Well-being at work: The interconnection between personality, motivation and health

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Abstract

Research links motivation to well-being and personality. There have also been studies regarding the connection between personality and health. In one scientific study, certain personality traits and greater motivation predicted high levels of well-being, but greater motivation also predicted lower well-being when the individual had a high tendency to worry and pessimism. In order to help organisations to motivate employees and avoid burnout, a need exists to establish a deeper understanding of how employees' personality can alter how their motivation subsequently affects health. As such, the study aims to examine the possible moderation of personality on the motivation and well-being relationship. The study consisted of 151 individuals in employment (20-72 years of age) recruited through LinkedIn and company networks, who fulfilled the Maslach Burnout Inventory General Survey, the 60-item Temperament and Character Inventory, Public Health Surveillance Well-Being Scale and Situational Motivation Scale. The correlations confirmed the research questions and hypotheses that motivation and personality are respectively correlated with well-being and burnout, and motivation itself is linked with personality. The results of the multiple regression models showed limited support for the hypothesis of moderation. However, the analysis demonstrated that Persistence increased the positive effect that Intrinsic motivation had on Professional Efficacy. Practical implications would be to adjust the individuals' work after interests and values as well as to increase persistence in the workforce in order for this to increase the employees' belief in their own competence, and hence, their health and productivity.

Key words

Well-being
Self-determination theory
Work motivation
Psychological health
Temperament and Character Inventory
Personality
Burnout
Professional Efficacy

Acknowledgements

Introduction

For people working in organisations, motivation plays a vital role. Why? Because it leads to performance, creativity, vitality, self-esteem, persistence and well-being (Ryan & Deci, 2000). This might result from internal motivation of excitement and interest rather than externally controlled motivation (Ryan & Deci, 2000). Hence, it is important for leaders and organisations to have a deeper understanding on how to promote internal motivation, in turn boosting organisational performance and employee health. Recent research links both motivation and well-being, including health and burnout (Van der Broeck et al., 2012), as well as motivation and personality (Kanfer, 2012; Moreira et al., 2021; Ryan et al., 2019). There have also been studies regarding the connection between personality and health, for example in how a low tendency for anxiety and pessimism as well as a high tendency of self-directed behaviour is linked to higher well-being and lower levels of burnout (Spittlehouse et al., 2014; Björk, 2021). However, linking these three constructs together and examining the interconnection between the three, has to the extent of our knowledge not been widely examined and there is thus a lack of literature and studies in this specific field. Moreover, some of the few studies investigating this link are somewhat contradictory. In one scientific study, certain personality traits and greater motivation predicted high levels of well-being, but greater motivation also predicted lower well-being when the individual had a high tendency of pessimism and worry (Pushkar et al., 2002). Hence, in order to help organisations to better motivate their employees, we need to establish a deeper understanding of how the employees' personality can alter how their type of motivation subsequently affects their health.
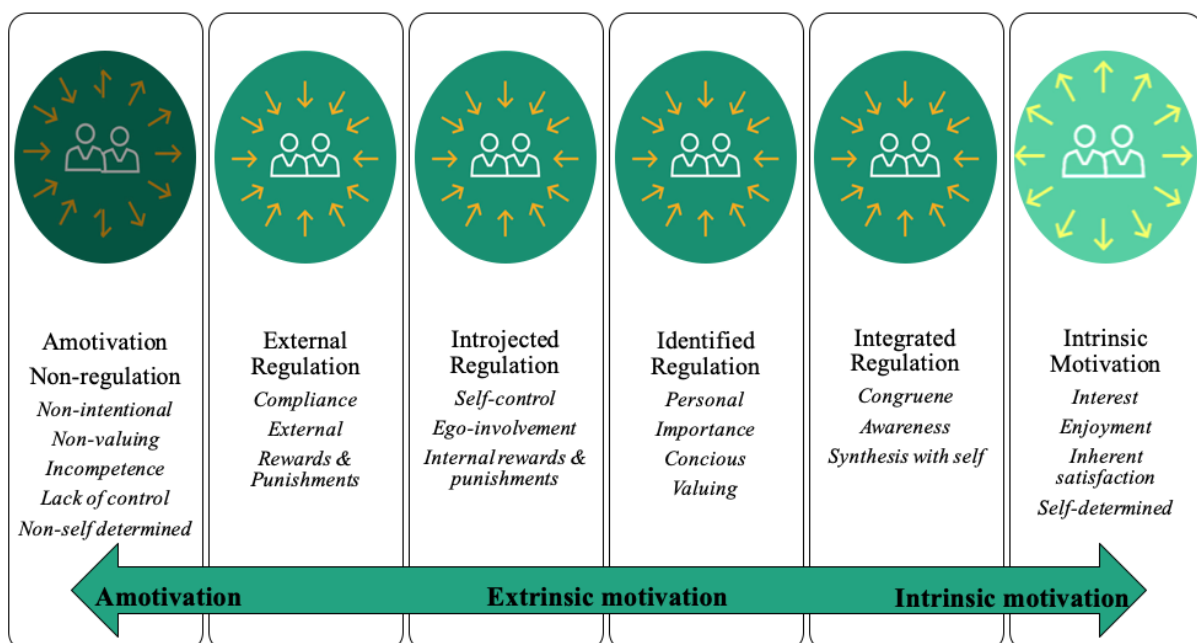
Theoretical background
Motivation based on Self-determination theory

Self-determination theory (SDT) is an established theory of work motivation that underlines inner resources for growth tendencies and psychological needs (Deci & Ryan, 1985). These needs are defined as *autonomy*, *competence* and *relatedness*, all of which facilitate human functioning for social development, growth and well-being. Autonomy is the need for self-determination of one's actions and experiences, which involves congruence with one's values and interests rather than independence (Richard et al., 2017). Competence is the human need to feel effective and master skills, and can alter between situations or due to criticism. Lastly, Relatedness refers to the need for social connection and of belonging. This includes both giving and receiving care and significance in social situations and groups (Richard et al., 2017). In the

context of SDT theory, motivation can then be understood as *Amotivation* which is a lack of a will to act and thus self-determination and autonomy are completely missing, as well as *Extrinsic motivation*, and *Intrinsic motivation* (Ryan & Deci, 2000). Extrinsic motivation is located between amotivation and intrinsic motivation, and varies with regard to style of regulation. *External regulation* is the least autonomous of the extrinsic motivation regulation styles and relates to fulfilling an external demand or reward. These behaviours are foreign to the self and externally controlled. *Introjected regulation* involves not fully accepting external regulations as one's own and the fulfilment of tasks to avoid anxiety or guilt or to demonstrate competence as part of a contingent self-esteem. *Identified regulation* is when the individual accepts the regulation as one's own after weighing the goals and is more autonomous, whereas *Integrated regulation* is when external regulations have been assimilated to one's own values and needs after a thorough evaluation. The different types of regulations within extrinsic motivation can be interpreted as controlling and tasks with this motivation are performed to attain an outcome, with small benefits to health and need satisfaction (Ryan & Deci, 2000). *Intrinsic motivation* on the other hand is the most self-determined and authentic type of motivation. The individual performs their actions because of the satisfaction that the tasks give them. Intrinsic and integrated regulation leads to well-being because of the fulfilment of the needs of relatedness, autonomy and competence, and it boosts performance. Recent studies suggest that internalisation and integration of external motivation can lead to self-determined motivation, which brings great benefits to performance, commitment, authenticity and well-being. When the environment supports the three needs, intrinsic motivation as well as integrated or internalised external regulation are more likely to be achieved (Ryan & Deci, 2000).

Figure 1
The Self-Determination Continuum of Motivation styles. Inspired from Deci & Ryan (2000).

Amotivation Non-regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Motivation
Non-intentional *Non-valuing* *Incompetence* *Lack of control* *Non-self determined*	*Compliance* *External* *Rewards &* *Punishments*	*Self-control* *Ego-involvement* *Internal rewards &* *punishments*	*Personal* *Importance* *Concious* *Valuing*	*Congruene* *Awareness* *Synthesis with self*	*Interest* *Enjoyment* *Inherent* *satisfaction* *Self-determined*

Amotivation ← **Extrinsic motivation** **Intrinsic motivation** →

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Burnout. In 2019, the World Health Organisation recognized burnout in the International Classification of Diseases as an occupational phenomenon (WHO, 2019). Its birth was however 50 years earlier, in the 1970s (Freudenberger, 1974, 1975; Maslach, 1976). Maslach defined burnout as an overwhelming *exhaustion*, feelings of *cynicism* containing anger and frustration, and *ineffectiveness* including failure (Maslach & Goldberg, 1998). The individual is unsure of their own performing capacity, cynical about the value of their work, and in a state of exhaustion (Leiter et al., 1997). Exhaustion is the individual's experience of stress, the feeling that one's physical and emotional resources are drained and the worker experiences fatigue. Cynicism often develops as a result of exhaustion as it leads to negative or exceeding detachment from the work, dehumanising and pessimizing others. Cynicism and exhaustion often function together to create a sense of ineffectiveness, the individual's interpretation of the stress situation. The worker feels incompetent and unproductive, but this may also relate to a lack of resources (Leiter & Maslach, 2004). These characteristics hinders optimal social and personal functioning and is often caused by the environment and an imbalance between demands and resources at work (Maslach & Goldberg, 1998). Many of those suffering from burnout will continue their work with poorer health and performance as a result, thus affecting the individual worker as well as the organisation. The revised conceptualization of burnout defines burnout as a crisis or conflict in the individual's relation to their work (Leiter et al., 1997). Organisational burnout is then defined as the prolonged cumulative response to chronic emotional or interpersonal stressors that are present in the job environment, which then lead to emotional tension and unrealistic expectations (Maslach & Goldberg, 1998). The other end of this continuum is *engagement* in one's work, experiencing efficiency, involvement, and energy (Leiter & Maslach, 2004). Burnout as a construct of health has been correlated to both motivation and personality traits respectively (Van der Broeck et al., 2012; Björk, 2021). Then again, the absence of disease is not equal to health. Health also involves physical, mental and social well-being (Davies, 1946). Hence, health is biopsychosocial in nature.

Well-being. "Well-being" can be difficult to define as a concept as, despite the many definitions between disciplines, there is no universally accepted definition and there are many different interpretations of well-being. One person can associate well-being to happiness, others to contentment, to physical or mental health, to the absence of sadness, etc. Well-being is likewise hard to measure since it cannot be observed directly. Throughout the years, the focus of the public's well-being has been mainly on "ill-health", i.e., the negative aspects of functioning such as mortality, morbidity, or cost measures. However, interest has been growing

towards the positive aspects of functioning such as positive affect, social connectedness, protective factors, different aspects of well-being and so forth. (Bann et al., 2012). National policy efforts in the US such as "Healthy people 2020" encouraged the change, where more focus should be placed upon health and well-being instead of sickness and disease (U.S. Department of Health and Human Services, 2011). An individual's sense of well-being can in fact lead to many beneficial outcomes in the areas of health, family and work (Lyubomirsky, King & Diener, 2005). Likewise, other beneficial outcomes include high productivity and performance, as well as a decreased likelihood for burnout and other harmful work behaviours (Lyubomirsky, King & Diener, 2005). Consequently, it is a vital issue to shed light upon and the examination of both physical, mental and social well-being will provide further insight into the numerous elements of health.

In previous well-being research, the concept has mainly been approached in two ways (Ryan & Deci, 2001). The first approach is referred to as *hedonic well-being* as well as *subjective well-being* (Diener, 1984) and reflects the individual's overall evaluation of the quality of their own life, which entails regular pleasant feelings, irregular unpleasant feelings, and a belief that one's life is generally satisfying. The second approach to well-being is referred to as *eudaimonic well-being* and illustrates that some needs are vital for the individual's psychological development and that these needs have to be fulfilled in order for the individual to reach their full potential (Ryan & Deci, 2001). In other words, it is connected to the pursuit of goals that are coherent with the individual's identity and values (McGregor & Little, 1998; Waterman, 1993). This well-being definition will be the definition used in this thesis as it connects to motivation and personality regarding needs-satisfaction and identity. This approach also includes the concept of *psychological well-being* (Ryff, 1989), which involves six important aspects of a well-functioning life. These are autonomy, personal growth, self-acceptance, purpose in life, positive relations and environmental mastery.

