THE INFLUENCE OF EMPOWERING LEADERSHIP ON WORK-RELATED STRESS, PSYCHOLOGICAL SAFETY AND JOB AUTONOMY AS MEDIATORS

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Abstract

This study aims to create insights on how empowering leadership is related to work-related stress by identifying the two mechanisms psychological safety and job autonomy, both suggested to be positively related to empowering leadership and to have a reducing effect on work-related stress. By using the Conservation of Resources theory (COR), arguments were provided to support their mediating effect. By looking into these two resources of empowering leadership this study hopes to contribute to the literature by unveiling the processes and explain these two mechanisms through which empowering leadership may operate in reducing employee work-related stress. A quantitative survey-based study was conducted in order to test the suggested hypotheses. The results showed that empowering leadership does not have a direct effect on work-related stress. However, psychological safety does mediate the relationship between empowering leadership and work-related stress. Job autonomy does not mediate the relationship between empowering leadership and work-related stress. More research is needed to get a better insight in other mechanisms of empowering leadership that could act as a mediator to reduce work-related stress.

Key words: Empowering leadership, work-related stress, psychological safety, job autonomy.

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1. Introduction

Work-related stress is defined as “a harmful reaction that people have to undue pressures and demands placed on them at work” (Bhui et al., 2016, p.318). It consists of stress-related complaints caused by work, such as tension complaints, sleep problems, headaches or concentration problems. If these complaints persist for longer, this can lead to burnout (Nixon et al., 2011; Wiezer & Sonneveld, 2016). Stress complaints in the workplace are increasing, and that has further negative consequences (TNO, 2022). In 2021, employees missed a total of 11 million days due to work-related stress (TNO, 2023a).

Preventing employee stress, and the other way around, managing employee well-being is a complex task (Grant et al., 2007). Leaders as especially are in a unique position to influence emotions and motivation through being role models, or through the provision of resources, such as job autonomy or participation in decision making (Skakon et al., 2010; Tafvelin et al., 2019). Yet, recent research points to little cooperation between the employer, direct leader, and employees, and employers not knowing how to reduce organisational risks that lead to stress complaints (TNO, 2023b). Therefore, it is necessary to identify leader behaviours that can prevent employee stress, and to educate leaders how to adopt these behaviours.

In this aim, the current study builds on the Conservation of Resources theory (COR)(Hobfoll, 1989) to assess the role of leadership in employee stress. COR theory is both a stress and motivational theory that outlines how individuals and organizations are likely to be impacted by stressful circumstances (Westman et al., 2004). It suggests that stress is a consequence of resource loss and proposes a valuable insight into the resources that prevent such loss and allow for coping with stress, such as leadership (Hebles et al., 2022; Tafvelin et al., 2019). More specifically, within multitude of leadership constructs, empowering leadership, referring to leaders sharing power with their subordinates (Conger & Kanungo, 1988), is valuable to consider in context of stress because empowering leaders provide their employees with a number of resources that enable employees to tackle existing stressors and prevent future stressors from taking place, therefore mitigating stress levels among employees (Kim & Beehr, 2021; Tripathi & Bharadwaja, 2020; Unsworth & Mason, 2012).

Specifically, empowering leadership encourages employees to express opinions and ideas, promoting collaborative decision making, meaningful work, and supporting information sharing and teamwork. Also, empowerment is a power-sharing process by formal

leaders, which enhances resources of employee job autonomy, confidence in high performance, and investment in their work (Sharma & Kirkman, 2015).

Although in line with COR theory, employees working under an empowering leader are expected to have adequate resource flow and thus can meet job demands and guard themselves against work-related stress caused by resource depletion, only a few studies empirically examined the link between empowering leader behaviours and undesirable employee emotions. Existing studies mainly focus on transformational leadership, and more empirical evidence on particular utility and value of empowering leadership is needed to strengthen this theory-driven conclusion (Kim & Beehr, 2018). Furthermore, identifying particular resources that are provided by empowering leaders would be valuable to unveil the processes and explain the mechanisms through which this form of leadership operates in reducing employee work-related stress (Sharma & Kirkman, 2015). Therefore, using COR theory to provide theoretical grounds for the mediating processes, this study seeks to examine the mediating effects of two particular resource-based mechanisms, namely psychological safety (related to the process of supportive behaviour of leaders) and job autonomy (related to the power-sharing process), to shed light onto this issue (Newman et al., 2017; Sharma & Kirkman, 2015; Singh, 2023). This leads to the following research question:

"What is the role of psychological safety and job autonomy in the relationship between empowering leadership and work-related stress?"

These two processes are selected purposefully because of their relevance for work-related stress, and their potential to be affected by empowering leadership more than some other leader behaviours (Kim et al., 2018; Sharma & Kirkman, 2015; Tripathi & Bharadwaja, 2020). On the one hand, psychological safety exists when employees feel they can speak up, suggest ideas and ask questions in their workplace without the feeling of being rejected for being themselves (Edmondson, 2019). For a psychological safe environment to exist, leaders' empowering behaviour plays a key role. Promoting personal initiatives, aligning individual goals with organizational goals, sharing information, promoting participation in decision-making and providing guidance at the workplace provides access to all necessary resources and support that will increase the perception of psychological safety at work (Singh, 2023). Psychological safety is an important mechanism to reduce work-related stress by creating a climate of trust and risk-free communication (Hebles et al., 2022). From the perspective of COR theory, psychological safety becomes a positive resource that could help employees to

overcome anxiety and defensiveness, and therefore reducing stress (Hebles et al., 2022; Zhou & Chen, 2021).

On the other hand, job autonomy is "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Hackman & Oldham, 1976, p.258). Under empowering leaders, employees can exercise autonomous control over their thoughts and behaviours and make concrete experiences of self-determination and self-efficacy and also impact meaningful experiences at work (Väänänen & Toivanen, 2018). Job autonomy gives employees more opportunities to cope with stressful situations and may act as a buffer against the influence of job demands (Bakker et al., 2005).

In sum, by answering the research question, this study aims to deliver two contributions to the scientific literature. First, this study aims to contribute to understanding factors that diminish work-related stress, particularly focusing on the role of empowering leadership. The impact of empowering leadership on health-related outcomes remains understudied and therefore additional studies designed to clarify the impact of empowering leadership on stress are needed (Cougot et al., 2024). In particular, this study evaluates the effect of empowering leadership as a possible counter to the harmful effects of experiencing work-related stress. Second, building on COR theory, the study aims to offer insight on how empowering leaders can prevent work-related stress, particularly focusing on shedding light on the two resource-based mechanisms (psychological safety and job autonomy). In this way, the study offers more in-depth explanation on their influence on work-related stress.

In the following sections, first the theoretical framework describes the COR theory, the most important variables and their relationships with each other. Second, the method follows with the research design and analysis. Third, the results of the statistical analyses and interpretation are presented. Fourth, the discussion and conclusion are provided to reflect on the outcomes, reflect on the limitations and ideas for further research and offer the implications based on this study.

2. Theoretical Framework

This chapter first explains work-related stress, followed by a description of the most important variables in this study, the relationship of these variables to each other and the hypotheses that follow from this. Work-related stress and the COR theory will be first described. Secondly, empowering leadership will be described and how this relates to work-related stress and the hypothesis that follows from this. Thirdly, psychological safety is described and how this relates to empowering leadership and work-related stress followed by the related hypotheses. Fourthly, job autonomy is described and how this relates to empowering leadership and work-related stress, followed by the related hypotheses. Finally, the conceptual model follows.

2.1. Work-related stress

Experiencing stress at work is an often-seen symptom plaguing workers' daily lives (Bélanger et al., 2016). Prolonged exposure to work-related stress results in burnout (Blaug et al., 2007; Maslach et al., 2001). Moreover, individual symptoms of work-related stress may be raised blood pressure, sleep disturbances, increased irritability and negative emotions and physical pains like back pains and headaches. This may lead to increased sickness absence, increased accidents and reduced profits for organizations (Blaug et al., 2007). According to Blaug et al. (2007) work-related stress occurs "when there is a mismatch between the demands of the job and the resources and capabilities of the individual worker to meet those demands" (Blaug et al., 2007, p.4). Where pressure at work exceeds an individual's ability to cope, this results in stress (Bélanger et al., 2016).

To understand how this process occurs, COR theory looks at the resources of employees in relationship with work-related stress (Hobfoll, 1989). COR theory suggests that stress is the experienced reaction to the threat or loss of one's valued resources (Hobfoll, 1989; Morelli & Cunnningham, 2012). Hobfoll (1989) defined these resources as "objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (p.516). To mitigate negative stress responses, employees are intrinsically motivated to protect, retain, and recover these resources (Hobfoll, 1989; Hobfoll, 2011; Morelli & Cunningham, 2012). Those who have greater capabilities to regain lost resources and to protect their remaining resources may be better suited to resist the negative consequences of stress (Hobfoll, 1989; Morelli & Cunningham, 2012).

COR theory has two main principles. The first principle is 'the primacy of resource loss', which posits that when loss and gain are equal, loss will have significantly greater impact. Stress occurs when resources are lost (Hobfoll et al., 2018). The second principle of the COR theory is 'resource investment', which posits that people must invest resources in order to protect against resource loss, recover from losses, and gain resources, resulting in having enough resources to experience less stress (Halbesleben et al., 2014; Hobfoll, 1989; Westman et al., 2004).

