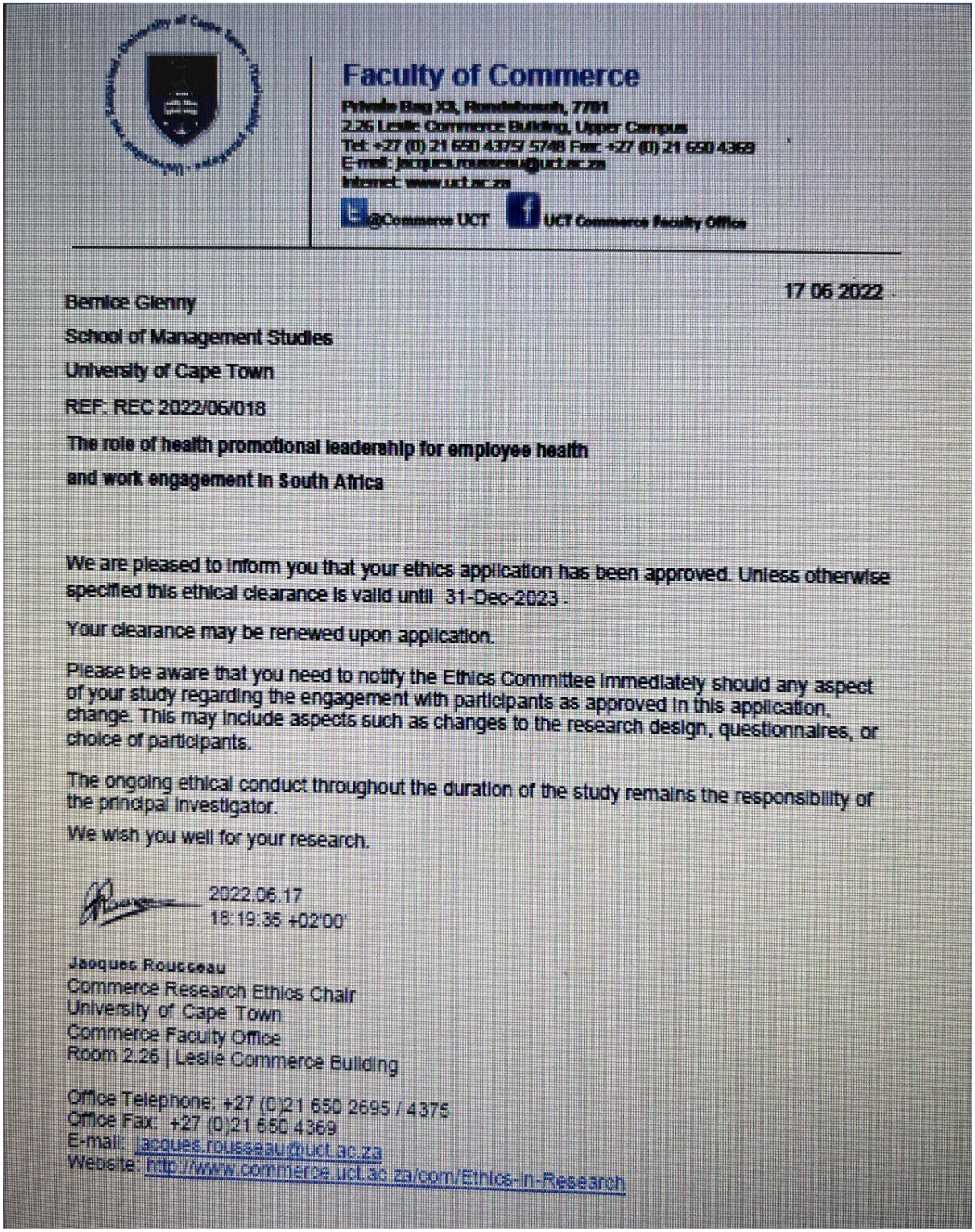
It is recommended to administer the Major Depression (ICD-10) Inventory if the raw score is below 13 or if the patient has answered 0 to 1 to any of the five items. A score below 13 indicates poor wellbeing and is an indication for testing for depression under ICD-10.