The relationship between motivation and health

The link between motivation and health is well-researched and established. In Van der Broeck's et al. (2012) study for example, those with high Intrinsic motivation in relation to Self-determination theory all scored highest on job satisfaction, lowest on burnout, and highest on work engagement. Those with low Intrinsic motivation had the opposite result (Van der Broeck et al., 2012). Motivation was the key factor influencing health at work, specifically Intrinsic motivation which satisfied the needs of autonomy, competence and relatedness, whereas those with External motivation experienced fatigue and poorer well-being (Koivisto et al., 2021). In Dagenais-Desmarais' et al. (2018) study, the results showed that External regulation was

unrelated to health and the three most self-determined motivations were connected positively to health. However, only Identified regulation was connected to health over time rather than Intrinsic motivation and they shared a reciprocal relationship, indicating that working in line with one's values and goals leads to well-being and vice versa. Well-being predicted both Intrinsic motivation and Identified- and Introjected- regulation, and subsequently, that well-being leads to more self-determined motivation (Dagenais-Desmarais et al., 2018). As mentioned above, working in line with one's own core values and being authentic in one's work is linked to well-being but also more to self-determined forms of motivation (Van den Bosch & Taris, 2018). People being high in positive affect, a construct often used to measure well-being, has been found to be correlated with Intrinsic motivation. When an extrinsically motivating task is described as "needs to be done", participants with high affect will spend the same amount of time completing the task as those in neutral affect. However, when the task was not as urgent, the workers in high affect chose to work on tasks that were intrinsically motivating more than those in neutral affect (Tenney et al., 2016). As such, well-being can lead to choosing more Intrinsic motivation tasks which in turn can increase motivation and health, and thus creating a spiralling effect (Tenney et al., 2016). In relation to the subject on health and motivation, those whose motivation was highly directed towards work rather than personal fields showed higher levels of burnout compared to those motivated by self-interests who still reported high levels of depression and burnout, and those motivated by personal hobbies who reported high levels of work ability and life satisfaction (Salmela-Aro & Nurmi, 2004), indicating that the type of motivation the individual experiences in turn affect their health and well-being.

The relationship between motivation and personality

It is likewise important to consider the connection between motivation and personality. Deckers (2014) demonstrated that research in fact shows how individuals are motivated in different ways depending on one's personality. The trait–environment correlation studies determine that the characteristics of the personality will determine how a person seeks out, modifies or creates situations (Deckers, 2014.). The Big-5 theory connected personality traits with how individuals choose their goals and their motivation and thus effectiveness to be able to achieve these goals (Deckers, 2014.). Another study showed that personality traits such as openness, conscientiousness and extraversion correlated positively with intrinsic achievement motivation, whereas extraversion, conscientiousness and neuroticism also correlated positively with Extrinsic motivation (Hart et al., 2007). Kanfer (1992) indicated that personality traits in turn influence performance through effects on motivational processes. He later on proposed

"three C's" for organising determinants of work motivation, namely content, context and change (Kanfer, 2008). Importantly for this study, content is about interindividual differences such as personality traits, interests, motives, and values (Kanfer, 2008). The Thorndike meta-organisational scheme suggests that lasting personal attributes such as personality will have an impact on work motivation (Kanfer, 2012). In further research, Kanfer (2012) states that the outcomes of motivation are affected by changes in initiation, intensity, direction, duration or persistence of the individual's action. Likewise, the forces that influence an individual's motivation occur both internally and externally (Kanfer, 2012), meaning that motivation is not a stable characteristic in every circumstance. A person can, for example, be more motivated when reading their favourite genre of book compared to reading a school textbook, and as such, both the context and the purpose of the action must be considered. Motivation is not merely a result of the environment; one's individual differences also contribute to performance and motivation (Kanfer, 2012).

The connection between personality, motivation and health

The triad of personality, motivation and health have previously been examined in the psychological field regarding leisure behaviour, food preferences, games and physical health (ex. Bogg et al., 2008; Orji et al., 2017; Bobić et al., 2012; Weissinger et al., 1984). However, the connection of personality with work motivation and mental health in the context of work has been less examined. One recent study examined how personality and motivation predicted well-being and coping during the COVID-19 pandemic. The results showed a negative association between pessimism, arousal seeking, arousability, autic (self-interest) and mastery dominances with well-being, as well as a positive association between paratelic and optimism motivation styles and alloic sympathy with well-being, (Hudson et al., 2021). Another study investigating health, motivation and personality in older volunteers concluded that the triad predicted well-being in volunteers and determined that neuroticism, openness, conscientiousness, extraversion and agreeableness were the reason behind becoming a volunteer and that these traits were related to higher well-being (Pushkar et al., 2002). The effect of environmental processes such as demands, contingencies, rewards and difficulties on levels of well-being were moderated by cognitive and motivational processes, i.e personality traits, health and type of motivation, as examined in the study (Pushkar et al., 2002). Both higher neuroticism and greater motivation predicted lower well-being as these individuals were the most motivated to volunteer but for reasons of distracting themselves from their own difficulties rather than helping others, in combination with high levels of neuroticism, which led to volunteering being ineffective and actually reducing well-being. This underlines the interaction

between personality and motivation on health that this present thesis endeavours to examine. Those who chose to volunteer were happier, more extraverted and scored high on self-determined motivation. This was because the individuals with these personality characteristics are more likely to volunteer, to be happy volunteering, and their self-determined choice is linked to higher inner motivation (Pushkar et al., 2002). The study also showed how other Big-5 personality traits such as extraversion, conscientiousness and openness influenced well-being (Pushkar et al., 2002). That being said, other personality models do not only describe individual differences, but also within individual differences, which might explain why individuals feel, think and behave in specific ways and in specific situations (Cervone, 2005).

Self-determination theory and its motivational types can be categorised as *Intrinsic* and *Extrinsic Aspirations* and describe what type of goal attainment the individual strives for (Deci & Ryan, 2000). Extrinsic aspirations include financial stability and achievement, social recognition and attractive looks, whereas Intrinsic aspirations include physical vigour, affiliation, self-acceptance and sense of community. People who put value on intrinsic life goals are more self-regulated in achieving them - in contrast, people were more controlled when they pursued extrinsic life goals (Deci & Ryan, 2000). Intrinsic aspirations positively correlated with subjective well-being, whereas Extrinsic aspirations interfered with this correlation (Deci & Ryan. 2000). The type farthest away in the Extrinsic motivation spectrum, amotivation, lacks a drive to fulfil basic needs and is not merely a form of controlled motivation. These individuals lack autonomy, relatedness and competence - the three needs of Intrinsic motivation, and scores lowest on performance and mental health. Environments prone to blockage of needs satisfaction promotes Amotivation, which in turn has negative effects on well-being (Ryan & Deci, 2000). However, literature does not relate Amotivation to health to the same extent as other extrinsic motivations. Extrinsic aspirations such as financial success and other such material outcomes are negatively correlated to well-being and the attainment of extrinsic goals leads to little or no benefit for well-being and are unrelated to the basic needs, which is in contrast to the attainment of intrinsic goals that in fact increases well-being. Individuals focusing on extrinsic goal-seeking experience lower scores of self-actualization, vitality and well-being - even when the type of motivational regulatory styles were taken away from the analysis (Ryan & Deci, 2000). This is the opposite of focusing on and achieving intrinsic goals, which is positively correlated with health and well-being because it fulfils the basic needs of competence, relatedness and autonomy and concerns autonomous regulation of goals, rather than controlled. It is believed that even when individuals are high in efficacy, attaining extrinsic rather than intrinsic goals will lead to suboptimal well-being (Ryan & Deci, 2000). In connecting personality with these

findings, in Nishimura and Suzuki's meta-literature study (2016), the Big-5 personality traits were established as a link between In-/Extrinsic aspirations and subjective well-being. Extrinsic aspirations such as political and economic goals were correlated with Extraversion, whereas Agreeableness and Neuroticism were correlated with Intrinsic aspirations such as social relations. Extrinsic aspirations such as materialism were found to positively correlate with Extraversion and Neuroticism, and negatively with Agreeableness and Openness. Another of the literature studies present in Nishimura and Suzuki (2016) proclaimed that high Agreeableness and Conscientiousness were associated with intrinsic goal striving which has led to higher well-being, and low Agreeableness, Openness and Conscientiousness were associated with extrinsic goal striving, which has led to lower well-being.

The Biopsychosocial model of personality

In 1993, Cloninger et al. proposed that personality takes form in the interaction between four dimensions of temperament and three dimensions of character. Personality is then viewed as a complex adaptive system which is best conceptualised and systematically organised based on interactions between an individual's temperament and character traits. In Cloninger's (1993) Biopsychosocial model, *Temperament* is regarded as biological characteristics that have been a part of the individual since birth and hence guide one's actions, making up our unintentional emotional reactions. *Character* on the other hand is susceptible to influences from the environment in which the individual grows up in and consists of our goals and values. The Biopsychosocial model incorporates both cultural, spiritual, biological, social and psychological aspects of the individual (Cloninger & Cloninger, 2011). The division into temperament and character covers both the automatic responses as well as the self-regulating part of personality (Cloninger et al., 1993). Temperament consists of *Novelty seeking* (dopamine related, impulsivity, curiosity, exploration), *Harm avoidance* (serotonin related, fear, worry, anxiety), *Reward dependence* (noradrenaline related, social attachment and needs, sentimentality), and *Persistence* (ambition, hard-working, perfectionism). Character on the other hand consists of highly cognitive functions and is made up of *Self-directedness* (self-acceptance, goal-directedness, resourcefulness, adapting behaviour to our goals), *Cooperativeness* (social tolerance, helpfulness, empathy, acceptance of others and ourselves) and *Self-transcendence* (meaning, flow, existential acceptance, seeing ourselves as part of something bigger). The Big-5 personality model has been linked to both motivation and health (Hart et al., 2007; Pushkar et al., 2002) and these traits are represented in Cloninger's personality model. Persistence could be seen correlating with Conscientiousness, Reward Dependence with Extraversion, Harm Avoidance with Neuroticism, Novelty Seeking with

Openness, Self-Directedness with Conscientiousness, Cooperativeness with Agreeability and Self-Transcendence with Openness (see Table 1 from Cloninger et al., 2019). No previous papers have examined the relationship between SDT motivation and personality using the Biopsychosocial model, but as evident in the correlation between TCI and the Big-5 that have been correlated with motivation, there is reason to believe that the Biopsychosocial personality model likewise can be correlated with certain motivation types of the SDT. The choice of the Biopsychosocial model in the plethora of personality models was based on its corresponding measurement of the TCI scale that has proven to be a reliable personality appraisal (Cloninger & Cloninger, 2011) and due to the established connection between the Biopsychosocial model of personality and health (see below), in particular burnout, that is of interest in the present study. The choice was likewise based on the fact that the Big-5 mainly measure temperament, which tends to be stable and constant, while the TCI measures both temperament and character. Character is susceptible to influences from the environment and thus something that can be worked upon, i.e., provide the workplace with the ability to make changes for the individual based on their interests and values to ultimately increase their health and productivity.

Table 1
Correlation between Temperament and Character Inventory (TCI) and Revised NEO Personality Inventory (NEO-PI-R) from Cloninger et al. (2019).

	HA	NS	RD	PS	SD	CO	ST
Neuroticism	**63**			-20	**-62**		
Extraversion	**-55**	40	**52**	40	25		22
Openness	-25	**43**	25				37
Conscientiousness	-26	-34		**51**	**41**		
Agreeability		-23	40			**61**	20

Note: Correlations over 0.4 in bold and other significant correlations over 0.2 shown.

Table 2

Scales and subscales of TCI temperament and character traits (Mihailovic et al., 2022).