From the principles of COR, several key corollaries follow. These corollaries show the assumption of loss and gain spirals (Hobfoll et al., 2018; Sonnentag & Meier, 2024). The first corollary is that those with greater resources are less vulnerable to resource loss and more capable of resource gain, therefore having more resilience to experiencing stress (Hobfoll et al., 2018). The second corollary is that resource loss has a spiralling nature. At each iteration of the spiral individuals and organizations have fewer resources to offset resource loss, leading to more loss and therefore resulting in more stress (Hobfoll et al., 2018; Sonnentag & Meier, 2024). The third corollary is that resource gain also has a spiralling nature. Those who possess resources are more capable of gaining resources, so that initial resource gain begets further gain, leading to having more resilience against stressors and therefore experiencing less stress (Hobfoll et al., 2018; Sonnentag & Meier, 2024)

In the current study, there is built on the principles of resource loss and resource investment and the corollaries showing the assumption of loss and gain spirals to study how empowering leadership influences work-related stress.

2.2. The role of empowering leadership in relation to work-related stress

Empowering leadership illustrates the COR theory excellently, since empowering leadership is aimed more directly at developing employees than the other leadership styles are (Kim & Beehr, 2021). In line with COR theory, followers working under an empowering leader receive a variety of different resources and therefore can meet job demands and guard themselves against the stress (Rai & Kim, 2021). Employees working in empowered teams are granted more job autonomy, self-direction, and control over their work environment (Arnold et al., 2000). Through the social interaction with empowering leaders, employees form their ability to acquire and build resources (Halbesleben et al., 2014; Inceoglu et al., 2018).

In addition to this, empowering leadership and the process through which it impacts employees especially, demonstrates the gain spiral. The gain spiral starts with having an empowering leader since empowering leaders are in the unique position to enable resources of trust, job autonomy, confidence, and competence to employees. These resources reinforce other resources like meaningfulness in work, open communication, and intrinsic motivation, leading to having more resilience against experiencing work-related stress (Kim & Beehr, 2018; Kim & Beehr, 2023; Tafvelin et al., 2019; Tripathi & Bharadwaja, 2020).

For example, empowering leadership helps employees to express their opinions, let them participate in decision making and encourage employees to perform autonomously. This results in psychological ownership and responsibility over their work, which leads to a sense of meaningfulness in work and therefore reduces the experience of work-related stress (Kim & Beehr, 2018). Therefore, it can be suggested that empowering leadership results in a negative relationship with work-related stress, leading to the first hypothesis:

Hypothesis 1: *Empowering leadership is negatively related to work-related stress among employees.*

So, when a leader enacts empowering leadership behaviour, the leader decreases the work-related stress among employees.

To further understand how empowering leadership prevents stress, this study particularly focuses on the two resources psychological safety and job autonomy in order to investigate whether and to what extent these mechanisms have a mediating role in this relationship. Both resources are provided by empowering leaders and explained by the COR theory, expected to reduce work-related stress.

2.3. The mediating role of psychological safety in relation with empowering leadership and work-related stress.

COR theory provides an explanation for the role of leaders in the development of psychological safety and how this further influences positive workplace outcomes. In relation to the first and third corollary of COR theory, it can be posited that when provided with enough leadership support in the workplace, employees will feel psychologically safe to share their ideas and knowledge with others in the workplace, which can therefore assist them in obtaining further resources, such as feedback and other suggestions. This will enable them to

attain their work goals and foster an environment where learning will occur and performance improves, demonstrating the gain spiral (Newman et al., 2017).

Particularly, empowering leadership is a leadership style that provides enough leadership support. As such, empowering leadership plays a crucial role in shaping the work context characterized by psychological safety (Joo et al., 2023). Namely, empowering leaders display a high level of openness to inputs from employees and they make themselves accessible and available to them, so that the employees may develop a sense that it is psychologically safe to express and share their thoughts and views (Hirak et al., 2012; Joo et al., 2023). Other researchers argue that when employees are supported by their leader, they will reciprocate with supportive behaviours themselves, creating a psychologically safe environment for the rest of their team (Newman et al., 2017; Schaubroeck et al., 2011).

Empowering leadership style can stimulate a climate of psychological safety, to protect the employees from resource loss (Joo et al., 2023; Newman et al., 2017). Therefore, this study argues that empowering leadership has a positive influence on psychological safety. This leads to the following hypothesis:

Hypothesis 2a: *Empowering leadership is positively related to psychological safety.*

From the perspective of COR theory, in a positive resource spiral, psychological safety further becomes a positive resource that could help employees to overcome anxiety and defensiveness, and therefore reducing stress (Hebles et al., 2022; Zhou & Chen, 2021). Complementarily, through the enhancement of psychological safety, the loss spirals can be prevented (Zhou & Chen, 2021). In other words, it can be argued that stress results from lacking psychological safety since employees feel less confident about their ability to cope with potential risks. When employees experience low psychological safety in the workplace, they are more likely to suffer a resource loss, leading to the loss spiral. The resources the employees invest may not return (Zhou & Chen, 2021).

Specifically, as employees feel unsafe in the workplace it makes employees more unwilling to speak or do something that could improve their work, losing other resources (Hebles et al., 2022; Zhou & Chen, 2021). For example, to avoid or reduce interpersonal risks, employees with low levels of psychological safety are more cautious. When employees have to communicate with leaders, they may be afraid of being punished for saying or doing the wrong thing, which requires more time and energy. Also, when communicating with colleagues, they doubt others' motives and the purpose of their behaviours. Since this leads to

feelings of suspicion and the need for more caution, employees start to protect themselves, which costs even more resources, such as time and energy (Zhou & Chen, 2021).

Employees with a high feeling of psychological safety do not need to focus on protecting themselves (Zhou & Chen, 2021). When employees feel psychological safe, they feel that there is someone to turn to in times of need, and this helps reducing stress (Zhao et al., 2020). Therefore, it can be suggested that feeling psychological safe is related to less work-related stress, which leads to the following hypothesis:

Hypothesis 2b: *Psychological safety is negatively related to work-related stress.*

In this study, empowering leadership is therefore considered to be a resource starting the gain spiral that leads to more psychological safety and thus leads to less work-related stress. Empowering leadership manages an environment that favors a climate of psychological safety for employees, and therefore reduces the consequence of stress (Hebles et al., 2022; Lee, 2021). Employees do not feel the need to invest resources to protect themselves or other processes to reduce resource loss. This prevents them from falling into a loss spiral and therefore prevents experiencing work-related stress (Zhou & Chen, 2021). In this way psychological safety can be perceived as a central mechanism through which empowering leaders can influence work-related stress among employees.

Hypothesis 3: *Empowering leadership is negatively related to work-related stress and this relationship is mediated by psychological safety.*

So, when a leader has an empowering leadership style, employees experience less work-related stress through the mediation of psychological safety.

2.4. The mediating role of job autonomy in relation with empowering leadership and work-related stress.

COR theory provides, next to psychological safety, an explanation for how job autonomy provided by leaders influences workplace outcomes. Under COR theory, in relation to the second principle, job autonomy is seen as a resource because discretion over work, how the work is done and the timeliness allows employees to decide how to allocate their other resources (Lips-Wiersma et al., 2023). With regard to the first and third corollary, employees

try to acquire job autonomy in different ways as this resource is functional in achieving work goals and stimulates personal growth, learning and development (Salanova et al., 2010) When supervisors delegate job autonomy to employees, they believe in their ability to fulfil the tasks which results in a feeling of being trusted by the supervisor and could lead to enhanced performance, also demonstrating the gain spiral (Lips-Wiersma et al., 2023; Salanova et al., 2010).

Empowering leadership is often described as a job autonomy-supporting management style (Tripathi & Bharadwaja, 2020). It facilitates self-leadership among employees which allows an employee to deal with potential issues before they become threatening (Tripathi & Bharadwaja, 2020). When an empowering leader provides job autonomy to employees, this signals that their leader trusts their abilities and skills and considers them to be capable and competent members of the organization (Kim & Beehr, 2018; Rai & Kim, 2021). Furthermore, by granting decision autonomy to employees, empowering leaders raise the intrinsic motivation of employees (Tripathi & Bharadwaja, 2020). This leads to the following hypothesis:

Hypothesis 4a: *Empowering leadership is positively related to job autonomy.*

Job autonomy influences employees' willingness, motivation and ability to deal with stress (Peng et al., 2019). Integrating this with COR theory's premise of the resource gain spiral, it is suggested that perceived job autonomy is a resource which fits in with employees' existing resources at work and amplifies the value and development of the prevailing resources (Yunus & Mostafa, 2022). Having high levels of job autonomy means that more resources are given to employees to determine their own work, pace, and effort in completing their jobs. They are more likely to experience reduced negative impacts of psychosocial risks as the opportunity to accumulate resources increases their ability to handle their workload, which in turn reduces job stress (Vui-Yee & Yen-Hwa, 2020). Moreover, job autonomy is expected to help employees recover their resources as they can freely use the knowledge and skills available to them without being controlled by others in the organization or confined to constraints. The freedom to have control over their own work increases the motivation of employees and their self-determination and reduces stress (Vui-Yee & Yen-Hwa, 2020). Shirom et al. (2010) found that job autonomy enables employees to cope more effectively with job-related demands because it enables them to use their available coping resources and skills more flexibly. An autonomous job design allows employees to deal with their work-

related demands within a short period of time that would have otherwise contributed to work-related stress (Vui-Yee & Yen-Hwa, 2020).

