



**Dutch General Practitioners
and their Burnout: A study into
its origins and consequences**

Nicolaas Cornelis Verhoef

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Chapter 1

General Introduction

Introduction

An existential crisis, if properly used, can mark the emergence of a better and purified person (Ventegodt et al., 2005). Nevertheless, burnout can leave deep scars on not only the sick employee but also the employer and society as a whole (Patel et al., 2018; West et al., 2018). Insight into the factors affecting burnout development can contribute to its targeted treatment and prevention.

General practitioners (GPs) are independent medical professionals within small-scale working groups outside hospitals. They are the first point of contact for people with health problems and act as gatekeepers to hospital access. The three core values of the GP profession were coined in 1959: the provision of person-centred, generalist, and continuous care (Huygen, 1959a, 1959b, 1959c, 1959d). The fourth core value, the provision of “joint care”, was added in 2019, to emphasize that the GP is a team player propagating a joint approach with the patient, other workers within GP care, other care providers, and beyond (National GP Association [LHV], 2019).

GP practices vary from solo to duo or group practices (Batenburg et al., 2022). The manner of practice does not affect the medical responsibility, which is the same for every practicing GP (Healthcare and Youth Inspectorate, 2018).

However, it does affect management tasks such as personnel and finances. For example, a solo GP is responsible for all management tasks, while in a partnership, such as a duo or group practice, these tasks can be divided among the partnership members. In the first case, the GP working alone is the employer; in the other cases, the partnership is the employer (Batenburg et al., 2022). GPs form a complex professional group with an important social position; however, they have a high risk of burnout (Bakker et al., 2000a; Movir, 2012).

Burnout is a psychological syndrome characterized by the three dimensions of emotional exhaustion, depersonalization, and diminished personal effectiveness (Maslach & Leiter, 2016a). The consequences of burnout are wide-ranging. Someone who has burnout complaints faces a long-term psychological condition that significantly undermines mental well-being (Ahola et al., 2008; Hallsten et al., 2011), while burnt-out doctors may even escape reality using maladaptive coping strategies, including substance abuse and suicide (Mckinley et al., 2020). Severe burnout is also associated with an increased risk of physical disorders, such as cardiovascular diseases and type II diabetes mellitus (Melamed et al., 2006). Furthermore, a decreased quality of life has been observed (Pulcrano et al., 2016; West et al., 2011). Two recent studies (Karuna et al., 2022; Rotenstein et al., 2018) investigate the global prevalence estimates of burnout using a

systematic literature review and meta-analysis. A study among physicians by Rotenstein et al. (2018) presented prevalence estimates of burnout of 0%–80.5%, while a study among GPs by Karuna et al. (2022) reported prevalence estimates of burnout of 6%–33%. The difference in burnout prevalence within and between these reviews is probably caused by the boundaries of the definition of burnout used and the burnout assessment methodologies included in the reviewed studies. Rotenstein et al. (2018) even conclude that reliable prevalence estimates of burnout are impossible due to the considerable variability. Therefore, exact recent data on the occurrence of burnout among GPs are currently unavailable.

Nevertheless, sufficient arguments support the statement that burnout among GPs is a significant problem. For example, in a study by Bakker et al. (2000a), the risk of burnout among GPs is estimated to be the highest among 20 contact professions at 41.4%. Simultaneously, this study found that 8.2% of GPs have clinical burnout, placing GPs in the top three. In other studies, the prevalence of burnout among GPs is estimated to be even higher at 15% (Movir, 2012) and 19% (Twellaar et al., 2008). Although some sources (e.g. Bakker et al., 2000a) are somewhat dated, a sharp increase has been observed since 2000 in not only psychological complaints generally but also burnout complaints particularly (Houtman et al., 2020). Moreover, no major shifts have been observed regarding complaint rates in different occupational groups (Houtman et al., 2020). It is therefore plausible that the risk of burnout is probably higher today than in 2000; in any case, it is not lower.