Monitoring change:

In order to monitor possible changes in wellbeing, the percentage score is used. A 10% difference indicates a significant change (ref. John Ware, 1995).

Appendix D

Figure 9: ***Ethics Approval***



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17 06 2022

Bernice Glenny

School of Management Studies

University of Cape Town

REF: REC 2022/06/018

The role of health promotional leadership for employee health and work engagement in South Africa

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2023 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

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18:19:35 +02'00'

Jacques Rousseau
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Appendix E

Figure 10: ***Cover Letter and Consent Form***

Survey:

The role of health promotional leadership for employee health and work engagement in South Africa

Dear Participant,

If you are employed in South Africa and report into a Manager/Supervisor, I would like to invite you to participate in a research project for my Master's degree in Industrial and Organisational Psychology at the University of Cape Town.

I seek to understand if Health-Promoting Leadership (HPL) can predict work engagement and wellbeing in organisations.

This research has been approved by the Commerce Faculty Ethics in Research Committee.

The survey should take approximately **10 - 15 minutes** to complete.

Your responses are anonymous, and all data will be kept confidential.

Your participation is completely voluntary, and you can choose to stop your participation at any time.

Should you require further information, or would like to follow up on the results of the research, do not hesitate to contact me (GLNBER003@myuct.ac.za; 0748993876) or my supervisor, Dr Ines Meyer (ines.meyer@uct.ac.za).

By completing and submitting the questionnaire, you are providing consent for me to use your responses for my dissertation.

Thank you for your time and participation, I really appreciate it!

Yours sincerely,

Bernice Glenny

***If you don't feel well and would like to speak to someone, you can contact LifeLine on 0860 322 322**

Table 12: HPL Communalities of First EFA (21 items)

Communalities

	Initial
Q1_HA1	.795
Q2_HA2	.858
Q3_HA3	.823
Q4_LW1	.343
Q5_LW2	.336
Q6_LW3	.325
Q7_CT1	.429
Q8_CT2	.455
Q9_CT3	.554
Q10_RE1	.778
Q11_RE2	.415
Q12_RE3	.765
Q13_CM1	.732
Q14_CM2	.784
Q15_CM3	.593
Q16_FA1	.701
Q17_FA2	.805
Q18_FA3	.664
Q19_VA1	.734
Q20_VA2	.634
Q21_VA3	.758

Extraction Method:
Principal Axis Factoring.

Table 13: ***HPL Eigenvalues and Factor Loadings with Four Factors from first EFA (21 items)***

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total
1	10.287	48.988	48.988	8.515
2	1.768	8.420	57.407	6.954
3	1.204	5.735	63.142	2.270
4	1.093	5.203	68.345	6.350
5	.926	4.409	72.754	
6	.869	4.138	76.892	
7	.702	3.343	80.235	
8	.595	2.835	83.070	
9	.565	2.692	85.761	
10	.453	2.155	87.916	
11	.381	1.813	89.730	
12	.342	1.626	91.356	
13	.339	1.616	92.972	
14	.304	1.445	94.418	
15	.285	1.355	95.773	
16	.205	.974	96.747	
17	.178	.848	97.595	
18	.170	.811	98.405	
19	.136	.648	99.053	
20	.113	.539	99.592	
21	.086	.408	100.000	

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 14: ***HPL Pattern Matrix with Four Factors from first EFA (21 items)***

Pattern Matrix[a]