Personality domain	TCI Scales	TCI sub-scales	High scores	Low scores
TEMPERAMENT	**Novelty-seeking**	**NS1** excitability **NS2** impulsivity **NS3** extravagance **NS4** disorderly	exploratory impulsive extravagant rule-breaking	reserved rigid thrift orderly
	Harm avoidance	**HA1** pessimism **HA2** fearfulness **HA3** shyness **HA4** fatigability	pessimistic fearful shy fatigable	optimistic risk-taking outgoing vigorous
	Reward dependence	**RD1** sentimentality **RD2** openness **RD3** attachment **RD4** dependent	sentimental warm friendly approval-seeking	objective aloof detached independent
	Persistence	**PS1** eagerness **PS2** hard-working **PS3** ambition **PS4** perfectionism	enthusiastic determined ambitious perfectionistic	hesitant spoiled underachieving pragmatic
CHARACTER	**Self-directedness**	**SD1** responsibility **SD2** purposefulness **SD3** resourcefulness **SD4** self-acceptance **SD5** self-actualizing	responsible purposeful resourceful unpretentious self-actualizing	blaming aimless helpless pretentious unfulfilled
	Cooperativeness	**CO1** social tolerance **CO2** empathy **CO3** helpfulness **CO4** compassion **CO5** conscience	tolerant empathetic considerate forgiving principled	prejudiced self-centred hostile revengeful opportunistic
	Self-transcendence	**ST1** self-forgetfulness **ST2** transpersonal identification **ST3** spiritual acceptance **ST4** contemplation **ST5** idealism	engaged joyfully connected altruistic faithful contemplative idealistic	self-concerned separate individualistic sceptical conventional cynical

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The relationship between personality and health

The Biopsychosocial model of personality has been linked to better well-being in previous research. For instance, Harm Avoidance and Self-directedness have proven to be important for well-being, resilience and longevity (Cloninger, 2004; DeNeve & Cooper, 1998; Lee et al., 2014) and Self-directedness in particular promotes mental health (Eley et al., 2013; Eley et al., 2016; Kim et al., 2013). In contrast to this, in a sample of health care workers, high Persistence and Harm Avoidance in combination with low Self-directedness (i.e. perfectionists) were at risk for burnout, anxiety and depression (Stoyanov & Cloninger, 2012; Gabbard, 1985; Myers & Gabbard, 2008). In a study of osteopathic patients, the personality of the patients

elucidated the variances of well-being as well as four of the ill-being measures, including depression and anxiety (Fahlgren et al., 2015). The main conclusion was that Self-ranscendence was linked to high levels of resilience and positive emotions (Fahlgren et al., 2015). In another study, the traits within the Biopsychosocial personality model had significant effects on well-being in a New Zealander sample, demonstrating how individuals lacking depression symptoms and with low Harm avoidance and high Self-directedness, also scored higher in well-being. In non-linear analyses, individuals with a combination or profile denoted by high levels of Self-directedness and Cooperativeness scored highest on well-being (Spittlehouse et al., 2014). In a Master's thesis written this previous year, higher health and lower burnout scores were associated with high levels of Persistence and Self-directedness, and low levels of Harm avoidance. Reward Dependence had a strong positive relation to self-reported biopsychosocial health and to the dimension of Professional Efficacy within Maslach's burnout concept. Individuals high on Cooperativeness had higher health scores and lower Cynicism scores, and Professional Efficacy was negatively associated with Cooperativeness. Lastly, congruent with previous studies, Self-directedness had the strongest correlation with high health scores (Björk, 2021).

The present study

The purpose of the present study is to examine a potential moderating effect of personality on motivation and health, specifically in a work context. In the aforementioned research, correlations have been made between health and motivation, personality and health, as well as motivation and personality, both within and outside the work environment. Thus, previous studies in the field of worker well-being have only scatteredly addressed the aim of the present study. Based on the strong correlations between the dyads and triads of the constructs, it is of interest to examine if one construct may affect the relationship between the other two. With personality serving as a predictor of motivation and health in previous studies (Kanfer, 2008; Fahlgren, 2015) this construct will serve as the moderating variable. Our literature review indicates that no articles at present examine the interconnection between personality, motivation and health, specifically within a work context, and most definitely not with personality acting as the moderator between worker motivation and employee health. As such, there is a gap in the literature that this study will endeavour to bridge. We predict, based on the aforementioned research, that personality may strengthen or lessen the effect that motivation has on health, as well as the direction of the relationship. With no research attesting to the notion of motivation causing personality or motivation only influencing health based on

personality, personality as a mediating variable will not be examined in this study. To limit the scope of the study, in line with the focus on well-being and based on the strongest correlations in previous research, only Intrinsic motivation from the motivational constructs and Self-directedness, Harm avoidance and Persistence from the personality dimensions, will be included in the present study.

Figure 2
Correlations between the selected motivational constructs, personality dimensions, well-being, and burnout components of previous studies.
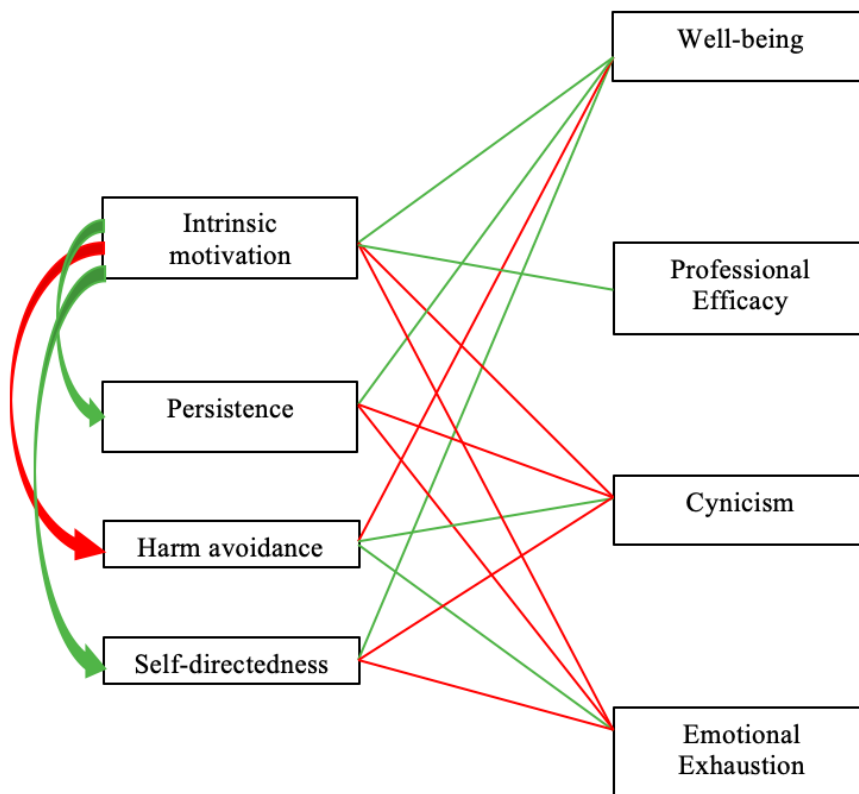
Limitations of previous research

Regarding the limitations of previous research, Dagenais-Desmarais' et al. (2018) study on health and motivation used a population where the majority were public sector workers which can skew the results in relation to a representative sample of the workforce and the exclusion of Amotivation in the motivation scale can limit the explained variance of health. The articles highlighting the correlation between health and personality were possibly affected by pandemic-related factors, unbalanced gender distribution and the population living in areas of high-frequency earthquakes. Björk's (2021) study had a relatively low response rate and may have distorted data and Fahlgren's et al. (2015) study used a linear model for non-linear

dynamic adaptive systems which can affect the correlation and prediction results and did not control for sociodemographic factors. Lastly, Spittlehouse's et al. (2014) article on personality and health had a population of a limited age range as well as usage of self-reported data which can be unreliable when participants want to control others' interpretation of them. Thus, the present study can contribute to explaining the relation between personality and health, and motivation and health, whilst aiming to control for some of these factors.

Those studies made on the triad connection have been focused on the context of the COVID-19 pandemic in the UK (Hudson et al., 2021) and on a non-working population over 55 years of age (Pushkar et al., 2002). Both studies generated only a small sample and in the COVID-19 study the correlational nature prohibited causal conclusions to be drawn between certain motivation experiences and higher well-being, as well as focusing on a UK population where pandemic lockdowns were harsh and widespread, a factor that could have altered the motivational and well-being scores of the population to a higher degree than other populations. Hudson's et al. (2021) negative correlation between arousal-seeking and well-being could be due to the lockdown context where those high in arousal-seeking cannot get their needs met and this deteriorates their well-being. As such, a need is established to study the correlation away from a lockdown context, a possibility in this study where restrictions are uplifted and Sweden has not had severe lockdowns restricting the population. Pushkar's et al. (2002) study of health, motivation and personality is limited to a population over 55 years of age and volunteers, a group which is characterised by higher levels of happiness and well-being both due to their age and due to their interest in volunteering. Pushkar's et al. (2002) study also revealed significant differences between study groups, where current volunteers had higher education levels and were more likely to participate in the study's follow-up and also scored higher on happiness and health. These differences can take into question the comparability of the groups and the results may be affected by the correlation between higher education and health that previous psychological studies have established. In light of this, the present study can contribute to examining the connection of the personality, health and motivation triad, in a context of broader age-range, work fields and non-pandemic factors.

The focus on health

Today, employees' health is cast into focus, with burnout becoming an official occupational phenomenon in 2019 (WHO, 2019) and recognized as a widespread problem for organisations worldwide, as well as the consequences of the COVID-19 pandemic, where a rapid decline in workers' health and well-being have been reported in multitudes of scientific articles (ex. Roberts et al., 2021; Brown et al., 2021). At the same time, organisations strive to

increase the engagement of their workforce as another means of boosting performance, health and results. In the endeavour for engaged employees, the opposite of burned-out workers, the motivational actions taken by organisations must be brought into the light. The more intrinsic and internal the motivation, the higher the performance and health scores. However, there is not a one-cap-fits-all motivational speech, task or structure that will lead to the same high level of well-being for all employees, which surely must be the goal. The personality of employees has already been thoroughly linked to both motivation as well as health, but has not been studied as a potential disturbance or enabler in this relationship. As such, there is a need for increased knowledge in the potential relationship between motivation, personality and health within organisations. The hypothesis of this thesis is that one type of motivation will lead to higher or lower well-being through the construct of personality, than another. Potential gains from this study is a better understanding of the role that workers' personality may have between worker motivation and health for employees. The hope is that this understanding will help organisations improve their engagement practices in relation to the individual's own requirements, goals and personality, in order to increase not only health and reduce burnout, but also boost performance.

Research questions

As such, the research questions are as follows:

1. Is personality as defined by the Biopsychosocial model of personality correlated with work motivation in Self-determination theory?

2. Is personality as defined by the Biopsychosocial model of personality correlated with worker's health defined by burnout and well-being?

3. Can personality as defined by the Biopsychosocial model, be a moderating variable in the relationship between worker well-being and worker motivation?

Hypotheses

Hypothesis 1. Health is correlated with motivation; Intrinsic motivation will positively correlate with well-being and negatively with burnout (Van der Broeck's et al. (2012; Koivisto et al., 2021; Ryan & Deci, 2000). Extrinsic motivation will negatively correlate with well-being and positively with burnout (Ryan & Deci, 2000).

Hypothesis 2. Motivation defined by SDT is correlated with the TCI model of Personality. Personality traits such as Openness, Conscientiousness and Agreeability is correlated positively with Intrinsic achievement, whereas Extraversion and Neuroticism is correlated positively with Extrinsic motivation (Hart et al., 2007; Nishimura & Suzuki, 2016). Due to the correlation between these Big-5 traits and TCI (Cloninger et al., 2019) we

hypothesise that Persistence, Self-directedness, Cooperativeness, and Novelty-seeking positively correlate with Intrinsic motivation, and Harm avoidance and Reward Dependence positively correlate with Extrinsic motivation.

Hypothesis 3. Health is correlated with personality; low Harm avoidance, high Self-directedness and high Persistence will be positively correlated with well-being and negatively with burnout (Eley et al., 2013; Eley et al., 2016; Kim et al., 2013; Cloninger, 2004; DeNeve & Cooper, 1998; Lee et al., 2014; Spittlehouse et al., 2014; Björk, 2021). High Harm avoidance and low Self-directedness will be negatively correlated with well-being and positively correlated with burnout (Stoyanov & Cloninger, 2012; Gabbard, 1985; Myers & Gabbard, 2008).