Finally, the employer, a GP working alone or in a partnership, is confronted with absenteeism and presenteeism, consequences of burnout leading to loss of productivity (Collins et al., 2005). The question of whether burnout is serious is approached differently by psychiatrists and clinical psychologists than by work and organizational psychologists because they use different conceptualizations of burnout. In work and organizational psychology, burnout is conceptualized as a multidimensional construct assessed through questionnaires in a relatively healthy, working population (Schaufeli et al., 2001; Van Dam, 2021). However, in clinical psychology and psychiatry, clinical burnout is defined as “a mental disorder identified in patients who seek psychological treatment and are no longer working due to their symptoms or who experience significant problems in their job functioning” (Van Dam, 2021, p. 732). The fundamental difference between both conceptualizations of burnout is the role of biology. Work and organizational psychologists use a psychosocial model focusing on psychosocial factors. However, clinical psychologists and psychiatrists use a biopsychosocial model (Gatchel et al., 2020; Schaufeli, 2007). The difference between the two viewpoints, the biological perspective, means that it is irrelevant for clinical psychologists and psychiatrists whether the chronic stress

causing burnout is based on work conditions, private circumstances, or both, while the work conditions are prominent for work and organizational psychologists (Van Dam, 2021).

Specifically, for work and organizational psychologists, burnout is mainly work-related, while for clinical psychologists and psychiatrists, burnout is mainly stress-related (Van Dam et al., 2015). Therefore, for clinical psychologists and psychiatrists, people with elevated scores on a burnout questionnaire do not necessarily have an increased risk of developing clinical burnout. Chapters 3, 4, and 5 of this thesis describe the study of a relatively healthy, working population of GPs. Therefore, only the burnout definition of work and organizational psychologists is followed.

One problem is diagnosing burnout. However, another question concerns whether someone with burnout can work. For psychiatrists and clinical psychologists, this primarily involves clinical assessment (Van Dam, 2021). The question of whether someone can work is included in the definition of clinical burnout, which states that people stop working due to their symptoms or the experience of severe dysfunction in their work. However, under employment law, an employee's fitness to work is primarily determined by a doctor, usually an occupational health and safety doctor, and sometimes also by a GP. The doctor has the option of consulting a psychologist. Nevertheless, an industrial and organizational psychologist could use the work ability index (WAI) to determine an employee's fitness for work, although this is not common practice in the Netherlands and the United Kingdom.

Work and organizational psychologists can use the concept of work ability to determine whether an employee can still work. Work ability is defined as "the physical and mental capacity to do the job" (Pak et al., 2021) and is measured with the WAI (Ilmarinen, 2007). The measure of work ability provides a predictive value for future absenteeism (Merekoulias & Alexopoulos, 2015; Tarro et al., 2020).

Traditionally, GPs' stressors or job demands have been related to the emotionally charged doctor-patient relationship (Maslach, 1993; Van Dierendonck et al., 1994). The demanding nature of the doctor-patient relationship was once considered the root cause of burnout (Maslach, 1978). In addition to emotional stressors, other occupation-specific job demands for GPs have been identified but also administrative job demands (e.g. patient administration, contracts with health insurers etc.) and conflicts or differences of opinion with social workers with whom they work (Cathebras et al., 2004).

Nevertheless, the amount of academic literature on the determinants of burnout among GPs specifically is limited, which is an important shortcoming because the design of interventions to change work situations strongly depends on the existing knowledge about

these situations. For example, an intervention aiming to reduce burnout among GPs primarily requires thorough knowledge of the factors involved in burnout development.

Stressors can be identified in not only the work domain but also the home domain, for example, relationship problems (Leiter & Durup, 1996) or having or caring for children with behavioural problems (Frone et al., 1992a). The areas of work and home have been a topic of scholarly interest in the past few decades (Greenhaus & Powell, 2012; Kleinberg, 1991). The mutual influence between the work and home domains has been described in the scientific literature as negative or positive work-home interference (Bellavia & Frone, 2005; Greenhaus & Beutell, 1985). For example, home resources can lead to positive work-home interference (Bakker et al., 2005; Verweij et al., 2017). Conversely, job demands can lead to negative work-home interference (Geurts et al., 2005).

Important consequences of burnout are absenteeism and presenteeism. Absenteeism is illness and absence from work, while presenteeism is illness and attendance at work (Gustafsson et al., 2020; Smulders & Veerman, 1990).