In contrast, having low levels of job autonomy leads to the resource loss spiral. Employees with low job autonomy experience constraints in the workplace and therefore may have difficulties to cope with stress (Peng et al., 2019). The absence of job autonomy hinders the maintenance and accumulation of resources. Since employees cannot manage their own work-related demands, they experience even greater resource loss as their knowledge or energy resources are ignored. This insufficiency of resources, such as the ability to control and determine their own work, increases their job stress (Vui-Yee & Yen-Hwa, 2020). Therefore, this study argues that job autonomy is negatively related to work-related stress, proposing the following hypothesis:

Hypothesis 4b: *Job autonomy is negatively related to work-related stress.*

Therefore, in this study empowering leadership is considered to lead to more job autonomy among employees and therefore leads to less work-related stress. Empowering leadership can enhance the job autonomy perception of employees in their work (Gao & Jiang, 2019). Employees can manage their work more effectively if the environment and leader allows them to protect and retain their resources, preventing work-related stress. Accordingly, when employees receive job autonomy from empowering leaders, stress will be minimal as individuals will feel valued and perceive less resentment in their jobs (Vui-Yee & Yen-Hwa, 2020). Low job autonomy leads to a lack of resources because the routine of employees is set by others, having less control over what they do and therefore leading to work-related stress (Lips-Wiersma et al., 2023).

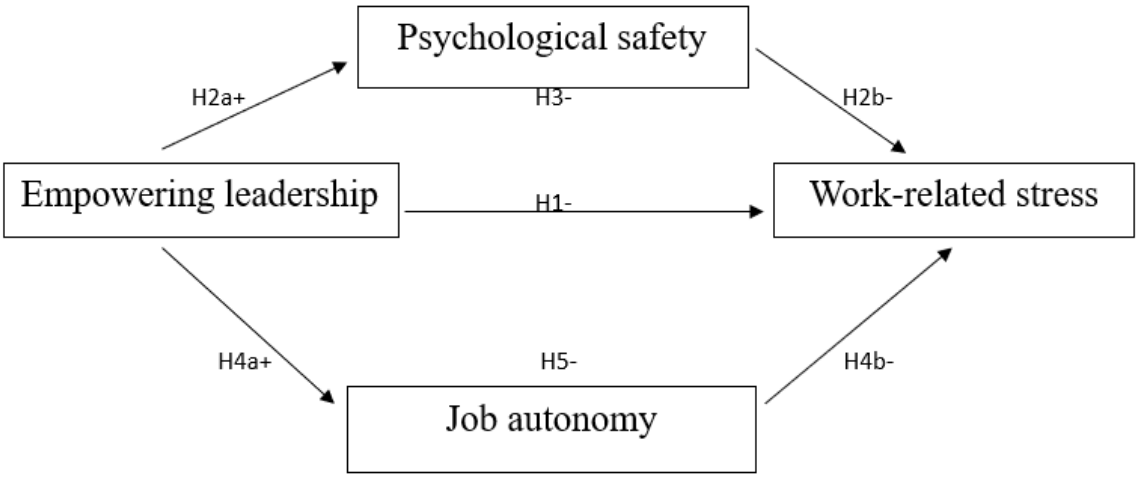
Hypothesis 5: *Empowering leadership is negatively related to work-related stress and this relationship is mediated by job autonomy.*

So, when a leader has an empowering leadership style, employees experience less work-related stress through the mediation of job autonomy.

By testing these hypotheses, this study will examine the relationships between empowering leadership and work-related stress mediated by psychological safety and job autonomy. These hypotheses are presented in Figure 1.

Figure 1

Conceptual model



3. Methodology

This chapter first discusses the research design and a description of the sample is given. Second, a description of the measures of the variables and control variables are mentioned and third, the analytical strategy is discussed. Lastly, ethics will be taken into consideration.

3.1. Research design

The current study employed correlational study design. Namely, the research was performed among working adults, who were asked about their experiences within their actual organisational settings without experimentally influencing the variables and at a single point in time (Field, 2018). Cross-sectional data was collected meaning that participants provided information at a single point in time. Despite its limitations (i.e., possibility to assess causal relationships and increased risk of common method bias), such research design was the most feasible, having in mind the time and other resources available for the current study (Field, 2018; Kock et al., 2021).

This research built on positivistic research philosophy and used a deductive approach to derive the study hypotheses from the existing theory. In this deductive study, the researcher built on COR theory to derive the focal variables and develop hypotheses about their relationship. In this study the researcher opted for using quantitative, survey-based data. An online survey is great to collect large amounts of data efficiently within relatively short time frames. The large number of respondents who get the same questions gives confidence to the general reliability of the data (Lefever et al., 2007). Moreover, as this is an observational (rather than experimental) study in which the data is collected by the means of online survey, the researcher was not part of the phenomenon and the possible influence of the researcher on the measurement process was minimal.

The study used primary data that was collected by team effort. Specifically, the data was collected by two teams of master thesis students over two master thesis cycles, and the combined sample was used to increase the overall sample size and statistical power. The study used a non-probability sample, specifically snow-ball sampling. In both data collection efforts, the researchers followed comparable data collection strategy and principally reached out to potential participants through their own networks. Although snowball strategy and student samples are found to result in diverse and representative samples, this sample strategy does not come without limitations.

Furthermore, the effort was made to collect dyadic data by employees and their supervisors. The goal of collecting dyadic data was to obtain the measures of focal variables from multiple sources, minimizing the effort of the common source bias. Moreover, in such way multiple members to study the characteristics of the interactions among the members and therefore the shared relationship between the leader and its employee(s) could be measured and analysed (Kenny et al., 2020). Yet, it must be noted that the collection of the leader ratings ended up being a challenging endeavour, and the employee sample ended up being substantially larger than the leader sample (255 vs 125). However, as the current study mainly focused on employee outcomes and research show that employee perceptions are a more relevant predictor of employee behaviour and other outcome than any other objective data (Nishii et al., 2008), in testing hypotheses of the current study the researcher principally relied on employee provided information, and the information provided by the leaders is only used in some supplementary, exploratory analyses.

Description of the sample

Although the sample selection technique used in this study is not random sampling, the effort is made for the sample to be varied and as large as possible in order to offer the results that are as generalizable as possible to the population of the working adults in the Netherlands. Large sample size gives the possibility to analyse the data with valid and reliable statistical analysis (VanVoorhis & Morgan, 2007).

The sample consisted of Dutch employees from all different regions, industries and organizational contexts in the Netherlands. Through the use of LinkedIn and the network of the master thesis cycle students, the questionnaire made in Qualtrics was sent online to Dutch employees. The data from this survey was combined with the survey from the former master thesis cycle which resulted in the sample of 255 employees. Namely, 125 responses were collected by the first group of students, and 130 responses were collected by the second group (response rate 78%). For 125 participants, the students were also able to obtain responses from 125 supervisors.

The majority of participants worked in the sector of trade, services and health care. The average age of the employees was 35,9 years (*SD* =14,6) and they had an average work-hours per week of 32,1 (*SD* = 10,6). 65% of the 255 respondents were female and 34% were men. The sample covered a broad range of educational backgrounds. Most employees completed the university of applied science (HBO)(33%). Furthermore, 25% completed

MBO, 16% University (master), 15% University (bachelor), and 1,6% PhD. 7,4% of the respondents had only completed high school.

3.2. Description of the measures

The variables that were measured in this study are empowering leadership, work-related stress, psychological safety and job autonomy. For these variables, validated scales and their items were used which were already presented in previous scientific literature. To increase the number of responses and make the survey approachable the researchers offered the survey in three languages English, Dutch and German. When the versions of the original measures were available in Dutch and German, the researchers used these measures. When already translated versions were not available, the researchers translated the measures using the back-translation method (Behr, 2016).

Empowering leadership. Empowering leadership was measured with the 12-item Leadership Empowerment Behavior (LEB) scale of Ahearne et al. (2005), which is been validated and published in earlier peer reviewed journals (Ahearne et al., 2005). Four dimensions are distinguished in this scale, which are; meaningfulness of work, fostering participation in decision making, expressing confidence in high performance and providing autonomy. All four dimensions consist of three items that were measured on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). An example item is: "My manager expresses confidence in my ability to perform at a high level". The scale demonstrates an adequate reliability (Cronbach's α = ,848). An example item of empowering leadership from the perspective of supervisors is "I make many decisions together with my employees". The scale demonstrates an adequate reliability (Cronbach's a = ,800).