Hypothesis 4. Due to the correlations between the aforementioned personality traits, motivation and health in the hypotheses above, we believe that High Persistence and Self-directedness will affect Intrinsic motivation so burnout will reduce and well-being increase. High Harm Avoidance will affect Intrinsic motivation so burnout will increase and well-being decrease.

Figure 3
The potential moderation effect of personality on motivation and health for hypothesis 4
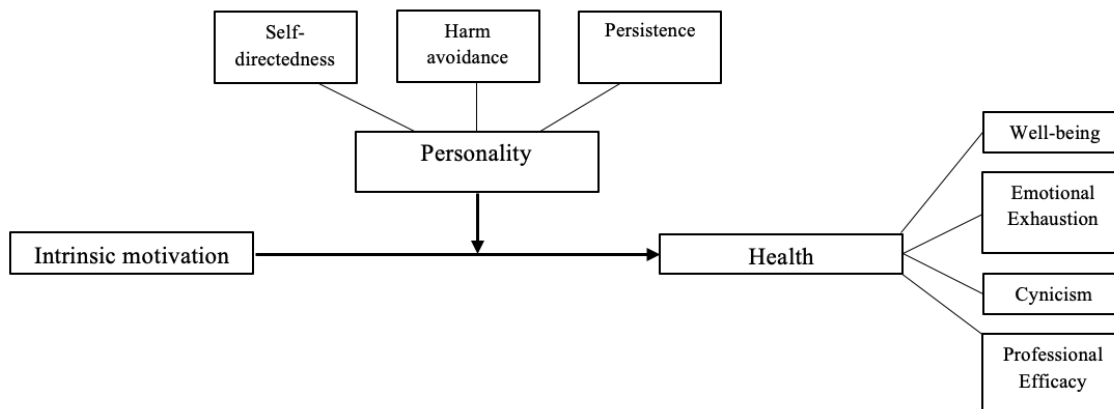
Method

Participants

A survey was sent out to a population of adults ranging from the ages of 20 to 75 in Sweden working in part- or full-time employment (10-40 hours or more per week). The amount of work hours was decided upon so that work would have a relatively big influence on the participants' day-to-day. The reason for this wide age range was the preference of respondents to have had at least a couple of years of work experience to be able to provide detailed responses, but still be actively participating in working life, and covering the majority of the population. All hour-ranges and work categories were included in the sample, as well as all

those working within a Swedish work context, to be able to generalise the findings to as big a part of the entire Swedish workforce as possible. A total of 239 respondents entered the survey but failed to answer to its completion. As such, the sample consisted of 158 participants in total, with some variables only containing 151 participants. Of the sample, 3 defined themselves as other, 106 were female and 49 were male ($N = 158$, 83 missing). The mean age was that of 44.6 (Sd. $= 15.72$, $N = 156$, 83 missing). 8.2% ($n = 13$) answered that their main vocation was studies, 12% ($n = 19$) answered part-time work, 72.8% ($n = 115$) worked full-time, and 7% ($n = 11$) had other vocations such as self-employment. Furthermore, 51.3% ($n = 81$) answered that they worked 30-40 hours a week, 31% ($n = 49$) worked more than 40 h/w, 7.6% ($n = 12$) worked 20-29 h/w, 3.8% ($n = 6$) worked 10-19 h/w and 6.3% ($n = 10$) worked 0-9 h/w. Regarding the participants' work situation, 71.5% ($n = 113$) worked in Sweden for a Swedish company, 10.8% ($n = 17$) worked in Sweden for a foreign company, 1.3% ($n = 2$) worked abroad for a foreign company, 0.6% ($n = 1$) worked abroad for a Swedish company, and 15.8% ($n = 25$) had another work situation. The respondents showed great range between the work categories; the 3 main categories were administration, business and management at 28.5% ($n = 45$), healthcare at 14.6% ($n = 23$) and financial services at 12.7% ($n = 20$).

Design

Participants were recruited through an online publication of the survey on social media pages such as Facebook and Instagram, but primarily on Linkedin. The survey was shared on various of our contacts' own networks, as well as on several companies' internal networks and private social networks. The survey was sent or accessed via link along with the consent form and information sheet created for the questionnaire. In order to create the survey, the multilingual online survey tool LimeSurvey was used. The survey was constructed with an initial section of demographic questions, and then proceeded with 4 respective sections containing the different scales. The scales and examples of their questions are outlined below. The demographic questions covered gender, age, main vocation, work hours a week, category of work and the present work situation with the alternatives: working in Sweden for a Swedish company, working abroad for a Swedish company, working in Sweden for a foregin company and working abroad for a foreign company. This question was added to the survey to filter the participants at a later stage so only those working within a Swedish work context would make up the data. This was aligned with the focus of the research where the interest lay in motivational aspects affecting work health through personality for Swedish workers. A non-

Swedish work environment or company may have had very different motivational structures or incentives and cultural aspects may have affected the answers.

Instruments

Temperament and Character Inventory (TCI-60)

The TCI was created by Cloninger (Cloninger et al., 1993) to measure personality as a biopsychosocial construct and was used in this study to calculate personality. This personality test was used to measure an individual's temperament and character, the two aspects of personality according to the model. The study used the shortened version of the 240-item questionnaire that was validated for Swedish use (Brändström et al., 2008). It is self-administered and consists of 60 items, answered on a 5-point Likert scale from 1 = definitely false to 5 = definitely true (Björk, 2021). Examples of questions for Novelty Seeking are "*Jag prövar ofta nya saker bara för skoj skull eller spänning, även om de flesta människor tycker att det är slöseri med tid*" [I often try new things just for fun or thrills, even if most people think it is a waste of time] and Cooperativeness are "*Jag kan vanligtvis acceptera människor som de är, även när de är väldigt annorlunda från mig*" [I can usually accept other people as they are, even when they are very different from me]. The Swedish translation followed the American structure and had good relationships between and within scales, subscales, as well as means and distribution of scores. The results showed a good test-retest performance and reliable factor structure (Brändström et al., 1998). Cronbach α was between .75-.84 for character subscales and between .56-.85 for temperament subscales, with Cronbach's α consistent within each scale. The mean values and standard deviations were within 10% difference between the American and Swedish versions. In correlations between character and temperament, Harm avoidance with Self-directedness, Reward dependence with Cooperativeness, and Cooperativeness with Self-directedness, all had correlation coefficients above the cutoff ($r > 0.30$), whereas the other constructs had weak relations among TCI dimensions. The American and Swedish versions had similar factor structure, correlations between scales, test-retest reliability, reliability of scales and were a successful translation of the scale and representative of the Swedish population (Brändström et al., 1998).

Maslach's Burnout Inventory General Survey (MBI-GS)

The MBI-GS was adapted from MBI and connected to broader categories of occupations. The 16-item self-administered scale took 5-10 minutes to complete and measured burnout in relation to a discrepancy between work and oneself. The opposite on the burnout continuum is engagement. The scale consisted of the subscales cynicism, professional efficacy,

and exhaustion; low degree of efficacy and high degree of exhaustion and cynicism indicated higher levels of burnout (Leiter et al., 1997). Exhaustion was measured through 5 items, e.g. *"Jag känner mig helt slut när arbetsdagen är över"*[I feel used up at the end of the workday], Efficacy by 6 items; e.g. *"Enligt min egen åsikt gör jag ett bra jobb"* [In my opinion, I am good at my job] and Cynicism by 5 items, e.g. *"Jag har blivit mindre engagerad av mitt arbete"* [I have become less enthusiastic about my work] which were answered on a 7-point rating scale between 0 = never to 6 = daily (Schutte et al., 2000). Exhaustion (0.65), Efficacy (0.67) and Cynicism (0.60) all had acceptable stability coefficients, were applicable to a broad area of work fields, and were related to other relevant constructs (Leiter et al., 1997). The Swedish translation of MBI-GS yielded acceptable validity and reliability between 0.71-0.90 (Eriksson & Löfgren, 2014).

Public Health Surveillance Well-Being scale (PHS-WB)

The PHS-WB was designed to capture mental, physical and social components of well-being as well as assessing the individuals' attitudes and beliefs about illness and disease, health behaviours, health information, health risks etc. It was answered using several different Likert scales for its various divided parts, for example from 1 = does not agree to 5 = totally agrees, or 1 = no time at all to 5 = all the time. The scale items reflected the following domains: satisfaction with life, meaning in life, autonomy, competence, relatedness, and positive and negative affect through statements such as "*Jag är tillfredsställd med mitt liv*" [I am satisfied with my life], "*Mitt liv har ett tydligt syfte*" [My life has a clear sense of purpose] and "*De flesta dagar får jag en känsla av att jag har åstadkommit något*" [Most days I feel a sense of accomplishment from what I do]. These three, autonomy, relatedness and competence, were also directly connected to Self-determination theory (SDT). As previously mentioned, SDT suggests that goal-directed behaviours are driven by autonomy, relatedness and competence, i.e., that these are the three psychological needs of Intrinsic motivation (Ryan & Deci, 2017). As such, this scale was deemed suitable for this particular study. The PHS-WB scale yielded good internal consistency ($\alpha = 0.87$) and correlated strongly with scores for the whole item pool ($r = 0.94$). The construct validity of the scale was supported as the scores correlated with global measures of similar constructs and differed across demographic groups. The abbreviated 10-item PHS-WB also demonstrated a minimal loss of information from the 34-item PHS-WB, seeing as it resulted in good psychometric properties and correlated highly with the item pool (Bann et al., 2012). Hence, this study used the 10–item PHS-WB.

Situational Motivation Scale (SIMS)

SIMS was designed to examine four motivation dimensions, namely Intrinsic

motivation, External regulation, Identified regulation and Amotivation (Deci & Ryan, 1985). Five studies were conducted to validate it and the results demonstrated that SIMS represents a versatile self-report measure of the four constructs mentioned above, with construct validity of the scale being established correlations with relevant constructs (Guay et. al, 2000). The present study used the Swedish and modified version (see Andersson Arntén et al., 2016) of SIMS, where each statement was answered using a 7-point Likert scale ranging from 1 = extremely disagree to 7 = extremely agree. The modified version slightly reframed the items to specifically ask for motivation at work. Examples of statements regarding the scale's question "*Varför är du engagerad i ditt nuvarande arbete?"* [Why are you currently engaged in this activity?] from the Swedish modified version were *"Det kan hända att det finns bra anledningar, men personligen ser jag inga"* [There may be good reasons to do this activity, but personally I don't see any]. The following Cronbach's alphas for reliability have been reported for the SIMS: Intrinsic Motivation .85, Identified Regulation .71, External Regulation .77, and Amotivation .86 (Lindahl & Archer, 2013).

Reliability of the Scales in the Present Study

Cronbach's alpha was used to test the internal consistency of the study in line with Tavakol & Dennick's (2011) statement that an alpha coefficient between .70 to .95 is an acceptable reliability score. The scale of MBI-GS had high reliability with the three components Professional Efficacy ($\alpha = .87$), Emotional Exhaustion ($\alpha = .85$) and Cynicism ($\alpha = .79$). SIMS consisted of four items that all demonstrated an acceptable reliability score; Intrinsic Motivation ($\alpha = .90$), Identified Regulation ($\alpha = .76$), External Regulation ($\alpha = .82$) and Amotivation ($\alpha = .80$). Well-being was measured with PHS-WB that had a Cronbach's α of .87. Lastly, personality measured by TCI-60 demonstrated the following internal consistency; the components Harm Avoidance ($\alpha = .80$), Novelty-Seeking ($\alpha = .75$), Persistence ($\alpha = .77$), and Self-Transcendence ($\alpha = .75$) reported high reliability, whereas Reward Dependence ($\alpha = .54$), Cooperativeness ($\alpha = .67$) and Self-Directedness ($\alpha = .70$) reported somewhat lower values.