Presenteeism is characterized by reduced productivity (Collins et al., 2005). With presenteeism, not only the quantity of work done but also the quality decreases. In healthcare, a reduced quality of work means reduced quality of care and patient safety (Christopher, 2016; Letvak et al., 2012), both with an increased risk of medical errors (Menon et al., 2020; Motluk, 2018; Prasad et al., 2018; Shanafelt et al., 2010) and therefore an increased probability of being held accountable by the medical disciplinary tribunal. It is argued that nothing is more humiliating and mentally debilitating for a doctor than attending a disciplinary tribunal (Laarman et al., 2019). In any case, it does not contribute to the mental well-being of a professional who is doing their best and is informed that their efforts are unsatisfactory (Laarman et al., 2019). Recent rulings by the medical disciplinary committee make doctors feel outlawed.

According to doctors, too little attention is paid to the workload and shortages in healthcare. Medical disciplinary law aims to monitor the quality of healthcare. However, rather than learning from the decisions of the disciplinary committee, doctors are now mainly afraid (Spit, 2022). Each year, approximately 1,500 doctors face a disciplinary case. The largest number of complaints concerns GPs because they undoubtedly form the largest group (Menkhorst & Spijkerman, 2022).

A novelty in primary healthcare is the gradually increasing rate of absenteeism. In the fourth quarter of 2020, absenteeism due to illness among employees in the nursing, care, and home care sectors was 8.5%. For all economic sectors, sick leave in the fourth quarter of 2020

averaged 4.9%. In 2010, absenteeism among GPs was 3.2%, while in 2020, this had risen to 5.6% (Landelijke huisartsen vereniging [LHV], 2021; Statistics Netherlands [CBS], 2021). This makes absenteeism a growing problem among healthcare workers, including GPs.

Given the social importance of a well-functioning primary healthcare system, particularly GPs, the high risk of burnout for GPs, the relatively little-known influencing factors affecting burnout development among GPs, and the often disastrous consequences of burnout, more insight must be gained.

Therefore, the main aim of this thesis is as follows:

To investigate how burnout arises among GPs and investigate some important consequences of burnout

This thesis focuses on GPs' job demands and resources concerning the onset of burnout, particularly those specific to the GP profession. The mediating role of negative work-home interference is investigated in the relationship between generic and occupation-specific job demands and resources and burnout. Furthermore, the emergence of absenteeism and presenteeism is examined in relation to burnout. The mediating role of work ability is also investigated in the relationship between burnout and absenteeism and presenteeism.

The remainder of this chapter first discusses the concept of burnout, the central theme of this thesis. The job demands and resources specific to GPs and the resulting research questions are then discussed.