Psychological Safety. Psychological safety was measured with the 7-item scale of Edmondson (1999). All items were measured on a 5-point Likert-scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). An example item is: "If I make a mistake in this team, it is held against me". The scale demonstrates an adequate reliability (Cronbach's α = ,733)

Job autonomy. Job autonomy was measured with the 3-item scale of Hackman & Oldham (1975). The items were measured on a 7-point Likert-scale ranging from 'very little/very inaccurate' (1) to 'very much/strongly accurate' (7). An example of an item is: "The job denies me any chance to use my personal initiative or judgment in carrying out the work", The scale demonstrates an adequate reliability (Cronbach's α = ,756)

Work-related stress. Work-related stress was measured with the 4-item scale of Motowidlo et al. (1986). The items were measured on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). An example item is: "I feel a great deal of stress because of my job". This scale also demonstrated an adequate reliability (Cronbach's α = ,897).

Control variables

To increase internal validity and determine generalisability, a few demographic questions were asked at the respondent (Field, 2018). These questions were used as control variables to control for potential influences of the demographic variables (Field, 2018). The control variables added to the analyses are age, gender and education level. By controlling for those variables, more stable conclusions can be made about the relationships in the model. If the control variables turn out not to influence any of the other relationships in the model, they can be deleted (Hair et al., 2019).

The first control variable of this study is age, since age might affect aspects of the stress process at work. Emotion regulation skills differ regarding age and so does emotional experience (Rauschenbach et al., 2013; Scheibe et al., 2016). Older workers might have more improved emotion regulation than their younger colleagues do. However, older workers might experience increased levels of work-related stressors. Conditions might be that older workers are discriminated against by their younger colleagues or organizational policies and that when losing their job, they are less likely to be re-employed (Rauschenbach et al., 2013). This could influence the relationships between the mediators and work-related stress.

The second control variable is gender, since female employees are more expected to value and respond positively to empowering leadership behaviours. Therefore, they more value the support and job autonomy provided by empowering leaders than their male colleagues might do, which could influence the relationship between empowering leadership and the mediating variables (Lang et al., 2022).

The third control variable is education level, since employees with higher education might be assigned to more demanding jobs than their colleagues with a lower education level, which may result in increased feelings of work-related stress (Marinaccio et al., 2013). Since this research looked at work-related stress among employees, all these variables were only rated by employees.

3.3. Analytical strategy

To analyse the data of the current study, the statistical software SPSS 28 was used. The data was downloaded from Qualtrics to the IBM SPSS Statistics 28 program, and then the analytical strategy containing of several steps was executed.

First, the data was cleaned and prepared by checking missing data and influential outliers. Some items had to be reverse coded to get positive values to analyse (Hair et al., 2019).

Second, the reliability and validity of the measures was assessed (see Appendix A). Reliability analysis was executed by checking the Cronbach alpha (α) using .70 as the cut-off value for evaluating the sufficient scale reliability as an indicator of reliability (Hair et al., 2019). The reliability results were already reported in the Method section of the thesis. To assess the factor validity of the measurement model, the researcher conducted confirmatory factor analyses (CFA) with MPLUS (Version 7) (Muthén & Muthén, 2012). A maximum likelihood estimator with robust standard errors and chi-square (MLR) was used to test the measurement model, accounting for possible deviation from the normal distribution (Yuan & Bentler, 2007). Following standard CFA practices (e.g., Jackson et al., 2009), several fit indices were used to assess the model fit. The robust comparative fit index (CFI) and Tucker-Lewis index (TLI) should be higher than .90 to indicate an acceptable index (McDonald & Ho, 2002). Moreover, the robust root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) should be below .08 to indicate an acceptable fit (Hu & Bentler, 1999).

Third, descriptive statistics and correlations were executed to explore the relationship between all variables included in the model. In this way a linear combination of each set of both independent, dependent and control variables were developed in a manner that maximizes the correlation between the sets (Hair et al., 2019).

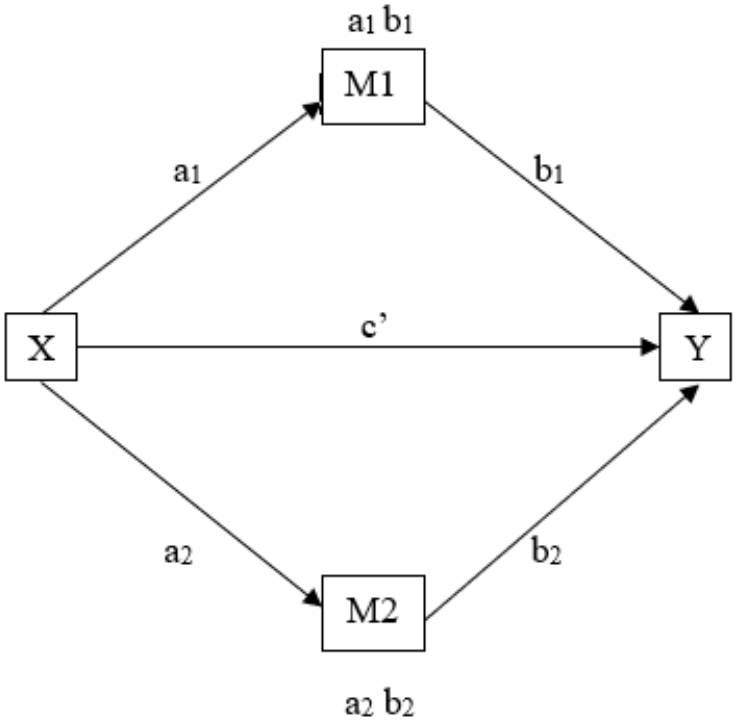
Finally, prior to testing hypotheses, preliminary analysis was conducted to check for any violation of the assumptions of linear regression analysis (i.e. normality, linearity, homoscedasticity, independence of observations and the absence of multicollinearity). Hypotheses were tested by using a multiple regression based on mediation analysis performed via PROCESS macro for SPSS (Hayes, 2013). Specifically, Model 4 was used to test the direct effect and the mediating effect of psychological safety and job autonomy to predict the changes in the dependent variable in response to changes in the independent variable.

3.4. Ethics

When conducting research, it is important to consider research ethics. Researchers need to be aware of the specific context they enter and how this may affect those being studied (Symon & Cassell, 2012). According to Resnik (2005), ethical principles are for instance honesty, objectivity, freedom and carefulness. Ethics were taken into account during and after this research. For instance, the anonymity and voluntary participation is an important ethical consideration when doing research (Smith, 2003). In this study, the participants could participate voluntary, had the ability to opt out at any time and were not pressured into doing anything they did not want to. Participants were informed that their data will remain anonymous to protect the privacy of the participants. Furthermore, the informed-consent rules were followed, such that participants were informed about the circumstances surrounding the survey so that they fully understood what they were agreeing to and could contact the researcher when having questions (Smith, 2003). Furthermore, the data from the survey was handled with care and confidentiality and participants was given information about how their data would be used (Smith, 2003).

Figure 2

Statistical diagram



4. Results

In this chapter the results of the research are presented. First the preliminary analyses and second the descriptives and correlations are presented. Third, the hypotheses are tested.

4.1. Factor analysis

The validity of the measurement instrument was checked by conducting a confirmatory factor analysis. To assess the factor validity, the measurement model is specified where all items loaded on the corresponding first order factor, and the four dimensions of empowering leadership loaded on the corresponding second order factor. The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis with a value of KMO = 0,820 and Bartlett's test of sphericity $\chi 2 = 2855{,}658$ $p < 0{,}001$. The results indicate that the proposed model adequately fit the data with all fit indices being within the proposed cut-off values (SB-$\chi 2 = 472.187$, df = 289, $p < 0.01$; CFI = 0.917; TLI = 0.907; RMSEA = 0.05; SRMR = 0.07) The table that presents factor loadings is presented in the Appendix B.

4.2. Descriptive statistics and correlations

The number of outliers were minimal and retained in further analysis, ranging from zero for work-related stress and five for job autonomy, since scores of these observations were all meaningful and realistic responses. After deletion of the missing data, the sample consisted of 253 participants.

Next, in Table 1, descriptive statistics and the correlations between the variables are presented. As shown in Table 1, empowering leadership has a significant medium to large positive correlation with psychological safety ($r = 0{,}386$, $p < 0{,}01$) and job autonomy ($r = 0{,}355$, $p < 0{,}01$). This means that when empowering leadership increases, psychological safety and job autonomy also increase, and the other way around. Work-related stress has a significant small negative correlation with psychological safety ($r = -0{,}153$, $p < 0{,}05$) indicating that when work-related stress increases, psychological safety decreases, or the other way around. Psychological safety also has a significant medium positive relationship with job autonomy ($r = 0{,}289$, $p < 0{,}01$) which means that when job autonomy increases, psychological safety increases as well and the other way around. Notable is that job autonomy has no correlation with work-related stress ($r = 0{,}003$, $p = 0{,}964$).

When it comes to control variables, the results show that education has a significant small positive correlation with empowering leadership ($r = 0{,}125$, $p < 0{,}05$) as well as job

autonomy (r = 0,238, $p < 0,01$).