	Factor, eigenvalue and explained variance			
	WorkLife	Health Awareness	Low Workload	Community
	9.97	1.40	.80	.68
	(47.45%)	(6.66%)	(3.80%)	(3.22%)
HPLQ21	.818			
HPLQ19	.815			
HPLQ17	.748			
HPLQ18	.727			
HPLQ20	.693			
HPLQ10	.546			
HPLQ12	.491			
HPLQ16	.472			
HPLQ9	.431			
HPLQ8	.412			
HPLQ2		1.027		
HPLQ1		.874		
HPLQ3		.827		
HPLQ7				
HPLQ6			.679	
HPLQ11			.424	
HPLQ5			.390	
HPLQ14				.902
HPLQ13				.725
HPLQ15				.470
HPLQ4				

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Table 15: ***HPL Communalities of Second EFA (19 items)***

Communalities

	Initial
Question1_HA1	.792
Question2_HA2	.857
Question3_HA3	.822
Question5_LW2	.281
Question6_LW3	.295
Question8_CT2	.432
Question9_CT3	.545
Question10_RE1	.777
Question11_RE2	.413
Question12_RE3	.765
Question13_CM1	.731
Question14_CM2	.776
Question15_CM3	.575
Question16_FA1	.695
Question17_FA2	.804
Question18_FA3	.652
Question19_VA1	.733
Question20_VA2	.622
Question21_VA3	.757

Extraction Method: Principal Axis Factoring.

KMO and Bartlett's Test (19 items) – items 4 and 7 removed

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.920
Bartlett's Test of Sphericity	Approx. Chi-Square	2505.937
	df	171
	Sig.	.000

Table 16: ***HPL Eigenvalues and Factor Loadings with Three Factors from second EFA (19 items)***

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total
1	9.783	51.492	51.492	8.770
2	1.642	8.642	60.134	6.411
3	1.204	6.334	66.469	2.246
4	.999	5.257	71.725	
5	.905	4.764	76.489	
6	.682	3.591	80.080	
7	.573	3.018	83.098	
8	.556	2.927	86.024	
9	.422	2.220	88.244	
10	.375	1.975	90.219	
11	.353	1.858	92.078	
12	.319	1.677	93.755	
13	.286	1.506	95.261	
14	.207	1.089	96.350	
15	.183	.965	97.315	
16	.174	.914	98.229	
17	.136	.716	98.945	
18	.114	.600	99.545	
19	.086	.455	100.000	

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 17: ***HPL Pattern Matrix with Three Factors from second EFA (19 items)***

Pattern Matrix[a]

	Factor		
	1	2	3
Question18_FA3	.895		
Question20_VA2	.853		
Question19_VA1	.839		
Question17_FA2	.825		
Question21_VA3	.756		
Question16_FA1	.729		
Question15_CM3	.682		
Question14_CM2	.659		
Question10_RE1	.600		
Question9_CT3	.587		
Question13_CM1	.568		
Question12_RE3	.551		
Question8_CT2	.431		
Question2_HA2		1.008	
Question1_HA1		.872	
Question3_HA3		.807	
Question11_RE2			.567
Question6_LW3			.469
Question5_LW2			

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Table 18: ***HPL Communalities of third EFA (18 items)***

Communalities

	Initial
Question1_HA1	.792
Question2_HA2	.857
Question3_HA3	.822
Question6_LW3	.182
Question8_CT2	.432
Question9_CT3	.544
Question10_RE1	.776
Question11_RE2	.403
Question12_RE3	.763
Question13_CM1	.731
Question14_CM2	.776
Question15_CM3	.570
Question16_FA1	.690
Question17_FA2	.804
Question18_FA3	.652
Question19_VA1	.733
Question20_VA2	.622
Question21_VA3	.755

Extraction Method: Principal Axis Factoring.