Theoretical background and development of research questions

The job demands-resources theory of burnout

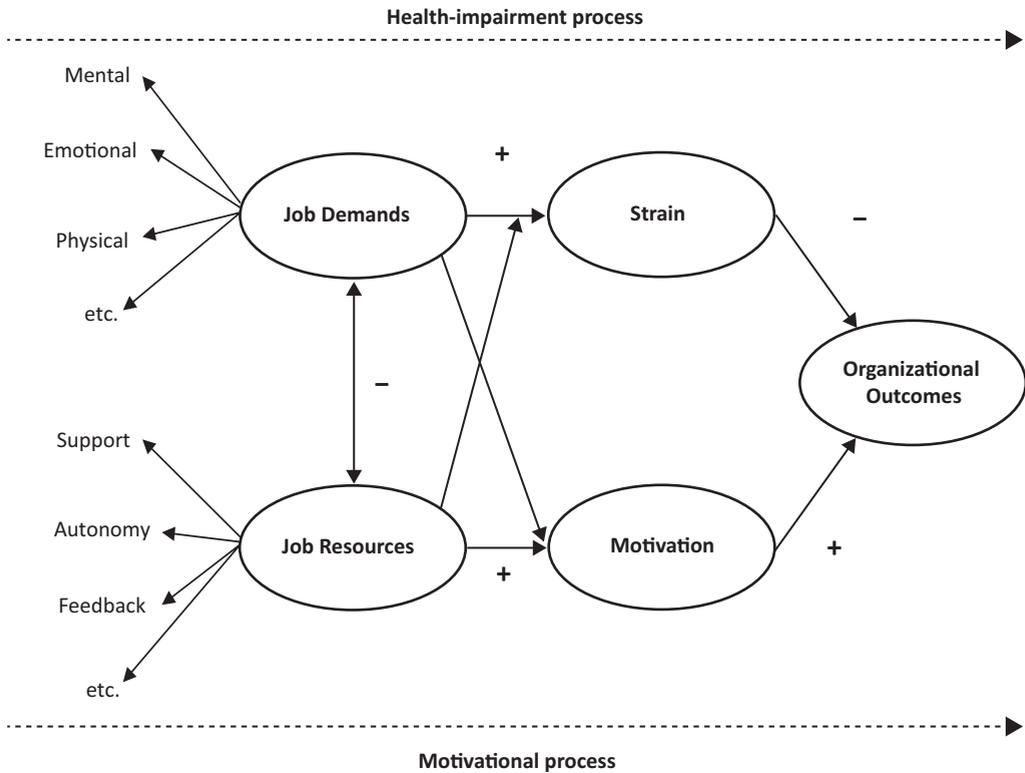
The theoretical framework used in this thesis to provide insight into the origins of burnout, as defined by Industrial and Organizational (IO) psychologists, and its antecedents and consequences, is the job demands-resources (JD-R) model (Demerouti et al., 2001c). The JD-R model was developed to understand the antecedents of burnout; it has two premises. The first premise distinguishes two categories of work factors influencing the development of work stress: job demands and job resources (Bakker & Demerouti, 2007). Job demands are defined as physical, psychological, social, or organizational aspects of the job that require sustained effort or skills that are physical, psychological, or both and are therefore associated with physiological

or psychological costs, such as exhaustion. Job demands include workload, heavy lifting, and emotionally demanding interactions with people (Demerouti et al., 2001c). Job resources are defined as physical, psychological, social, or organizational aspects of work that are a. functional in achieving work goals, b. generate a reduction in job demands and the associated physiological and psychological costs, or c. stimulate personal growth and development (Demerouti et al., 2001c).

The second premise of the JD-R model describes two underlying processes: the health-impairment and motivational processes (see Figure 1). In the former process, the worker's physical and mental resources are depleted by chronic job demands, such as emotional strain. Depletion of job resources subsequently leads to energy depletion and subsequent health problems, such as burnout (Demerouti et al., 2001c; Leiter et al., 1993). Regarding the motivational process, it is assumed that job resources are potentially motivating, so a lack of these leads to work demotivation.

The JD-R model is not limited to specific job requirements and resources. The model assumes that, in principle, all work characteristics (demands and resources) can influence the worker's health and motivation (Schaufeli & Taris, 2014, 43-68). The JD-R model is heuristic; that is, the model determines whether work characteristics lead to a certain psychological condition but does not say how. The JD-R model is therefore descriptive (Schaufeli & Taris, 2014). Additional explanatory psychological theories are necessary to explain why an interaction exists between certain demands and resources (Schaufeli & Taris, 2014). For example, a common combination in management research is the descriptive JD-R theory and the explanatory conservation of resources (COR) theory, which is discussed next (Schaufeli & Taris, 2014).

Figure 1
The Job Demands-Resources Model



Note: Adapted from Bakker and Demerouti (2007, p. 313)

The Conservation of Resources Theory

The basic principle of the COR theory states that individuals pursue, conserve, nurture, and protect the things they place in their hearts (Hobfoll et al., 2018). According to the JD-R model, burnout can develop when the job demands lead to exhaustion and insufficient resources are available to achieve the work goals or reduce the job demands (Demerouti et al., 2001a). Therefore, two principles included in the COR theory, the principle of resource loss and the principle of the resource loss cycle, are used as additional theories to explain various mechanisms of the JD-R model discussed in this thesis. The principle of resource loss states that resource loss is disproportionately more noticeable than resource gain because people

naturally tend to react more violently to resource loss than to resource acquisition (Hobfoll et al., 2018).

Stress arises when (a) central or critical resources are threatened, (b) central or essential resources are lost, and (c) when central or critical resources are not acquired after considerable effort (Hobfoll, 1989). A loss cycle refers to a resource loss process (Hobfoll, 1989). An individual will have fewer resources to compensate for resource loss with each repetition of this loss cycle.