Ethical considerations

The research project adopted and conformed to the ethical rules of the Swedish Research Council. The study did not use a method that included physical intrusion or a method that might have affected the participants psychologically or physically, collected sensitive personal data that could be tied to a specific person or risked psychological or physical damage for any of the participants. No negative consequences were predicted from taking part in this research project

and no sensitive questions were asked in the survey. The survey opened up with a consent form that informed the participants of the anonymity and voluntariness of their participation, and some information regarding the content of the survey they were about to answer. The consent form also stated that by clicking on the "Next" button, they gave their consent to participate, but that they were free to drop out from the survey at any given time. The welcoming page also expressed that the information gathered from the survey would be used solely for the purpose of the present thesis, and that participants' identities were impossible to determine from their answers.

Procedure

The data analysis was executed with the SPSS statistical package for social sciences version 28 (2021). When the data collection was closed with the discontinuation of the survey, the data was then downloaded and transformed to fit the requirements of SPSS before it was opened in its interface. The TCI-60 and MBI-GS were computed to create individual variables out of the 7 personality components of TCI-60 and the 3 burnout components of MBI-GS. The scale of PHS-WB was computed to the variable of well-being, and SIMS was computed to create the 4 distinct variables of Amotivation, External regulation, Identified regulation and Intrinsic motivation. An SPSS Syntax was used during this part of the data analysis and it was done to simplify the calculation of the scales and to save time by eliminating the need to perform each step manually. Regarding SIMS, all of the individual items related to each of the motivation dimensions of Intrinsic motivation, External Regulation, Identified regulation and Amotivation were computed through the use of the syntax. For instance, when calculating the items that were associated with Intrinsic motivation, the items SIMS1, SIMS5, SIMS9 and SIMS13 were added together and then divided by four, generating Intrinsic motivation in SPSS. The syntax also calculated the reliability of the new variables automatically through Cronbach's alpha, which was then subsequently generated in the SPSS output. Likewise, the syntax was used to calculate each item in the MBI-GS to the subscales Cynicism, Professional efficacy and Emotional exhaustion, as well as calculating the Cronbach's alpha of the new variables. An internal non-response was set at a level of maximum 5% as the acceptable cutoff, with more than one answer missing in the respondent's survey causing that respondent to be removed from the sample. This is congruent with the set values for MBI-GS and TCI-60 (Cloninger et al., 1993; Maslach et al., 1996) as well as PHS-WB where only half of the items must be answered for the data to be usable (Bann et al., 2012). No respondents had more than 1 item missing from their answers and therefore no respondents had to be removed. In order to examine the

correlations between personality components, burnout variables, motivational types and well-being, a series of correlation analyses were executed using Pearson's *r*. After the correlations were established, a series of Multiple Linear Regression analyses were performed to examine the moderating effects of personality on motivation and health with motivation and personality as main effects (partial or conditional effects as Hayes et al. 2012 points out) in the first step and their interaction effect in the next step (Nima et al., 2013). The chosen variables in the models were based on results from previous research and the correlations found in the present study's own sample. In order to do this, the relevant variables were standardised and their interaction effect created as a moderator variable, as is the widely used procedure (Hayes et al., 2012). These variables were then used in a selected few multiple linear regression models based on the study's directional hypotheses due to the limited sample size and previous research: Intrinsic motivation was the motivational type used as a predictor in all regression analyses based on the focus of this present study of improving workplace health. Persistence, Harm avoidance and Self-directedness were used as the second predictors respectively, due to the clear correlations they had with Intrinsic motivation and health in this and previous studies. They were individually combined with Intrinsic motivation as a moderator variable and their individual and combined effects on well-being, Emotional exhaustion, Cynicism and Professional efficacy were examined respectively. This resulted in 12 separate regression analyses. For the analyses to be proven statistically significant, a significance level of 0.05 was set as standard (McElreath, 2020).

Results

Descriptive statistics

Table 3 presents the descriptive statistics of the dependent and independent variables. This included the number of participants, minimum and maximum values, mean and standard deviation, and skew and kurtosis.

Table 3

Number of observations, minimum value, maximum value, mean and standard deviation, skew and kurtosis for personality dimensions, burnout components, motivational types and health

Variable	N	Min value	Max value	M	SD	Skew	Kurtosis
Novelty Seeking	158	1.40	4.40	2.85	0.59	.136	-.262
Harm Avoidance	158	1.00	4.14	2.46	0.79	.199	-.752
Reward Dependence	158	2.29	5.00	3.72	0.56	.049	-.711
Persistence	158	1.89	5.00	3.55	0.61	-.089	-.130
Self-Directedness	158	1.89	5.00	3.78	0.58	-.761	-.744
Cooperativeness	158	1.89	4.89	3.82	0.51	-.644	.820
Self-Transcendence	158	1.00	4.25	2.29	0.70	.588	.062
Intrinsic Motivation	151	1.00	7.00	5.40	1.31	-1.065	.914
Identified Regulation	151	1.00	7.00	5.27	1.13	-1.120	1.924
External Regulation	151	1.00	7.00	3.42	1.50	.370	-.646
Amotivation	151	1.00	7.00	2.03	1.17	1.615	3.098
Health	151	4.00	39.00	27.02	7.02	-.704	-.046
Emotional Exhaustion	153	.00	6.00	2.14	1.30	.775	.463
Cynicism	153	.00	5.40	1.69	1.30	1.140	.642
Professional Efficacy	153	.00	6.00	4.89	1.03	-1.766	4.445

All variables produced a skewness within ±2 (between .049 to -1.766) and kurtosis within ±7 (between -.046 to 4.445) and were thus considered normally distributed (Byrne, 2010; Hair et al., 2010). Professional Efficacy, Amotivation and Identified Regulation were the variables with the highest or lowest values and at the risk of abnormal distribution. No variables violated the cutoff values above or below ±2 and ±7 and thus, no variables had to be removed from further analyses.

The correlations between health, personality dimensions and motivational types

Table 4 presents the correlation coefficients between well-being, the 3 components of burnout, the 7 dimensions of personality and the 4 types of motivation with a Pearson's *r* and a significance level of .05.

Table 4

Correlation matrix. Correlation coefficients for personality dimensions, burnout components, well-being and motivational types.

Var	NS	HA	RD	PS	S-d	Co	S-t	IM	IR	ER	AM	WB	EE	Cyn	PE
NS	-														
HA	-.37**	-													
RD	.15	-.08	-												
PS	.05	-.36**	.05	-											
S-d	.00	-.62**	.11	.40**	-										
Co	-.21**	.04	.36**	0.15	.09	-									
S-t	.26**	-.01	.24**	0.04	-.03	.13	-								
IM	-.03	-.39**	.25**	.20*	.44**	.21*	.01	-							
IR	.04	-.35**	.18*	.20*	.36**	.04	-.06	.69**	-						
ER	-.04	.24**	-.02	-.09	-.31**	-.12	-.03	-.47**	-.17*	-					
AM	.08	.24**	-.10	-.19*	-.39**	-.22**	.14	-.59**	-.42**	.40**	-				
WB	.24**	-.61**	.15	.25**	.65**	.10	.12	.48**	.44**	-.29**	-.33**	-			
EE	.05	.45**	.07	-.04	-.46**	.06	.12	-.47**	-.42**	.30**	.38**	-.53**	-		
Cyn	.02	.44**	-.24**	-.08	-.46**	-.09	.06	-.69**	-.55**	.49**	.55**	-.49**	.55**	-	
PE	.07	-.37**	.30**	.36**	.34**	.28**	.08	.44**	.38**	-.08	-.37**	.38**	-.18*	-.25**	-

Note: *$p < .05$ (2-tailed); **$p < .01$ (2-tailed). NS = Novelty-Seeking, HA = Harm Avoidance, RD = Reward Dependence, PS = Persistence, S-d = Self-directedness, Co = Cooperativeness, S-t = Self-transcendence, IM = Intrinsic Motivation, IR = Identified Regulation, ER = External Regulation, AM = Amotivation, WB = Well-being, EE = Emotional Efficacy, Cyn = Cynicism, PE = Professional Efficacy.

Health and personality

Well-being was positively correlated with the personality dimensions Novelty-seeking ($r = .24$, $p = <.01$) and Persistence ($r = .25$, $p = <.01$) at a relatively low level (see Ferguson, 2009 for interpretation of effect sizes) and Harm avoidance ($r = -.61$, $p = <.01$) and Self-directedness ($r = .65$, $p = <.01$) at a moderate level. Furthermore, Emotional Exhaustion was significantly positively correlated with Harm avoidance ($r = .45$, $p = <.01$) and negatively with Self-directedness ($r = -.46$, $p = <.01$), whereas Cynicism was positively related with Harm avoidance ($r = .44$, $p = <.01$) and negatively with both Reward dependence ($r = -.24$, $p = <.01$) and Self-directedness ($r = -.46$, $p = <.01$). Professional Efficacy was negatively correlated with Harm avoidance ($r = -.37$, $p = <.01$) but positively correlated with all of Reward dependence (r

= .30, p = <.01), Persistence (r = .36, p = <.01), Self-directedness (r = .34, p = <.01) and Cooperativeness (r = .28, p = <.01). These results indicate a clear connection between personality and health where the individual that is ambitious and hard-working, goal-minded, responsible and prone to impulsivity and excitability, experiences higher health, lower burnout and believes more in their professional efficiency. This is also true but to a lesser degree for those that are helpful, compassionate, warm and open. Those individuals that are prone to more pessimism and fear experiences higher burnout levels, lower well-being and feel less professionally efficient.

Health and motivation

Well-being and burnout was furthermore significantly correlated with all four motivational types. Well-being was moderately positively correlated with Intrinsic Motivation (r = .48, p = <.01) and Identified Regulation (r = .44, p = <.01), and demonstrated a low negative correlation with External Regulation (r = -.29, p = <.01) and Amotivation (r = -.33, p = <.01). Moreover, Emotional Exhaustion was negatively correlated with Intrinsic Motivation (r = -.47, p = <.01) and Identified Regulation (r = -.42, p = <.01), whereas it was positively correlated with External Regulation (r = -.30, p = <.01) and Amotivation (r = .38, p = <.01). Cynicism followed the same pattern and was negatively correlated with Intrinsic Motivation (r = -.69, p = <.01) and Identified Regulation (r = -.55, p = <.01) but positively related to External Regulation (r = -.49, p = <.01) and Amotivation (r = .55, p = <.01). Contrarily, Professional Efficacy demonstrated the opposite result and was positively correlated with Intrinsic Motivation (r = .44, p = <.01) and Identified Regulation (r = .38, p = <.01) and negatively correlated with Amotivation (r = -.37, p = <.01). However, Professional Efficacy had no correlation to External Regulation. The results demonstrate that individuals experiencing higher well-being and lower burnout also experience more inner motivation.

Motivation and personality

Lastly, a clear significant correlation was found between many motivational types and personality dimensions. Identified regulation means accepting external regulations as one's own, and was low to moderately positively correlated with Reward dependence (r = .18, p = <.05), Persistence (r = .20, p = <.05) and Self-directedness (r = .36, p = <.01) and negatively correlated with Harm avoidance (r = -.35, p = <.01). Intrinsic motivation followed the same pattern as Identified regulation and was positively related with Reward dependence (r = .25, p = <.01), Persistence (r = .20 p = <.01), Self-directedness (r = .44, p = <.01) but also Cooperativeness (r = .21, p = <.05) and negatively correlated with Harm avoidance (r = -.39, p = <.01). These results demonstrate that individuals that are goal-minded and resourceful,

ambitious, warm and open are more autonomously motivated. Experiencing the most self-regulated motivation would also mean being tolerant, empathetic and considerate. Performing your job in order to achieve rewards, avoid punishments or be compliant as with External regulation had a clear connection with being fearful and pessimistic as with Harm avoidance (r = .24, p = <.01) and had a clear negative correlation with self-actualization and purposefulness as with Self-directedness (r = -.31, p = <.01). Finally, feeling no motivation towards work at all correlated with being fearful and pessimistic (r = .24, p = <.01), whereas individuals that were hard-working and ambitious (i.e., high Persistence: r = -.19, p = <.05), goal-minded and responsible, and helpful and considerate, experienced inner motivation and low levels of Amotivation (Persistence: r = -.19, p = <.05; Self-directedness: r = -.39, p = <.01; Cooperativeness: r = -.22, p = <.01).