KMO and Bartlett's Test (HPL 18 items)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.921
Bartlett's Test of Sphericity	Approx. Chi-Square	2457.975
	df	153
	Sig.	.000

Table 19: HPL Eigenvalues and Factor Loadings with three Factors from third EFA (18 items)

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total
1	9.656	53.646	53.646	8.635
2	1.554	8.631	62.276	5.974
3	1.147	6.370	68.646	1.960
4	.952	5.291	73.937	
5	.817	4.538	78.475	
6	.585	3.250	81.726	
7	.569	3.163	84.889	
8	.444	2.469	87.358	
9	.398	2.212	89.570	
10	.366	2.032	91.602	
11	.322	1.787	93.389	
12	.289	1.604	94.993	
13	.207	1.150	96.143	
14	.184	1.020	97.163	
15	.174	.965	98.127	
16	.137	.759	98.887	
17	.114	.633	99.520	
18	.086	.480	100.000	

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 20: HPL Pattern Matrix with three Factors from third EFA (18 items)

Pattern Matrix[a]

	Factor		
	1	2	3
Question18_FA3	.882		
Question20_VA2	.842		
Question19_VA1	.833		
Question17_FA2	.826		
Question21_VA3	.758		
Question16_FA1	.732		
Question15_CM3	.676		
Question14_CM2	.661		
Question10_RE1	.614		
Question9_CT3	.591		
Question13_CM1	.576		
Question12_RE3	.568		.360
Question8_CT2	.441		.354
Question2_HA2		.968	
Question1_HA1		.854	
Question3_HA3		.782	
Question11_RE2			.666
Question6_LW3			

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Table 21: HPL Communalities of Final EFA (17 items)

Communalities

	Initial
Question1_HA1	.789
Question2_HA2	.856
Question3_HA3	.822
Question8_CT2	.432
Question9_CT3	.541
Question10_RE1	.771
Question11_RE2	.360
Question12_RE3	.763
Question13_CM1	.731
Question14_CM2	.776
Question15_CM3	.570
Question16_FA1	.687
Question17_FA2	.803
Question18_FA3	.647
Question19_VA1	.730
Question20_VA2	.619
Question21_VA3	.752

Extraction Method: Principal Axis Factoring.

KMO and Bartlett's Test of HPL final EFA (17 items)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.924
Bartlett's Test of Sphericity	Approx. Chi-Square	2430.645
	df	136
	Sig.	.000

Table 22: HPL Eigenvalues and Factor Loadings with three Factors from final EFA (17 items)

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total
1	9.655	56.792	56.792	8.363
2	1.447	8.512	65.304	6.248
3	1.059	6.227	71.531	6.302
4	.870	5.120	76.651	
5	.619	3.642	80.293	
6	.571	3.359	83.653	
7	.468	2.751	86.404	
8	.407	2.395	88.799	
9	.377	2.216	91.015	
10	.323	1.901	92.917	
11	.292	1.715	94.632	
12	.214	1.259	95.891	
13	.184	1.083	96.974	
14	.175	1.032	98.006	
15	.138	.812	98.818	
16	.114	.673	99.491	
17	.086	.509	100.000	

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 23: HPL Pattern Matrix with three Factors from final EFA (17 items)

Pattern Matrix[a]

	Factor		
	1	2	3
Question20_VA2	.896		
Question18_FA3	.845		
Question19_VA1	.825		
Question14_CM2	.693		
Question15_CM3	.680		
Question21_VA3	.658		
Question16_FA1	.650		
Question17_FA2	.641		
Question13_CM1	.597		
Question9_CT3	.439		
Question2_HA2		.978	
Question1_HA1		.874	
Question3_HA3		.784	
Question11_RE2			.677
Question12_RE3			.659
Question10_RE1			.553
Question8_CT2			.545

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

Figure 11: HPL Scree Plot (17 items)