Table 1

Means, Standard Deviations, Correlations (N=253)

Variables	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*
1. Empowering leadership	3,822	0,541	(,848)					
2. Work-related stress	2,874	0,932	-,023	(,897)				
3. Psychological safety	4,084	0,635	,386**	-,153*	(,733)			
4. Job autonomy	5,471	1,144	,355**	,003	,289**	(,756)		
5. Age	35,91	14,632	-,111	,036	,047	,088		
6. Gender	0,34	0,476	-,053	-,062	-,002	,082	,260**	
7. Education	3,13	1,223	,125*	,040	,089	,238**	-,187**	-,080

*$p < .05$. **$p < .01$.

4.3. Regression assumptions

Prior to testing the hypotheses, regression assumptions were evaluated. First, the normality assumption is assessed, which indicates the shape of the data distribution and its correspondence to the normal distribution (Hair et al., 2019). In Appendix C the values of skewness and kurtosis are first presented which reflect the shape of the distribution. The value of the skewness must lay between -1 and +1 to indicate a substantially skewed distribution (Hair et al., 2019). For all the variables, the values are quite close to +/- 1 indicating that the distribution of all scores generally follows normal distribution. When looking at the Normal P-Plot, the distribution of the actual data closely follows the diagonal, meaning that the data were normally distributed (see Appendix D) (Hair et al., 2019). Secondly, the linearity assumption was checked, which indicates a linear relationship between each independent variable and the dependent variable (Hair et al., 2019). The Partial Regression Plots showed that the data points were considerably distributed around a central line and therefore, variables were linearly related (see Appendix E). Next, homoscedasticity was evaluated, which indicates a constant variance of the residuals of the dependent variable for all levels of the predictor variables (Hair et al., 2019). The scatterplot showed that the data points were

randomly scattered, and no obvious pattern indicated that homoscedasticity could be assumed (see Appendix F). Furthermore, multi-collinearity was assessed, which implies that no independent variable was highly correlated with other independent variables (Hair et al., 2019). This was checked by looking at the Tolerance and VIF values. The cut-off for the tolerance is to be not lower than .1, while the VIF should have been greater than 1. The collinearity statistics illustrated no Tolerance value <.1 or VIF value < 1, which meant that this fourth assumption was also not violated (see Appendix G). Finally, the independence of error items was checked indicating that the error terms are not related to each other (Hair et al., 2019). The results of the Durbin-Watson indicate this statistic to be 1,968 which is very close to desired threshold of 2 (see Appendix H).

4.4. Hypothesis testing

To test the hypotheses, PROCESS model 4 is used to analyse the mediating effect of psychological safety and job autonomy on the relationship between empowering leadership and work-related stress, controlling for age, gender and education.

Hypothesis 1 stated that empowering leadership is related to work-related stress. As shown in Table 2, the total effect between empowering leadership and work-related stress is not significant. The relation between empowering leadership (X) and work-related stress (Y) resulted in an c_1 = -0,040 and p = 0,718 (see Table 2) which has greater significance value than the determined maximum of $p < 0,05$. Hypothesis 1 is therefore not supported.

Mediating role of psychological safety

Hypothesis 2a stated that empowering leadership is positively related to psychological safety. As shown in Table 2, there is a positive significant relationship between these two variables, meaning that those employees who experience more empowering leadership, are estimated to report higher psychological safety. The relationship between empowering leadership (X) and psychological safety (M) resulted in an a_1 = 0,457 and $p < 0,001$. Hypothesis 2a is therefore supported.

Hypothesis 2b stated that psychological safety is negatively related to work-related stress. As shown in Table 2, there is a negative significant relationship between these two variables, meaning that those employees who report higher psychological safety, are estimated to experience lower work-related stress. The relationship between psychological safety (M)

and work-related stress (X) resulted in an b_1 = -0,250 and p = 0,013. Hypothesis 2b is therefore supported.

Hypothesis 3 assumed that psychological safety mediates the relationship between empowering leadership and work-related stress. This mediated (indirect) effect is significant and negative (a_1b_1 = 0,114) as revealed by a 95% BC bootstrap confidence interval that is entirely below zero (-0.232 to -0.025). In other words, employees that have more empowering leadership are estimated to experience lower work-related stress as a result of higher experience of psychological safety among employees who have more empowering leaders. Hypothesis 3 is therefore supported.

Mediating role of job autonomy

Hypothesis 4a stated that empowering leadership is positively related to job autonomy. As shown in Table 3, there is a positive significant relationship between these two variables, meaning that those who experience more empowering leadership, are estimated to have higher job autonomy. The relationship between empowering leadership (X) and job autonomy (M) resulted in an a_2 = 0,734 and $p < 0,001$. Hypothesis 4a is therefore supported.

Hypothesis 4b stated that job autonomy is negatively related to work-related stress. As shown in Table 3, there is no significant relationship between those two variables. The relation between job autonomy (M) and work-related stress (Y) resulted in an b_2 = 0,006 and p = 0,915. Hypothesis 4b is therefore not supported.

Hypothesis 5 assumed that job autonomy mediates the relationship between empowering leadership and work-related stress. This mediated (indirect) effect is not significant. The whole indirect effect of empowering leadership on work-related stress via job autonomy was negative (a_2b_2 = -0,005), but non-significant because zero fell within the LLCI and ULCI (-0.084 to 0,097). Hypothesis 5 is therefore not supported.

Furthermore, some control variables have a significant relationship with the mediating variable job autonomy. Namely, the age of the employee has a positive significant relationship with job autonomy (b = 0,012, $p < 0,05$). This means that when an employee gets one year older, the job autonomy of this employee gets 0,012 higher. The education of the employee also has a positive significant relationship with job autonomy (b = 0,210, $p < 0,01$). This means that when an employee has a higher educational level, the job autonomy of the employee is 0,210 higher. Next, in Table 2 and Table 3, can be seen that the R2 (0,197) of the model is relatively low. 19,7% of the variation in the dependent variable work-related stress is explained by the independent variable empowering leadership. 3,2% of the variation in the

dependent variable work-related stress is explained by the independent variables empowering leadership and psychological safety. Also, with job autonomy as mediator the R2 (0,007) is relatively low, namely 0,7%. This may suggest that the independent variables in the model are not effectively explaining the variation in the dependent variable, however meaningful relationships between the variables still exist (Colton & Bower, 2002; Hair et al., 2019).

Table 2

Results regression analysis direct and mediated (indirect) effects psychological safety

		Consequent						
		Psychological safety (M)				*Work-related stress (Y)*		
Antecedent		Coeff.	*SE*	*p*		Coeff.	SE	*p*
Empowering leadership (X)	a_1	,457	,069	,000**	c_1,	,075	,118	,526
Psychological safety (M)					b_1	-,250	,100	,013*
Constant	i_1	2,072	,302	,000**	i_2	3,375	,517	,000**
Age		,005	,003	,067		,004	,004	,357
Gender		-,003	,081	,974		-,138	,127	,277
Education		,029	,031	,340		,042	,049	,386
		R2 = 0,162				R2 = 0,032		
		F(4,248) = 11,948 *p* = 0,000**				F(5,247) = 1,631 *p* = 0,152		

		Effect	*SE*	*t*	*p*	*LLCI*	*ULCI*
Direct effect	c_1’	,075	,118	,634	,526	-,157	,310
Total effect	c_1	-,040	,110	-0,361	,718	-,255	,176
			Boot SE			Boot LLCI	Boot ULCI
Indirect effect	a_1 b_1	-,114	,054			-,232	-,025

*$p < .05$. **$p < .01$.

Table 3

Results regression analysis direct and mediated (indirect) effects job autonomy

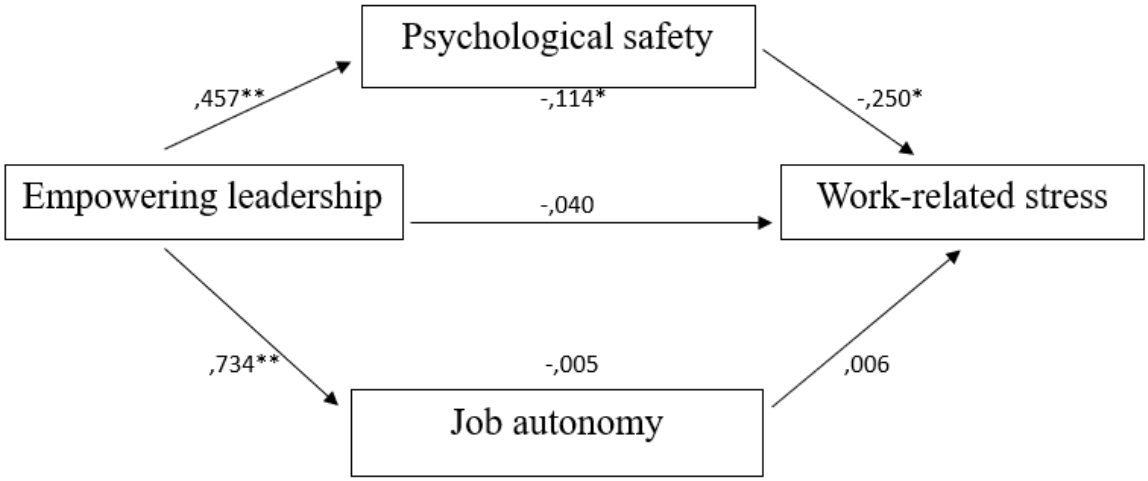
		Consequent						
		Job autonomy (M)				*Work-related stress (Y)*		
Antecedent		Coeff.	*SE*	*p*		Coeff.	SE	*p*
Empowering leadership (X)	a_2	,734	,122	,000**	c_2'	-,044	,118	,708
Job autonomy (M)					b_2	,006	,057	,915
Constant	i_3	1,502	,531	,005**	i_4	2,847	,490	,000**
Age		,012	,005	,010**		,003	,004	,547
Gender		,188	,142	,187		-,138	,129	,283
Education		,210	,055	,000**		,034	,051	,508
		R2 = 0,197				R2 = 0,007		
		F(4,248) = 15,222 *p* = ,000**				F(5,247) = 0,371 *p* = ,0,896		

		Effect	*SE*	*t*	*p*	*LLCI*	*ULCI*
Direct effect	c_2’	-,044	,118	-,375	,708	-,276	,188
Total effect	c_2	-,040	,110	-,361	,718	-,255	,176
		Boot SE				Boot LLCI	Boot ULCI
Indirect effect	$a_2 b_2$	-,005	,045			-,084	,097

*$p < .05$. **$p < .01$.