The moderation of personality on motivational types and health

Multiple linear regression analyses were used to test if the personality traits and motivational types significantly predicted participants' ratings of health, both separately and with personality acting as a moderator variable between Intrinsic motivation and health. The results from these analyses can be seen in tables 5 to 7 below.

Table 5

Multiple Linear Regression results. Intrinsic motivation, Harm avoidance and their interaction effect's relation to health.

Predictor variable	Outcome variable	Adj. R^2	B	SE	β	F	t	p	95% CI
Main effects									
Intrinsic Motivation (IM)		.439	2.018	.466	.287	59.795	4.329	<.001***	1.097; 2.939
Harm avoidance (HA)	**Well-Being**	-	-3.522	.466	-.502	-	-7.555	<.001***	-4.443; -2.601
Interaction									
HAxIM		.440	.270	.412	.420	40.220	1.019	.310	-3.94; 1.234
Main effects									
Intrinsic Motivation (IM)		.294	-.443	.097	-.304	32.175	-4.558	<.001***	-.635; -.251
Harm avoidance (HA)	**Emotional Exhaustion**	-	.417	.097	-320	-	-4.297	<.001***	.225; .609
Interaction									
HAxIM		.293	-.292	.086	-.084	21.766	-.982	.328	-.254; .085
Main effects									
Intrinsic Motivation (IM)		.501	-.797	.082	-.609	76.365	-9.723	<.001***	-.960; -.635
Harm avoidance (HA)	**Cynicism**	-	.265	.082	.202	-	3.226	<.001***	.102; .427
Interaction									
HAxIM		.502	-.286	.072	-.083	51.454	-1.145	.254	-.226; .060
Main effects									
Intrinsic Motivation (IM)		.228	.348	.080	.341	23.143	4.374	<.001***	.191; .505
Harm avoidance (HA)	**Professional Efficacy**	-	-.246	.080	-.241	.	-3.089	.002**	-.403; -.089
Interaction									
HAxIM		.235	.484	.070	.109	16.395	1.564	.120	-.029; .248

Note: $*p < .05$ (2-tailed); $**p < .01$ (2-tailed), $***p < .001$ (2-tailed). HAxIM = interaction effect of Harm Avoidance and Intrinsic Motivation.

Table 6

Multiple Linear Regression results. Intrinsic motivation, Self-directedness and their interaction effect's relation to health.

Predictor variable	Outcome variable	*Adj. R²*	B	SE	β	*F*	*t*	*p*	*95% CI*
Main effects									
Intrinsic Motivation (IM)		.461	1.749	.468	.249	65.069	.3740	<.001***	.825; 2.673
Self-directedness (SD)	**Well-Being**	-	3.734	.463	.538	-	8.072	<.001***	2.820; 4.648
Interaction									
SDxIM		.466	-.642	.427	-.683	44.690	-1.600	.112	1.528;.161
Main effects									
Intrinsic Motivation (IM)		.290	-.424	.100	-.325	31.568	-4.257	<.001***	-.621; -.227
Self-directedness (SD)	**Emotional Exhaustion**	-	-.412	.099	-.320	-	-4.184	<.001***	-.607; -.218
Interaction									
SDxIM		.290	.482	.091	.095	21.419	1.042	.299	-.086; .276
Main effects									
Intrinsic Motivation (IM)		.497	-.790	.084	-.604	75.083	-9.382	<.001***	-.957; -.624
Self-directedness (SD)	**Cynicism**	-	-.251	.083	-.194	-	-3.009	.003**	-.415; -.086
Interaction									
SDxIM		.494	.179	.078	.036	49.859	.460	.647	-.118; .189
Main effects									
Intrinsic Motivation (IM)		.205	.364	.083	.356	20.336	4.404	<.001***	.200; .527
Self-directedness (SD)	**Professional Efficacy**	-	.182	.082	.181	-	2.233	.027*	.021; .344
Interaction									
SDxIM		.206	-.545	.076	-.084	13.992	-1.113	.267	-.234; .065

Note: *p* < .05 (2-tailed); **p* < .01 (2-tailed), ***p* < .001 (2-tailed). SDxIM = interaction effect of Self-directedness and Intrinsic Motivation.

Table 7

Multiple Linear Regression results. Intrinsic motivation, Persistence and their interaction effect's relation to health.

Predictor variable	Outcome variable	*Adj. R²*	B	SE	β	*F*	*t*	*p*	*95% CI*
Main effects									
Intrinsic Motivation (IM)		.247	3.173	.507	.452	25.668	6.255	<.001***	2.171; 4.176
Persistence (PS)	**Well-Being**	-	1.101	.505	.158	-	2.182	.031*	.104; 2.098
Interaction									
PSxIM		.244	-.264	.548	-.299	17.130	-.546	.586	-1.382; .783
Main effects									
Intrinsic Motivation (IM)		.208	-.619	.097	-.475	20.714	-6.410	<.001***	-.810; -.428
Persistence (PS)	**Emotional Exhaustion**	-	.067	.096	.052	-	.701	.484	-.122; .257
Interaction									
PSxIM		.207	-.450	.104	-.095	14.069	-.910	.364	-.301; .111
Main effects									
Intrinsic Motivation (IM)		.470	-.917	.079	-.700	67.465	-11.542	<.001***	-1.073; -.760
Persistence (PS)	**Cynicism**	-	.080	.079	.062	-	1.016	.312	-.076; .236
Interaction									
PSxIM		.479	-.758	.085	-.160	46.951	-1.891	.061	-.328; .007
Main effects									
Intrinsic Motivation (IM)		.258	.386	.073	.378	27.102	5.267	<.001***	.241; .531
Persistence (PS)	**Professional Efficacy**	-	.291	.073	.287	-	3.995	<.001***	.147; .435
Interaction									
PSxIM		.275	-.987	.078	-.163	19.928	-2.086	.039*	-.317; -.009

Note: *p < .05 (2-tailed); **p < .01 (2-tailed), ***p < .001 (2-tailed). PSxIM = interaction effect of Persistence and Intrinsic Motivation.

The results of the regressions indicated that none of the moderation analyses were significant, except one. The outcome variable for this analysis was Professional Efficacy, the predictor variable was Intrinsic Motivation and the moderator variable was Persistence. Model (1) without the interaction term of Intrinsic Motivation and Persistence was statistically significant (F(2, 148) = 27.102, $p < .001$) with an Adj. R^2 of 0.258. Model (2) with the interaction between Intrinsic Motivation and Persistence was found to significantly predict Professional Efficacy (F(1, 147) = 19.928, $p < .05$) with an Adj. R^2 of 0.275 ($t = -2.086$, $B = -.987$, 95% C.I. (.317, -.009)). The moderation model explained 2.1% more of the variance in Professional Efficacy (R^2 change = .021) compared to Model (1), indicating a potentially significant moderation between Persistence and Intrinsic Motivation on Professional Efficacy. Intrinsic Motivation and Persistence as sole predictors demonstrated a positive relationship to Professional Efficacy, whereas the interaction between Persistence and Intrinsic Motivation had a negative relationship to Professional Efficacy.

Figure 4
Interaction effect of Persistence and Intrinsic Motivation on Professional Efficacy.
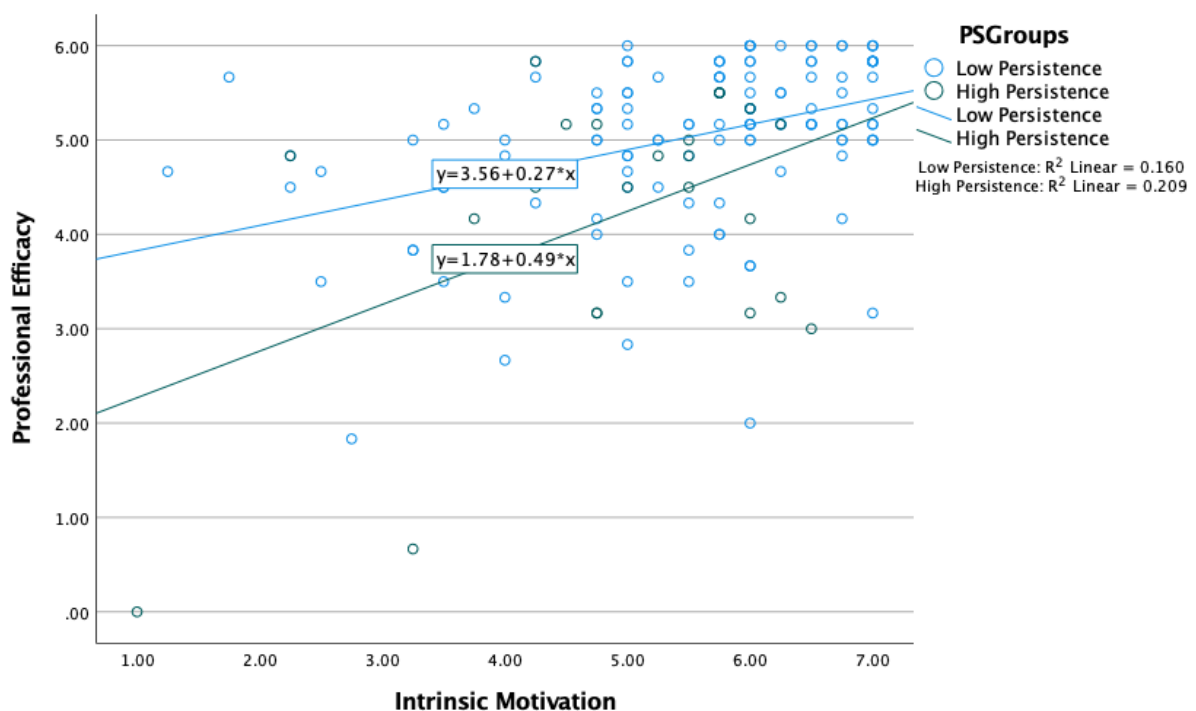
To further analyse this finding, a simple slope analysis (figure 4) was conducted at meaningful values of the moderator Persistence, as is the prudent strategy when an expected variable moderates the relationship between a predictor and an outcome variable (Cohen et al.,

2003). In order to investigate the potential moderation effect that Persistence had on the relation between Intrinsic motivation and Professional efficacy, Persistence was divided into 2 groups; the highest value for those of low Persistence was set at one standard deviation (0.61) below the mean (3.55) and the lowest value for those with high Persistence was set at one standard deviation above the mean (Cohen et al., 2003). The differences in R^2 between the two slopes were small and the number of participants with "high" and "low" Persistence were unevenly numbered (132 low vs. 26 high). That being said, the relationship between Intrinsic Motivation and Professional Efficacy was stronger and more pronounced at the level of higher Persistence, which can be seen by the simple slope in figure 4.

No other moderation analyses were significant, however all regression analyses without interaction terms significantly predicted Well-being, Emotional Exhaustion, Cynicism and Professional Efficacy (see tables 5-7).

Discussion

The relationship between Motivation and Health

We hypothesised (Hypothesis 1) that Intrinsic motivation would positively correlate with well-being and negatively with burnout, and that Extrinsic motivation would negatively correlate with well-being and positively with burnout. The results of the study give support for this hypothesis. More specifically, the results showed Intrinsic motivation to be moderately to positively correlated with well-being and negatively correlated with Emotional Exhaustion and Cynicism, but not with Professional efficacy which was positively correlated with Intrinsic motivation instead. This corresponds with previous studies where the highly intrinsically motivated individuals scored lowest on burnout and highest on both job satisfaction and work engagement (Van der Broeck et al., 2012), where Intrinsic motivation and the two other most self-determined motivations were connected positively to health (Dagenais-Desmarais' et al., 2018) and where it was established that an individual who is working harmoniously with one's own core values and being authentic in one's work is linked to well-being and to self-determined forms of motivation such as Intrinsic motivation (Van den Bosch & Taris, 2018). The positive correlation between Professional Efficacy and Intrinsic motivation indicates that working in line with one's values and goals as well as being authentic in one's work leads to higher belief in your capabilities and higher health. The results of the study also showed that Extrinsic motivation was negatively correlated with well-being and positively correlated with Emotional Exhaustion and Cynicism, yet once again not with Professional efficacy. Contrarily

to the other burnout subscales, Professional efficacy was negatively correlated with Amotivation but showed no correlation with External regulation whatsoever. In previous studies, extrinsically motivated individuals experienced fatigue as well as poorer well-being and external regulation has been shown to be unrelated to health (Koivisto et al., 2021; Dagenais-Desmarais' et al. (2018). The fact that External regulation demonstrated no correlation with Professional Efficacy might indicate that simply going to work because you have to, because you feel like you have no choice, or because you're expected to do so, has nothing to do with how effective you feel at work, at getting things done, contributing to the organisation, and so on. The results would argue that performing work-related tasks that brought the respondents no motivation whatsoever or only to fulfil an external demand, lead to higher burnout. It would also indicate that respondents whose motivation was of a more inner, self-accepted and self-determined nature, where tasks were performed for the satisfaction and the pleasure that the tasks brought with them, experienced higher well-being and believed more in their professional capacity, and in turn probably leading to the individual's experience of lower burnout. When the individual feels that the work is interesting, they also feel that they can be effective in solving problems that arise at work, and as such the more Intrinsic motivation, the more Professional Efficacy.