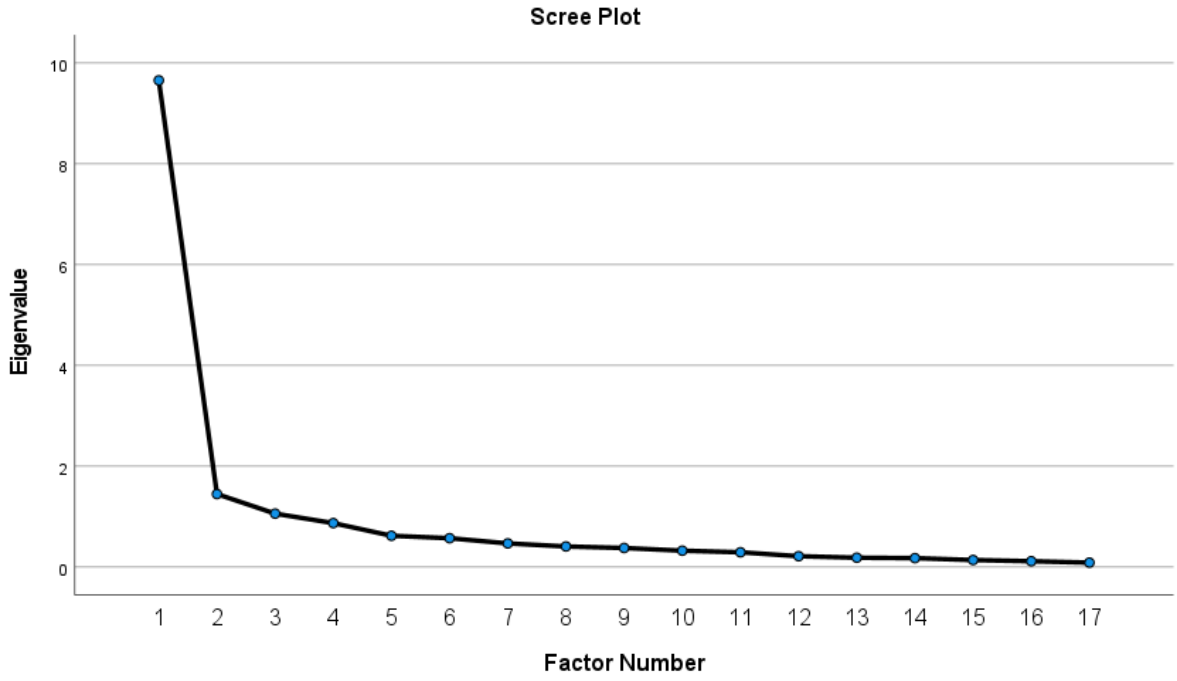

Table 24: ***WHO-5 Eigenvalues and Variance Explained***

Total Variance Explained

	Initial Eigenvalues		
Factor	Total	% of Variance	Cumulative %
1	3.542	70.844	70.844
2	.492	9.840	80.684
3	.440	8.794	89.479
4	.287	5.739	95.218
5	.239	4.782	100.000

Note: Extraction Method: Principal Axis Factoring.

Table 25: UWES-9 Eigenvalues and Total Variance Explained

Total Variance Explained

	Initial Eigenvalues		
Factor	Total	% of Variance	Cumulative %
1	6.052	67.249	67.249
2	.966	10.729	77.978
3	.484	5.376	83.353
4	.419	4.650	88.003
5	.372	4.130	92.133
6	.306	3.405	95.538
7	.166	1.848	97.387
8	.126	1.403	98.790
9	.109	1.210	100.000

Note: Extraction Method: Principal Axis Factoring.

Table 26: ***HPL Worklife Areas (Factor 1)***

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HPLQ20	44.85	159.401	.749	.596	.932
HPLQ18	45.38	151.760	.763	.630	.931
HPLQ19	45.37	156.938	.776	.720	.930
HPLQ14	45.13	158.412	.752	.754	.931
HPLQ15	45.09	160.415	.703	.553	.934
HPLQ16	45.14	155.587	.779	.670	.930
HPLQ17	45.22	151.422	.844	.749	.927
HPLQ21	45.60	154.337	.763	.732	.931
HPLQ13	45.04	159.599	.721	.700	.933
HPLQ9	44.88	161.736	.650	.492	.936

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.603	.467	.820	.353	1.756	.007	10