Figure 3

Results in statistical diagram



*$p < .05$. **$p < .01$.

4.5. Additional analyses

This study chose to focus on the employee information, since the researcher has smaller samples of supervisors in comparison to employees. However, to get a full picture of the relationship between empowering leadership and work-related stress, it is also important to research how supervisors rate their empowering leadership and if this has a relationship with work-related stress. Therefore, some additional exploratory analyses were performed to get initial insight into whether supervisor rated empowering leadership could have influenced statistical outcomes. The mean of empowering leadership from the perspective of supervisors was found to be 4,103 (*SD* = 0,385), which was somewhat higher than the mean from the perspective of the employees, being 1,822 (*SD* = 0,541). Furthermore, the correlation matrix in Table 4 shows that supervisor empowering leadership only has a positive significant relationship with job autonomy (r = 0,422, $p < 0,01$). This means that when supervisor empowering leadership increases, job autonomy also increases, and the other way around. As shown in Table 4, it also has a positive significant relationship with age (r = 0,241, $p < 0,05$) and education (r = 0,223, $p < 0,05$). Notable is that supervisor rated empowering leadership does not have any significant relationships with the other variables, while empowering leadership from the perspective of the employees did have more significant relationships.

Because the sample size involving supervisors was smaller, the researcher limited these analyses on exploratory analyses, and did not provide full model tests with this variable as an independent variable. This remains a task for future research.

Table 4

Means, standard deviations and correlation coefficients (N=253)

Variables	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*
1. Supervisor emp. leadership	4,103	0,385	(,800)					
2. Work-related stress	2,874	0,932	,142	(,897)				
3. Psychological safety	4,084	0,635	,152	-,153*	(,733)			
4. Job autonomy	5,471	1,144	,422**	,003	,289**	(,756)		
5. Age	35,910	14,632	,241**	,036	,047	,088		
6. Gender	0,340	0,476	-,022	-,062	-,002	,082	,260**	
7. Education	3,130	1,223	,223*	,040	,089	,238**	-,187**	-,080

*$p < .05$. **$p < .01$.

5. Discussion

This chapter first provides the reflection on the outcomes and how this relates to the previously discussed research and expectations. Thereafter, the theoretical contributions, limitations of this study, suggestions for future research and practical implications are provided.

5.1. Reflection on the outcomes

The aim of this study was to create insights on how empowering leadership is related to work-related stress by identifying two mechanisms within that relationship. The proposed mechanisms were psychological safety and job autonomy, both suggested to be positively related to empowering leadership and to have a reducing effect on work-related stress. Using the COR theory, arguments were provided to support their mediating effect. This led to the research question:

"What is the role of psychological safety and job autonomy in the relationship between empowering leadership and work-related stress?"

To answer this research question, seven hypotheses were formulated and tested. The first hypothesis tested whether there was a negative relationship between empowering leadership and work-related stress. Since this hypothesis was not supported, it can be concluded that empowering leadership does not have a direct negative effect on work-related stress and therefore does not necessarily reduce work-related stress. Even though there was no direct relationship, the researcher proceeded with assessing the indirect effect of empowering leadership on work-related stress through two proposed mechanisms, psychological safety and job autonomy. Namely, it is possible for the indirect relationships to result significant even with the non-significant direct relationship, for example, when the multiple mechanisms of different signs cancel each other out (Hayes, 2012). Next, both Hypothesis 2a and Hypothesis 4a, proposing the relationship between empowering leadership and the two mediating factors, psychological safety and job autonomy, were supported. Empowering leadership does increase psychological safety and job autonomy. However, only psychological safety (Hypothesis 2b) and not job autonomy (Hypothesis 4b) had further negative relationship with work-related stress. When it comes to hypotheses about the indirect/mediating effect, Hypothesis 3 tested the mediating effect of psychological safety. Since Hypothesis 3 was

supported, psychological safety does mediate the relationship between empowering leadership and work-related stress which means that one of the mechanisms is present. Furthermore, Hypothesis 5 tested the mediating effect of job autonomy. Since Hypothesis 5 was not supported, job autonomy does not mediate the relationship between empowering leadership and work-related stress, which means that this mechanism is not present.

A possible explanation for the results showing that empowering leadership does not have a direct effect on work-related stress, is that the supervisors in this study could have engaged in empowering leadership behaviours only to a moderate extent, wherefore positive consequences leading to less work-related stress from empowering leadership had not occurred to a certain level (Sharma & Kirkman, 2015). A possible explanation for the fact that job autonomy does not have a significant negative effect on work-related stress, is that this study used a single research method, the quantitative method, to measure job autonomy and its outcomes. When using multiple methods, like also using qualitative methods to assess job autonomy, stronger predictions can be made about how people experience having job autonomy and its work-related outcomes (Kubicek et al., 2017). A second possible explanation is that there may be personal differences among employees experiencing the effects of having job autonomy. In the survey, 80,78% of the respondents answered the question 'How much autonomy is there in your job?' with 'somewhat much' to 'a lot'. Some employees might experience having (much) job autonomy as a 'nicety' while others find it a 'necessity' (Kubicek et al., 2017). For example, some employees may experience having job autonomy as acquiring more knowledge and skills, and being more engaged to their work and their performance. Others may experience having (much) job autonomy as a burdening process, experiencing high time pressure, having more difficult and uncomfortable decision making and lower levels of other desirable job characteristics such as workplace support, which may lead to an increasing strain level (Cheong et al., 2016; Kubicek et al., 2017; Langfred & Moye, 2004; Warr, 1994). In this case, job autonomy would lead to the loss spiral instead of the gain spiral (Hobfoll et al., 2018; Sonnentag & Meier, 2024). As the results show that job autonomy does not have a negative significant effect on work-related stress, it is hardly possible that there is a significant mediated effect of job autonomy on the relationship between empowering leadership and work-related stress, and this is also what the results showed. Therefore, the same explanations can be mentioned for the reason that this mediation effect did not happen.

5.2. Theoretical contributions

This study contributes to existing literature by creating insights on how empowering leadership is related to work-related stress by identifying and explaining two mechanisms within that relationship. This study contributes to the literature on work-related stress as the characteristics of the job (fostered by empowering leadership) that could possibly influence an individual's level of stress were explored. Specifically, by focusing on empowering leadership and identifying the two resources psychological safety and job autonomy that are provided by empowering leaders to explain the mechanisms through which empowering leadership operates in reducing employee work-related stress. Moreover, it enriches both empowering leadership and the stress literature by explicating the mediating role of psychological safety in the relationship between empowering leadership and work-related stress. While other studies did find that psychological safety reduces stress or other burn-out effects, this study also focuses on the empowering leadership style to provide psychological safety to reduce work-related stress (Hebles et al., 2022; Zhou & Chen, 2021). Also by the result that job autonomy does not, while other studies did find that job autonomy reduced work-related stress (Shirom et al., 2010; Väänänen & Toivanen, 2017). These studies were among specific sectors or based on work life in earlier years, while this study included multiple sectors, which may indicate that it depends on the sector if job autonomy reduces work-related stress. Further research should therefore look into different sectors.

Furthermore, this study contributes to the COR theory by offering insights on how empowering leaders can prevent work-related stress. According to Hobfoll et al. (2018) expanding the outcomes of resource losses and gains is vital in understanding COR theory. Therefore, drawing from resource loss and gain spirals, resources of the COR theory were detailed in their relationship to work-related stress. Only the mechanism psychological safety reduces work-related stress and is therefore in line with COR theory, since empowering leadership fosters job resources such as job autonomy and psychological safety, which, in case of providing psychological safety, helps to tackle stressors and mitigating stress levels (Kim & Beehr, 2021; Tripathi & Bharadwaja, 2020; Unsworth & Mason, 2012). Empowering leadership fosters psychological safety, resulting in having more resources to cope with stress (gain spiral) (Hebles et al., 2022). Surprisingly, the mechanism job autonomy does not lead to reducing work-related stress, although this is seen as a resource by COR theory and expected to reduce work-related stress (Lips-Wiersma et al., 2023). In other words, by shedding light

on these two resource-based mechanisms, more in-depth explanation is offered on their influence on work-related stress and COR theory.