The relationship between Motivation and Personality

Hypothesis 2 set forth that motivation defined by SDT is correlated with the TCI model of personality; more specifically that Persistence, Self-directedness, Cooperativeness, and Novelty-seeking would positively correlate with Intrinsic motivation, whereas Harm avoidance and Reward Dependence would positively correlate with Extrinsic motivation. The results of the study indicate that the hypothesis is partially supported. A clear significant correlation was found between Intrinsic motivation and Persistence, Self-directedness and Cooperativeness. However, Novelty-seeking differs from the rest and exhibits no correlation with Intrinsic motivation. As previously mentioned, Intrinsic motivation refers to performing one's actions because of the satisfaction or pleasure that the tasks provide. An intrinsically motivated individual would thus choose to take part in an activity on their own accord, not because of internal or external regulations compelling them to do so and not because of the expectation of receiving a reward (Deci & Ryan, 1985). An individual high in Persistence is hard-working and demonstrates eagerness, ambition and perfectionism, while an individual high in Self-directedness demonstrates responsibility, purposefulness, resourcefulness, self-acceptance and self-actualisation, and lastly an individual high in Cooperativeness demonstrates helpfulness,

compassion, empathy, social tolerance and conscience (see Table 1). The results expectedly indicated that individuals who are able to control and regulate their behaviour for their goal achievement, to willingly carry on with a certain behaviour even if it might bring frustration, and someone who is tolerant, supportive, self-accepting and cooperating, correlates with someone who performs an activity for the satisfaction of the activity itself and because that activity relates to their self-accepted values. Previous research shows that personality traits such as openness, conscientiousness and extraversion correlated positively with Intrinsic motivation (Hart et al., 2007), and likewise, another study demonstrated that Persistence correlates highly with conscientiousness, Self-directedness correlates positively with conscientiousness and extraversion, and Cooperativeness relates to agreeability (De Fruyt, De Wiele & Van Heeringen, 2000; Cloninger et al., 2019). Then how come Novelty-seeking does not correlate with Intrinsic motivation as hypothesised? An individual high in Novelty-seeking is disorderly and demonstrates excitability, impulsivity and extravagance (see Table 1). If once again compared to the Big-5, then Novelty-seeking is related to both openness and extraversion (De Fruyt et al., 2000) and ought to correlate with Intrinsic motivation as well. Ryan and Deci (2000) even stated that Intrinsic motivation is the tendency to look for novelties and challenges. Yet Novelty-seeking is negatively correlated to conscientiousness (De Fruyt et al., 2000) that is related to Intrinsic motivation, and an impulsive individual who actively and excitedly seeks out novelties in the form of new and unfamiliar situations may precipitate the exploration of potential rewards. Whereas an intrinsically motivated person would not perform an activity on the expectation of receiving the aforementioned rewards. Similarly, an individual high in Novelty-seeking is impulsive and requires higher levels of stimulations not to get bored, which in turn may lead to a quick disengagement and anger if their wishes are not fulfilled and an instability in their efforts. An intrinsically motivated individual however performs their actions because of the satisfaction and pleasure that the tasks give them and thus should not struggle with boredom, disengagement and anger from the tasks themselves.

The results of the study also demonstrated a clear significant correlation between Extrinsic motivation and Harm Avoidance, yet not between Extrinsic motivation and Reward dependence as hypothesised. Instead, Reward dependence correlated positively with Intrinsic motivation. As previously mentioned, Extrinsic motivation varies with regard to style of regulation and refers to an individual performing an activity to achieve an outcome or a reward, or because of internal or external demands compelling them to do so (Deci & Ryan, 1985). An individual high in Harm avoidance demonstrates pessimism, fearfulness, shyness and fatigability (see Table 1), and the results expectedly indicated that individuals who might react

intensely to negative stimuli, criticism or punishment, interrupt an action or behaviour if the situation becomes frustrating, or react fearfully to new stimuli or new situations, would correlate with someone who performs an activity not for the satisfaction of the activity itself but rather because of internal or external demands compelling them to do so, for instance to avoid some sort of punishment. Harm avoidance has shown strong positive correlations to neuroticism and negative correlations to extraversion (see Table 1 from Cloninger et al., 2019), and neuroticism, extraversion and conscientiousness has previously correlated positively with Extrinsic motivation (Hart et al., 2007). An individual high in Reward dependence demonstrates sentimentality, openness, attachment and a dependence on signals of reward (see Table 1). Then how come Reward dependence correlated positively with Intrinsic motivation, when an intrinsically motivated person would not perform an activity on the expectation of receiving rewards? Perhaps an individual dependent on rewards such as social support, social approval and affective signs could be motivated intrinsically because of the satisfaction that the social interaction brings. Seeing as an individual high in Reward dependence performs an activity because they like to discuss experiences and feelings openly with friends, rather than keeping it all to themselves. Or perhaps the unexpected correlation evident in this study stems from the TCI overlap with the Big-5, where Reward dependence primarily relates to extraversion, openness and agreeability (De Fruyt et al., 2000; Cloninger et al., 2019). In previous research, extraversion correlated positively with Extrinsic motivation, whereas openness and agreeability correlated positively with Intrinsic motivation (Hart et al., 2007; Nishimura & Suzuki, 2016). These personality traits being positively correlated to both Extrinsic and Intrinsic motivation suggests that the relationship may be more complicated than expected.

The relationship between Personality and Health

Hypothesis 3 stated that health in the meaning of well-being and burnout would be correlated with the 7 dimensions of the TCI personality model. The study hypothesised that Self-directedness and Persistence would positively correlate with Professional Efficacy and Well-being, and negatively correlate with Cynicism and Emotional Exhaustion. The study further hypothesised that Harm avoidance would be positively correlated with Cynicism and Emotional Exhaustion, and negatively with Professional Efficacy and Well-being. The results of the study give support for this hypothesis. Harm avoidance was moderately to strongly negatively correlated with Well-being and Professional Efficacy, but positively correlated with both Emotional Exhaustion and Cynicism. This finding is in line with previous research, where higher Harm avoidance in individuals would lead to higher risks of burnout, depression and

anxiety (Stoyanov & Cloninger, 2012; Gabbard, 1985; Myers & Gabbard, 2008), whereas lower Harm avoidance scores were related to higher well-being and lower burnout scores (Spittlehouse et al., 2014; Björk, 2021). Being low in Harm avoidance translates to being calm, confident in yourself and optimistic and these traits correlate with higher health and lower burnout as you believe in yourself and your professional efficiency, as well as being resilient towards stress. This is in contrast to being high in Harm avoidance which decodes as being pessimistic and easily stressed (Granjard et al., 2021) and thus being at higher risk for burnout as you are cynical about your work and prone to exhaustion. Self-directedness was moderately to strongly positively correlated with Well-being and Professional Efficacy, and negatively correlated with Emotional Exhaustion and Cynicism. This is also in line with previous studies where Self-directedness as a personality trait was important for individuals' mental health (Eley et al., 2013; Eley et al., 2016; Kim et al., 2013) and correlated positively with Well-being and negatively with burnout (Spittlehouse et al., 2014; Björk, 2021). Being high in Self-directedness means accepting who you are, being goal-oriented and purposeful, which are important factors towards also believing in your professional capacity. You adapt your behaviour after your goals and are self-accepting, which can indicate why these individuals score higher on well-being (e.g. Ryff, 1989) as they shape their own happiness and are happy with who they are. Lastly, Persistence was positively correlated with Well-being and Professional Efficacy which is harmonious with earlier findings (Björk, 2021). Being hard-working, ambitious and continuing work despite obstacles would correlate with the belief in your own work capabilities and achieving goals leading to health. However, Persistence had no correlation with Cynicism or Emotional Exhaustion and as such, that part of the hypothesis lacked support. Pushing oneself to the point of exhaustion or trying to do more than one can is one item measuring Persistence, and one might think it should follow that Persistence would be positively correlated with Emotional Exhaustion, but this is not the case either. Persistence is a complex personality trait and it is in connection with or with the lack of other traits that Persistence relates to health. When the individual is low on Self-directedness, high Persistence can mean they lack the ability to stop working when they reach the point of exhaustion, and burnout can thus follow (Cloninger, 2004). When Self-directedness is high, and especially in connection with low Harm avoidance, high Persistence can lead to personal resilience, which is connected to promoting well-being and lower risks of burnout due to stress coping (Eley et al., 2013). As such, Persistence in and of itself is not correlated with burnout, but in connection with Self-directedness a correlation is formed.

Another correlation between personality dimensions and health components worth

mentioning is the positive correlation between Reward dependence and Professional Efficacy. Reward dependence transcribes into being approval-seeking, open, and being high in the need for social attachment and affirmation (Cloninger et al., 1993), along with Professional Efficacy which translates into the belief in one's own capabilities. Being high in approval-seeking, it can be hard to say no in one's profession and this may lead to burnout (Mihailovic et al., 2022), but the study's results provide a negative correlation to Cynicism, no correlation with Emotional Exhaustion, and a positive correlation to Professional Efficacy, reflecting Björk's (2021) results. This may be because, if the individual has the need to get their confirmation from others around them and their surroundings provide this confirmation and support, your belief in yourself, your work and capabilities will hence increase and your cynicism regarding your abilities decrease. Chan (2015) describes how social support often promotes employees' self-belief, confidence and work attachment, and peer support has previously been pointed out as an important factor in increasing self-efficacy (Hendricks, 2014).