Inter-Item Correlation Matrix

	HPLQ20	HPLQ18	HPLQ19	HPLQ14	HPLQ15	HPLQ16	HPLQ17	HPLQ21	HPLQ13	HPLQ9
HPLQ20	1.000	.639	.698	.542	.542	.578	.691	.664	.535	.520
HPLQ18	.639	1.000	.690	.624	.509	.637	.707	.672	.543	.482
HPLQ19	.698	.690	1.000	.530	.531	.629	.711	.788	.526	.467
HPLQ14	.542	.624	.530	1.000	.656	.656	.634	.505	.820	.486
HPLQ15	.542	.509	.531	.656	1.000	.623	.614	.499	.594	.570
HPLQ16	.578	.637	.629	.656	.623	1.000	.738	.548	.607	.601
HPLQ17	.691	.707	.711	.634	.614	.738	1.000	.752	.596	.580
HPLQ21	.664	.672	.788	.505	.499	.548	.752	1.000	.523	.547
HPLQ13	.535	.543	.526	.820	.594	.607	.596	.523	1.000	.513
HPLQ9	.520	.482	.467	.486	.570	.601	.580	.547	.513	1.000

Table 27: ***HPL Health Awareness (Factor 2)***

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HPLQ1	8.33	13.947	.863	.760	.930
HPLQ2	8.20	13.301	.913	.833	.892
HPLQ3	8.20	13.578	.866	.766	.928

Inter-Item Correlation Matrix

	HPLQ1	HPLQ2	HPLQ3
HPLQ1	1.000	.865	.805
HPLQ2	.865	1.000	.868
HPLQ3	.805	.868	1.000

Table 28: HPL Reward (Factor 3)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.835	.835	4

Inter-Item Correlation Matrix

	HPLQ8	HPLQ10	HPLQ11	HPLQ12
HPLQ8	1.000	.506	.431	.553
HPLQ10	.506	1.000	.493	.835
HPLQ11	.431	.493	1.000	.528
HPLQ12	.553	.835	.528	1.000

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.558	.431	.835	.404	1.937	.018	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HPLQ8	13.72	21.285	.575	.337	.829
HPLQ10	13.57	18.841	.748	.703	.753
HPLQ11	13.93	21.185	.557	.313	.838
HPLQ12	13.91	18.236	.792	.730	.732

Table 29: ***HPL Summary Item Statistics for 17 items***

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.533	.218	.868	.650	3.976	.016	17

Table 30: ***HPL Overall Reliability Statistics***

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.951	.951	17

Table 31: ***HPL Overall Item-Total Statistics***

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HPLQ1	76.89	451.500	.678	.789	.949
HPLQ2	76.76	448.789	.704	.856	.948
HPLQ3	76.77	444.095	.755	.822	.947
HPLQ18	76.12	447.581	.703	.647	.948
HPLQ19	76.11	454.315	.733	.730	.948
HPLQ20	75.59	460.195	.679	.619	.948
HPLQ14	75.87	454.923	.738	.776	.947
HPLQ15	75.83	459.988	.666	.570	.949
HPLQ16	75.88	449.641	.772	.687	.947
HPLQ21	76.34	447.249	.762	.752	.947
HPLQ17	75.96	440.742	.861	.803	.945
HPLQ13	75.78	455.303	.732	.731	.948
HPLQ9	75.62	458.308	.672	.541	.949
HPLQ8	76.27	464.402	.566	.432	.951
HPLQ10	76.12	445.526	.815	.771	.946
HPLQ11	76.48	470.775	.462	.360	.952
HPLQ12	76.46	446.060	.801	.763	.946

Table 32: *HPL Summary Item Statistics and Item-Total Statistics*

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.533	.218	.868	.650	3.976	.016	17