5.3. Limitations of the study and recommendations for future research

While this research provided some valuable results, it also has several limitations. First, a correlational and cross-sectional research design is used to collect and analyse the data instead of using a longitudinal research design. The data is gathered at a single point in time. When measuring the variables at different time points, more insight could be gained in the causal relationships (Field, 2018). So, when interpreting the presented relationships, it should be taken into account that no conclusion can be made about the causal relationships. Further research should conduct longitudinal research to determine causal relationships.

Secondly, as a non-probability and snow-ball sampling technique was used, it might have resulted in over-representation of some groups of employees. In this study, the sample has an overrepresentation of employees with a higher education (67,0%). As this survey is used for scientific research done by researchers at the university and the questionnaire is sent out to their network, this may have led to an overrepresentation of higher educated employees. Therefore, the sampling method influenced the generalisability of the results.

Third, as can be seen in Table 2 and Table 3, the models have a relatively low R2. This means that there is a high difference between the observed data and the fitted values. Social studies may have an inherently greater amount of unexplainable variation, since people are harder to predict than physical processes. By adding more variables to the regression equation, the R2 of the models may increase. Therefore, further research should include more variables to investigate the relationship with work-related stress (Hair et al., 2019; Moksony & Heged, 1990).

Thirdly, this study contributes to the literature on work-related stress as the characteristics of the job that could possibly influence an individual's level of stress were explored. This study found that psychological safety should be incorporated as a mediator to explore the nature of the relationship between empowering leadership and work-related stress. While psychological safety fully mediated the relationship between empowering leadership and work-related stress, job autonomy did not. Therefore, future research should investigate other concepts of empowering leadership that could act as a mediator in this relationship, in order to find out if empowering leadership through the mediation of other concepts reduces work-related stress.

Lastly, in the additional analyses this study explored that supervisor rated empowering leadership only had a positive significant relationship with job autonomy, while empowering leadership rated by employees also had significant relationships with other variables. However, the sample of the supervisor rated empowering leadership is small, so future research should investigate this at a broader level.

5.4. Practical implications

The findings in this study have some practical implications. This study provides new evidence pertaining to the mediating effect of psychological safety on the relationship between empowering leadership and work-related stress. The results suggest that organisations need to pay attention to the availability of resources, such as psychological safety, as this may lead to gaining more resources, indicating the gain spiral.

Furthermore, training programmes, such as series of workshops, focus groups and interviews to explore the current experience and perceptions of psychological safety with employees and supervisors is necessary to increase awareness of psychological safety (Hunt et al., 2021). This helps employees to see the benefits of psychological safety and encourages employees to be aware of, and maintain psychological safety, creating a safe and healthy work environment, so employees feel free to express and share their ideas, knowledge, thoughts and views, leading to improved individual and organisational performance (Hunt et al., 2021; Newman et al., 2017).

Furthermore, since job autonomy is not a significant mediating effect on the relationship between empowering leadership and work-related stress, practitioners should keep in mind that empowering leadership is able to lead to negative outcomes. When employees feel the pressure of too much job autonomy, it does not reduce work-related stress and according to some other studies it may even increase work-related stress (Cheong et al., 2016). Therefore, this practice should be applied with caution.

5.5. Conclusion

To answer the research question, empowering leadership is shown to relate to work-related stress only indirectly, through the mediating role of psychological safety. Contrary out expectations, job autonomy did not mediate the relationship between empowering leadership and work-related stress, and the empowering leadership did not exhibit significant direct relationship to work-related stress. In other words, although empowering leadership both lead

to more psychological safety and job autonomy, only psychological safety mediates the relationship with work-related stress. Using COR theory, this study has created insights on how empowering leadership is related to work-related stress by identifying and explaining two mechanisms within that relationship, psychological safety and job autonomy. It can be said that through the mediating effect of psychological safety, empowering leadership is an opportunity to reduce work-related stress.

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Appendices

Appendix A | Reliability analysis

Variable	*Number of items*	*Cronbach's α*
Empowering leadership	12	0,848
Psychological safety	7	0,733
Job autonomy	3	0,756
Work-related stress	4	0,897

Appendix B | Standardised factor loadings and reliabilities

Construct		Construct (first order)	Loading	Reliability
Meaningfulness	EL1		0.73	
	EL2		0.85	
	EL3		0.84	
….	EL4		0.73	
	EL5		0.57	
	EL6		0.72	
…	EL7		0.72	
.	EL8		0.74	
	EL9		0.72	
…	EL10		0.76	
	EL11		0.52	
	EL12		0.63	
Psychological	PS1			.
Safety			0.60	
	PS2		0.54	
	PS3		0.62	
	PS4		0.68	
	PS5		0.55	
	PS6		0.27	
	PS7		0.59	

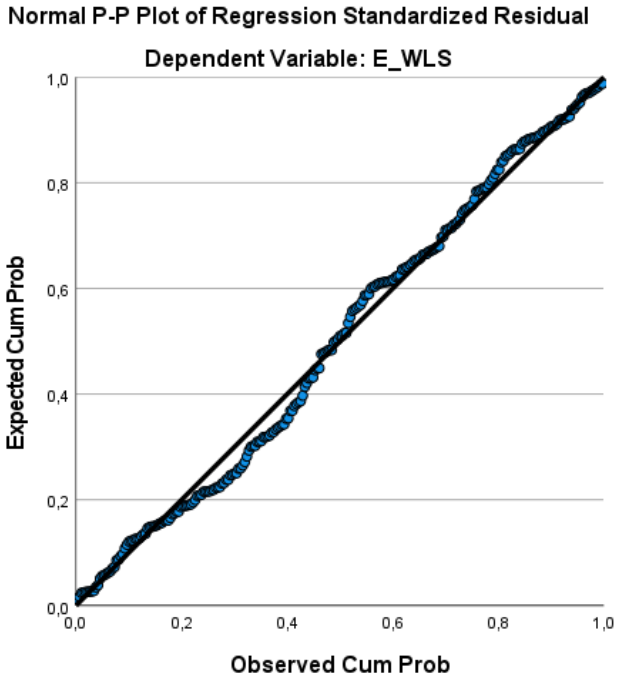
Job Autonomy	JA1	0.88
	JA2	0.52
	JA3	0.80
Work Stress	WS1	0.87
	WS2	0.85
	WS3	0.78
	WS4	0.83
Construct (Second Order)	Dimensions	
Empowering Leadership	Meaning	
		0.56
	…	0.87
	…	0.82
	…	0.80