The connection between Personality, Motivation and Health

Hypothesis 4 declared that Persistence and Self-directedness respectively would moderate the relationship between Intrinsic motivation and health, so well-being would increase and burnout decrease. The study further hypothesised that Harm avoidance would moderate the relationship so well-being would decrease and burnout increase. The results of the study give limited to no support for this hypothesis. Self-directedness and Harm avoidance in interaction with Intrinsic motivation, respectively, had no significant effect on well-being or either of the 3 burnout components. Furthermore, Persistence in interaction with Intrinsic motivation had no effect on well-being, Emotional exhaustion or Cynicism. However, Persistence was a significant moderator in the relationship between Intrinsic Motivation and Professional Efficacy and is the biggest contribution this study presents to knowledge development within organisational health. The correlations between the three constructs are clear, where Persistence, Intrinsic motivation and Professional Efficacy are all positively correlated with one another, so higher Persistence would mean higher Intrinsic motivation and higher Professional Efficacy, and vice versa. In the interaction model, Persistence and Intrinsic motivation had positive relations with Professional Efficacy individually (5.3 and 4) but negative when they interacted (-2.1). This would indicate that higher Persistence and higher Intrinsic motivation leads to higher belief in your professional capabilities, in line with the correlations. If Persistence or Intrinsic motivation is low however, this would have the opposite effect on Professional Efficacy. When conjoined in an interaction the effect on Professional

Efficacy could be negative, one could argue because when Intrinsic motivation is high but Persistence is low, then Professional Efficacy would also be lower. As such, performing tasks in line with interests and values leads you to believe more in your skills but if you are prone to give up when tasks become difficult or obstacles arise this will lead to you believing less in your skills, than if your Persistence was higher. Therefore, the question is why you believe in your professional capabilities, when you are persistent in challenging tasks and your reasons for performing the task comes from your own satisfaction and are autonomous? Believing that you can continue work despite obstacles, you must also believe that this is a possibility in that you can perform your job well, and the Persistence itself would develop your skills until they are sufficient and you feel confident in them. Performing a job because of the innate desire to want to would increase your Persistence and would fuel you to sharpen your skills until you believed your competence was enough to perform that job, at the same time as believing in your ability to perform a task would make that task more intrinsically motivating to do. Self-efficacy has been singled out as a crucial component in motivation, and self-efficacy in turn is a requirement for being persistent (Dweck, 1986). People high in Conscientiousness, the Big-5 corresponding attribute to Persistence and Self-directedness, had a higher possibility of setting goals, believing more in their efforts in achieving this goal and thinking they can do more (Barrick, 2009), which corresponds to Professional Efficacy. Those with higher Intrinsic motivation have shown higher Persistence, and Persistence itself has been linked with the basic needs of competence, relatedness and autonomy, which together form Intrinsic motivation (Pelikan et al., 2021). Kanfer (2012) also mentions that motivation is affected by the individual's persistence, and higher Persistence has been linked with intrinsic goal striving (Nishimura & Suzuki, 2016). Intrinsic motivation has also positively predicted professional self-efficacy, and resilience where Persistence plays a key role has also predicted professional self-efficacy in previous studies (Biasutti et al., 2021). This connection also functions in the opposite direction, where self-efficacy has predicted the likelihood of Persistence (Bandura, 1997), self-efficacy has explained the majority of variance in Persistence (Multon et al., 1991), and high self-esteem has been linked to Persistence in challenging circumstances (Baumeister et al., 2003). In Pelikan's et al. study (2021), the indirect effect of the individual's own perceived competence on Persistence as mediated by Intrinsic motivation, was researched and found to be positively significant. As such, the strong relationship between these three constructs is clear and when the individual is high in Intrinsic motivation, Persistence will increase the benefits that this has on health.

Limitations

The model used in the present thesis revolved around the implementation of moderated multiple regressions (MMR), and as such the question of multicollinearity must be discussed. Multicollinearity is a risk the practitioner must take when involving themselves with multiple linear regression, as the analyses' predictor variables and their cross-product terms are intercorrelated to such a high degree. However, multicollinearity must not be the red devil in interactions or moderations that many practitioners believe. Many studies have shown that the greater the correlation between predictors, the higher the power of detecting interaction effects, and finding interaction effects can go unhindered by higher correlation of predictor variables (Shieh, 2010). As a general rule, when VIF values do not exceed 10 then the risk for multicollinearity is slight (Shieh, 2010). More restrictive VIF values are set at 2.5 (Adeboye et al., 2014) and as the present study's values are not near these critical values (between 1.041-1.234) then the risk for multicollinearity is not a serious danger in the study.

Another limitation was the internal subject loss where many entered the survey but failed to answer it to its completion. This limited the number of respondents from 239 to 151 and is quite a big dropout. There was also a high external nonresponse as many viewed the survey but did not answer it. A low response rate is to be expected from an online survey due to a response bias and the lack of control over the data collection can increase this risk (Bryman, 2018). This limited sample threatens the external validity of the study, restricting its generalisability. Another limitation of the online survey is the selection bias, for instance an over-representation of those with the technical skill needed to answer the survey. There is also the risk of sample bias; to conduct a probability sampling with internet users is a difficult task and in a minority due to the problem of randomization and unknown population size. Thus, the study became a nonprobability sample, specifically a convenience sample, with potential problems of generalisation and non-representative results (Bryman, 2018). Advantages to the chosen sample-method were the inexpensive and efficient nature of it, the direct transformation into data files, and the potential reach of a diverse population (Bryman, 2018). The length of the survey was approximately 10-15 minutes, but for some the time it took to complete the survey was more extensive, and the questions were many and mandatory. This could lead to respondents growing weary and discontinuing the survey, leading to an internal subject loss and a threat to the external validity. The survey's questions were answered through self-assessment, and this method has some faults regarding reliability as the respondents' answers may be coloured by what they think the researchers want to hear, or what the respondents don't want to share, as well as self-awareness being possibly low (Bryman, 2018). However, in

appraising personality, self-assessments have been proven to be a good measurement, as well as for health (Connolly et al., 2007; Schneider & Schimmack, 2009).

Regarding the instruments used for this study, the scale for measuring personality was the TCI-60, a shortened version of the original 240 item questionnaire. Implications from this relate to the impossibility of comparing personality items to each other and in so creating certain personality profiles, and therefore only being able to compare the items to that of other scales' components such as burnout and well-being. However, as this was the purpose of this study, the limitations were not of such importance. Nonetheless, Reward dependence and Cooperativeness both fell below the .70 cutoff value for acceptable Cronbach's alpha (Tavakol & Dennick, 2011) and as such these items' reliability is cast into doubt, but this could be due to the limited sample size or shortened TCI version. The constructs of personality, well-being, burnout and motivation used in this study were defined and measured using validated and reliable scales based on well-founded theories, and construct validity should be unthreatened. Lastly, the usage of linear regression models instead of moderation models in SPSS can place a limitation on the study. Many use SPSS extensions such as MODPROBE and PROCESS when endeavouring to create and analyse a moderation. Such macros would potentially yield more extensive results and analyses. However, due to the limited sample size and the vast number of variables the models had to be directed, as well as the fact that one of the predictor variables could not take the value of zero (Hayes, 2005), and as such a moderation using these tools was not feasible for this study. Hayes et al. (2012) firmly argues that multiple linear regression is otherwise the accepted statistical method for examining moderations, and as such statistical validity should be unviolated.

Another impediment is the limited timeframe in which this study has taken place in relation to the moderations that have been observed. As all the data was collected at one time, no change has taken place in health, motivation or personality. In moderations, the change in the moderating variable and the change this leads to in the dependent variable is the objective. This could be fulfilled by a longitudinal study that collected data from the same sample on a number of occasions, that could observe this change in personality. As this was unfeasible, the cross-sectional data of the study limits the moderations. Possibly, more moderation models could have been significant in the study if a longitudinal approach had been performed. Lastly, the study used many moderation models which could increase the risk of the significant findings displaying results that should not be present, and increasing error. However, this was limited by the usage of directed hypotheses for each model.

Conclusions

The regression analyses and correlations gave various support for all hypotheses and demonstrated that Self-directedness, Persistence and Harm avoidance all have clear connections with well-being and burnout. Self-directedness and Persistence proved important for increasing well-being and Professional Efficacy, and Self-directedness sheltered from Emotional Exhaustion and Cynicism. Harm avoidance au contraire increased the individual's likelihood of burnout and decreased Professional Efficacy and well-being. Conclusions from these analyses are that individuals that are pessimistic and easily stressed are at higher risk for burnout as they are cynical about your work's value, believe less in yourself and are prone to exhaustion, in accordance with earlier research (Stoyanov & Cloninger, 2012; Gabbard, 1985; Myers & Gabbard, 2008). If individuals are purposeful, goal-oriented and persistent, they are more likely to achieve their goals and believe in themselves, which leads to higher mental well-being as stated in earlier findings (Eley et al., 2013; Eley et al., 2016; Kim et al., 2013; Björk, 2021). Unsurprisingly, Intrinsic motivation was connected with both Self-directedness and Persistence (reflecting Pelikan et al., 2021; Hart et al., 2007), as well as with well-being and Professional Efficacy (reflecting Koivisto et al., 2021; Biasutti et al., 2021). The most important finding was that Persistence was a significant moderator and increased the already positive connection between Intrinsic motivation and Professional Efficacy. Performing a task in line with interests and values and because of an innate desire, would also mean believing in your capabilities and actually believing you are able to perform that task in order for it to provide satisfaction, and when the task is performed and satisfaction achieved it likewise increases your well-being. Well-being in itself also leads to more self-determined motivation (Dagenais-Desmarais et al., 2018). The intrinsic nature of the task would increase your persistence in achieving that task, at the same time as controlling and regulating your behaviour for your goal achievement and being self-accepting would drive you to choose more intrinsically motivating tasks that are in alignment with your goals and values, ultimately leading to higher well-being (Dagenais-Desmarais et al., 2018; Ryff, 1989). Furthermore, believing that you can continue work despite obstacles, you must also believe that this is a possibility in that you can perform the job, and the persistence itself would develop your skills until you feel confident in them, at the same time as believing in your ability to perform a task would make that task more intrinsically motivating to do. As such, performing tasks in line with interests and values leads you to believe more in your skills but if you are prone to give up when tasks become difficult or obstacles arise this will lead to you believing less in your skills, than if your Persistence was higher.

Future research

Implications from these findings would be further research into the moderation model of Professional Efficacy, Intrinsic motivation and Persistence, with a bigger sample found by a more probability-sampled method. It would be interesting to use the English version of the scales and a bigger international sample to analyse the connection based on nationality and their respective work environments, as well as between different occupational types on the market. Age could also be an interesting factor to examine, as your Professional Efficacy should increase with the longer experience you have.

In light of the clear connection between personality, health and motivation, and the insignificance of the remaining moderation models, future research could analyse the findings from the perspective of personality as a mediator, where personality influences well-being and burnout mainly through work motivation. In the present study, the desire was to observe if personality can affect the strength or direction of Intrinsic motivation's effect on health. As nothing supported the notion of motivation affecting health only through personality, a mediation was ruled out. However, in consideration of the results of the study, it would be interesting to examine if personality decides what type of motivation you possess, and through this motivation, affects health. Kanfer (2012) has earlier suggested the impact that personality has on work motivation and it is through motivation that personality affects work behaviour. Persistence as a specific personality attribute that has been a significant moderator between Intrinsic motivation and Professional Efficacy in this study could have an impact on motivational constructs (Parks & Guay, 2009), and thus health if previous studies are to be believed (Koivisto et al., 2021; Van der Broeck et al., 2012). Ingledew and Markland (2008) argue that personality influences the motives for participating in healthy exercise. For instance, Neuroticism increased the motive to exercise for the sake of appearance or weight loss, which in turn increased external regulation and reduced participation in exercise. Openness on the other hand increased the motive to exercise for the sake of health or fitness, which in turn increased introjected regulation and participation in exercise. As such, personality can influence intrinsic and extrinsic motivation which in turn can affect physical health. Another supporting model in this discussion is from Greguras and Diefendorff (2010) that suggest that a proactive personality leads to individuals setting self-determined goals congruent with their values and beliefs, which in turn leads to them experiencing higher well-being.

Practical implications

Practical implications of these findings would suggest the importance for workplaces to adapt the work and its tasks after the individual employee's interests and values as far as it is possible. Many organisations today carry out annual interviews with their employees regarding professional development, where goals, ideas and ambitions are laid out. This would serve as the ideal time for employers to map out their subordinates' motivation in the work, what areas they find most interesting and what they want to do in the future. The crucial action is not to simply note these areas down without following through, but to actually bring about these changes and setting up employee career plans and structures. Use these meetings to adapt the work after the employee as far as conceivable, for the motivation to be as intrinsic as possible. Furthermore, onboarding and continuous training on the job is important for the individuals to feel competent in their work and creating a supporting work environment in teams and hierarchy, thus fulfilling the needs of autonomy, competence and relatedness and accordingly achieving higher employee well-being and reducing the risks of burnout. Another implication would be to create personality profiles on each employee, performed by one of the many personality tests done at companies today, that would make it possible for employers to adapt the work situation after each employee's personality, to reduce the risks of burnout and increase health. For instance, those high in Harm avoidance are more prone to burnout, and thus the work situation could be adjusted to be less stressful and more consistent. Practical implications in addition to more intrinsically motivating tasks, would be to try and increase Persistence in the workforce in order for this to increase employees' belief in their own competence, and thus health and productivity. Increasing persistence could be done for example by the actions described above, i.e. learning opportunities and tasks congruent with interests and personality, leading to professional identification, as these are previously known to have increased persistence (Graham et al., 2013). Intrinsically motivated and healthy employees display more effective workplace behaviour (Bann et al., 2012) and as such these implications are as much a concern for the individual employee as it is for the employers.

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