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.HPLC Questionaire. My leader takes care that: - the health of all employees is promoted.	92.72	577.609	.696	.936
2.HPLC Questionaire. My leader takes care that: - all employees are motivated to take care of their health.	92.59	575.066	.715	.936
3.HPLC Questionaire. My leader takes care that: - the health of the employees is highly valued.	92.59	570.350	.759	.935
4.HPLC Questionaire. My leader takes care that: - there is enough time left for the work to be done.	92.68	599.326	.454	.941
5.HPLC Questionaire. My leader takes care that: - work under high pressure is not carried out over a longer period of time.	92.84	607.599	.387	.941
6.HPLC Questionaire. My leader takes care that: - work does not significantly affect private life.	92.83	632.333	.088	.947
7.HPLC Questionaire. My leader takes care that: - the resources and scope for personal development at work can be influenced.	92.83	594.306	.529	.939
8.HPLC Questionaire. My leader takes care that: - at work autonomous and independent action can be taken.	92.09	593.039	.575	.938
9.HPLC Questionaire. My leader takes care that: - all have the necessary scope to do their work.	91.44	587.308	.666	.937
10.HPLC Questionaire. My leader takes care that: - work is appreciated.	91.95	573.467	.800	.935
11.HPLC Questionaire. My leader takes care that: - efforts do not go unnoticed.	92.30	599.795	.477	.940
12.HPLC Questionaire. My leader takes care that: - all contributions are being acknowledged.	92.28	573.443	.795	.935
13.HPLC Questionaire. My leader takes care that: - work colleagues support each other.	91.60	584.122	.723	.936
14.HPLC Questionaire. My leader takes care that: - there is a good cooperation between all work colleagues.	91.69	584.488	.718	.936
15.HPLC Questionaire. My leader takes care that: - work colleagues talk openly to each other.	91.65	589.681	.653	.937
16.HPLC Questionaire. My leader takes care that: - all resources are fairly distributed.	91.70	577.436	.766	.935
17.HPLC Questionaire. My leader takes care that: - all employees are treated in a fair manner.	91.78	568.101	.845	.934

Figure 12: ***Scatterplot of HPL Worklife and Work Engagement indicating linear relationships***