Note: N = 255

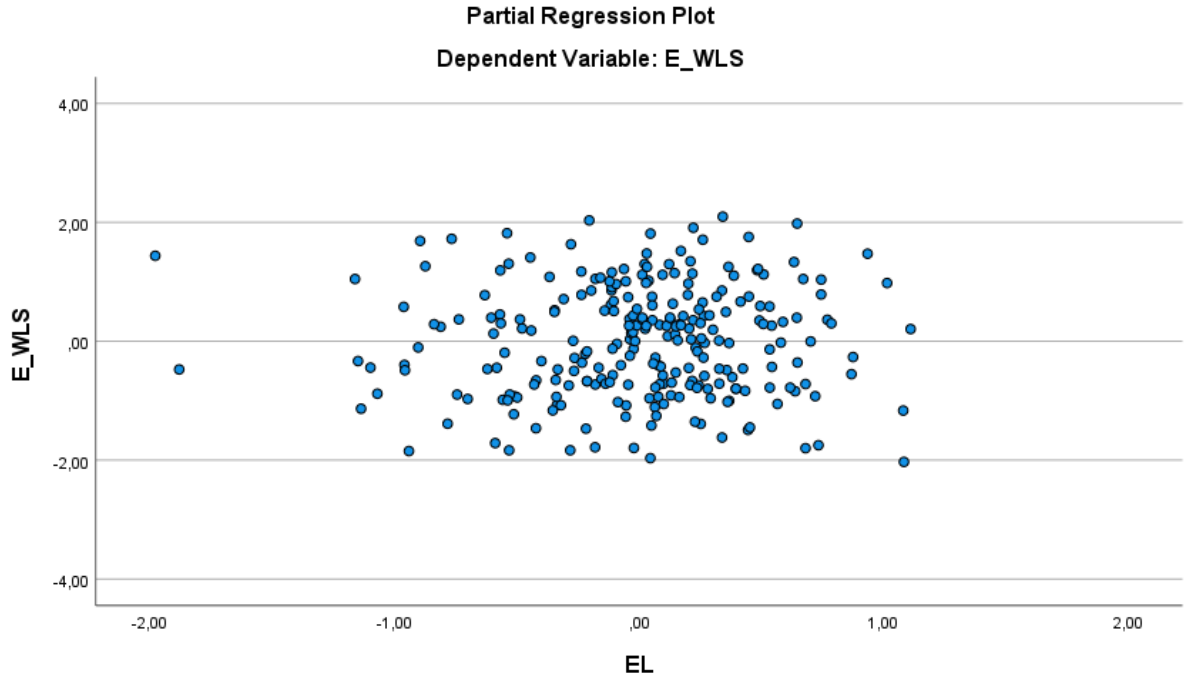
Appendix C | Normality

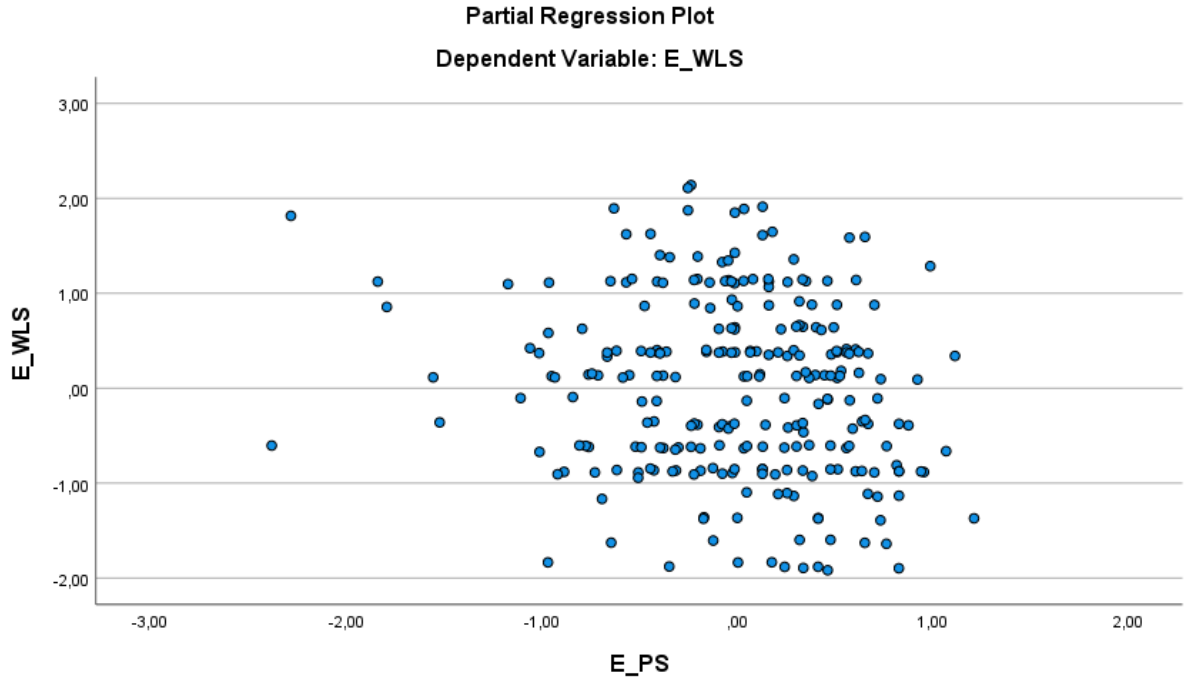
Variables	*Skewness*	*Skewness SE*	*Kurtosis*	*Kurtosis SE*
Gender	,661	,153	-1,576	,305
Age	,710	,153	-,941	,304
Education	,266	,153	-,682	,304
Empowering leadership	-,687	,153	1,316	,304
Work-related stress	,050	,153	-,641	,304
Psychological safety	-,856	,153	1,347	,304
Job autonomy	-,931	,153	1,069	,304

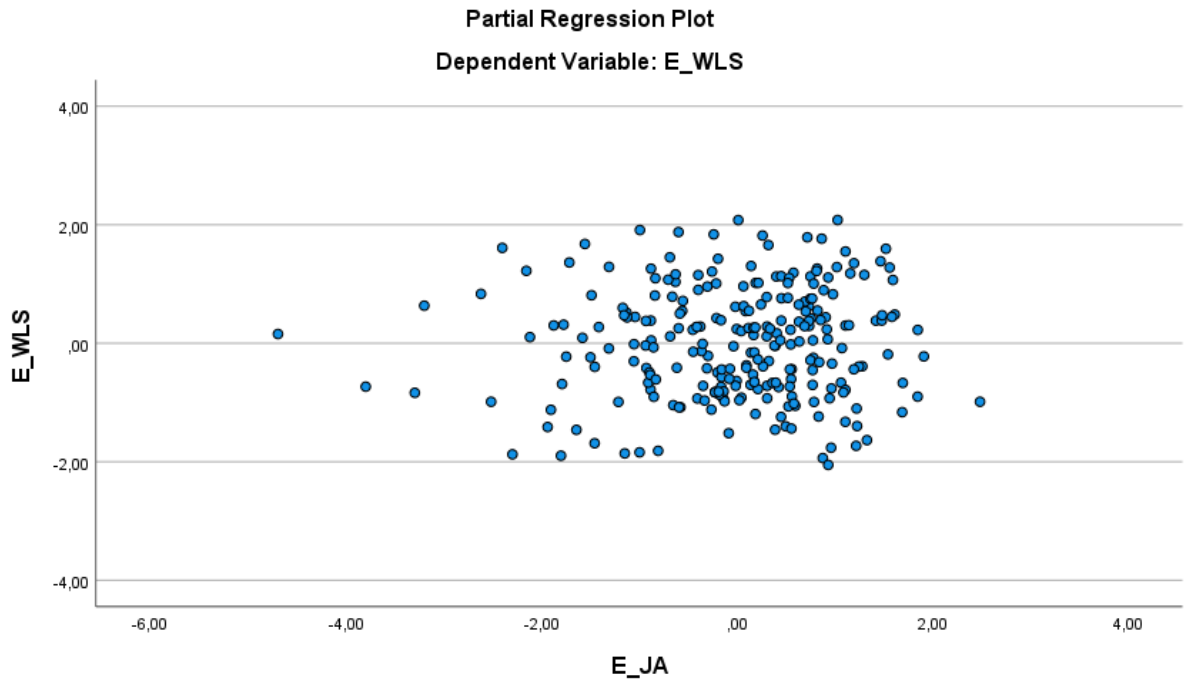
Appendix D | Normal P-P Plot of Regression Standardized Residuals



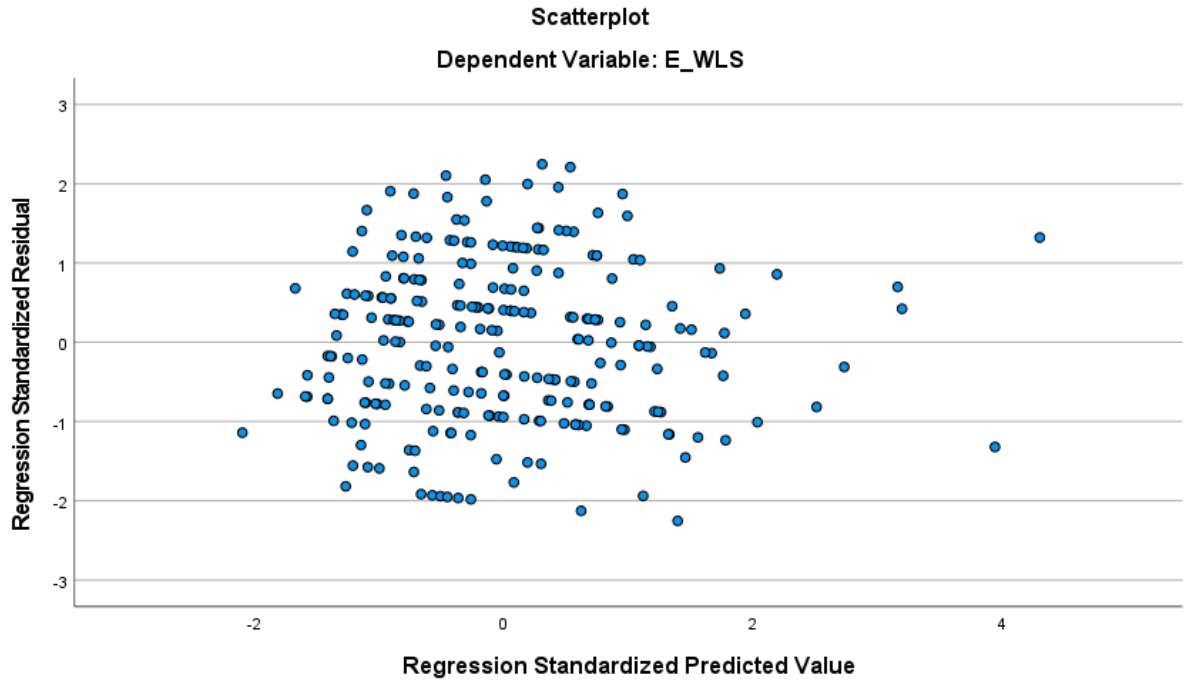
Appendix E | Partial Regression Plots







Appendix F | Scatterplot



Appendix G | Multi-collinearity

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	3,541	0,486		7,285	0,000		
	EL	0,053	0,121	0,031	0,434	0,664	0,786	1,272
	E_PS	-0,260	0,101	-0,177	-2,582	0,010	0,825	1,213
	E_JA	0,035	0,055	0,043	0,637	0,525	0,847	1,181

a. Dependent Variable: E_WLS

Appendix H | Independence of error items

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,163[a]	0,026	0,015	0,92553	1,968

a. Predictors: (Constant), E_JA, E_PS, EL

b. Dependent Variable: E_WLS