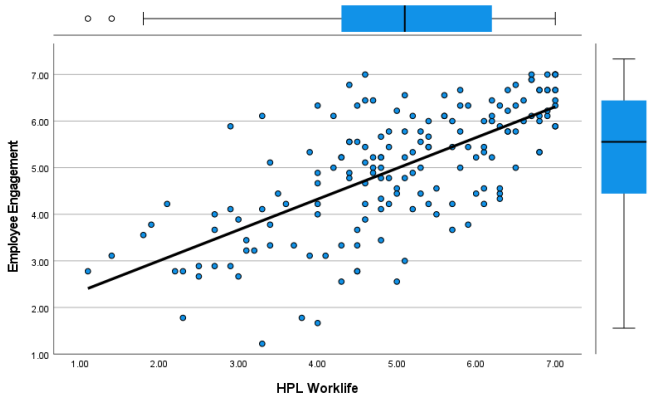

Figure 13: Scatterplot of HPL Overall and Work Engagement

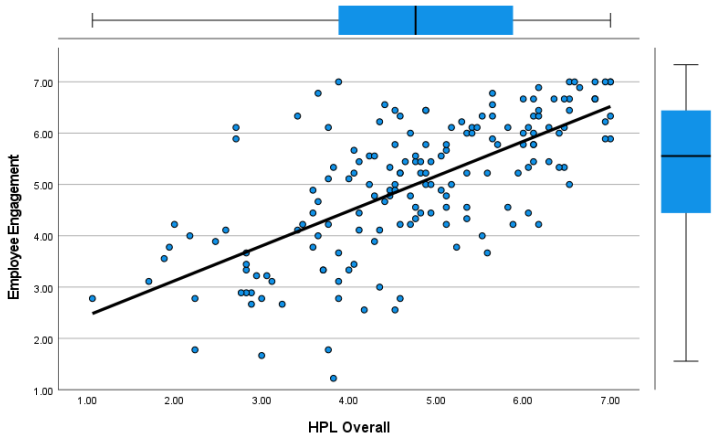

Figure 14: ***Scatterplot of HPL Overall and Wellbeing***

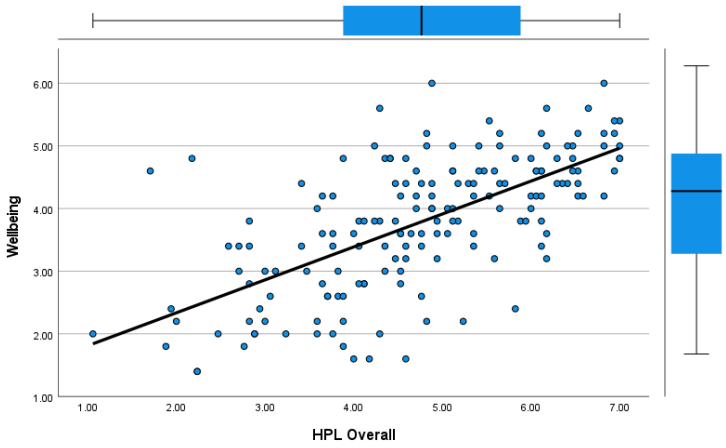

Figure 15: Scatterplot of HPL Health Awareness and Work Engagement

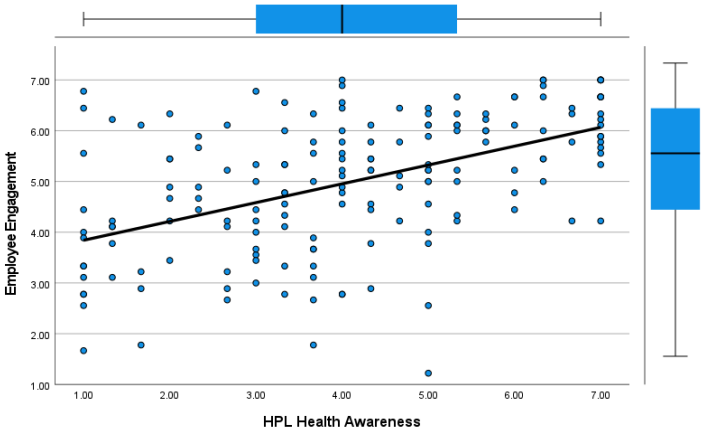

Figure 16: ***Scatterplot of HPL Reward and Work Engagement***

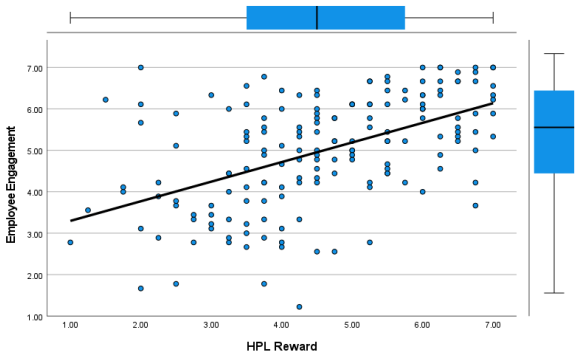

Figure 17: ***Scatterplot of Wellbeing and Work Engagement***

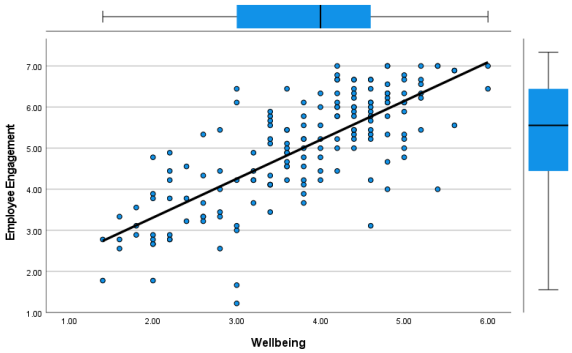

Figure 18: ***Scatterplot of Work Engagement and Wellbeing***