Additionally, the loss cycle will increase in magnitude. This process of resource loss involves the individual's inability to cope with future resource loss and increased stress, leading to further resource loss and increased emotional exhaustion (Hobfoll et al., 2018).

Persistent resource loss leads to increased emotional exhaustion levels and ultimately burnout (Hobfoll, 2001). Resources include object resources (e.g. car, tools for work), condition resources (e.g. employment, tenure, seniority), personal resources (e.g. essential skills and personal traits such as self-efficacy and optimism), and energy resources (Hobfoll et al., 2018).

Energy sources are considered essential resources. This type can be further divided into intrinsic energy sources, including physical, emotional, and cognitive energy, and extrinsic energy sources, such as money in the bank, available credit, or favours from significant others (Hobfoll & Shirom, 1993). Motivation is also considered an energy resource (intrinsic) that, when spent, can buffer against resource loss and lead to the acquisition of other resources (Hobfoll, 1989; Kammeyer-Mueller et al., 2016). At its core, the COR theory can be viewed as a motivation theory explaining much of human behaviour based on the evolutionary need to acquire and conserve resources for survival, which is central to human behavioural genetics (Hobfoll et al., 2018).

Burnout

Burnout is a psychological syndrome characterized by three dimensions: emotional exhaustion; depersonalization, or cynicism; and diminished personal effectivity. Emotional exhaustion refers to feelings of mental or physical exhaustion (Bianchi et al., 2013). A callous, detached attitude towards things such as work is called cynicism, while a callous, detached attitude towards people, and recipients of care such as patients, is called depersonalization (Salanova et al., 2005).

Although burnout was originally conceptualized as comprising the mentioned three dimensions (Maslach & Leiter, 2016b), the number of dimensions of burnout has been debated over the years (Kristensen et al., 2005; Maslach, 1993; Schaufeli, 2003; Schaufeli & Taris, 2005). Some scholars promote a multidimensional approach to burnout, while others advocate a

unidimensional approach. Proponents of a multidimensional approach argue that simplifying a complex concept such as burnout to a unidimensional concept leads to a significant loss of information (Koeske & Koeske, 1989; Maslach, 1993; Schaufeli & Van Dierendonck, 1994). However, proponents of a unidimensional approach to burnout argue that combining different burnout dimensions into a single variable can make the results of a study clearer and easier to interpret (Brenninkmeijer & Vanyperen, 2003). Nevertheless, it is common in psychological research to simplify complex concepts into basic, straightforward concepts. The choice for a multidimensional approach depends on the research question and the complexity of the studied concept (Brenninkmeijer & Vanyperen, 2003). An example demonstrating the importance of a multidimensional approach to burnout originates from a study by Vanheule et al. (2012), who investigated the factorial validity and measurement invariance of the Utrecht BurnOut Scale (UBOS). Their study demonstrated that a three-factor model of burnout (emotional exhaustion, depersonalization, and reduced personal effectivity) could not be transformed into a second-order model in which burnout has only one dimension. Thus, although Taris et al. (1999) found support for the existence of a second-order model of burnout, which would warrant a unidimensional approach, Vanheule et al. (2012) could not replicate this finding. A possible cause of the discrepancy between the two studies is a causal relationship between the three burnout dimensions. Accordingly, Vanheule et al. (2012) conclude, among other things, that researchers benefit more from working with subdimensions than considering burnout as a unidimensional construct. In a lengthy commentary on the presentation of the Copenhagen Burnout Inventory, Schaufeli and Taris (2005) argue that emotional exhaustion and depersonalization are indisputably part of the burnout concept. Moreover, they argue that the dimension of reduced personal effectiveness may not be part of the overall concept of burnout (Schutte et al., 2000).

In a recent systematic review, Rotenstein et al. (2018) describe how they cannot confirm the prevalence of burnout among physicians due to inconsistencies in definitions of burnout, assessment methods, and study quality. The estimates of the prevalence of burnout found in the literature ranged from 0% to 80.5%.

Nevertheless, this thesis presents two quantitative studies (Chapters 4 and 5) with a multidimensional approach to burnout. Chapter 6 examines the robustness of this approach (see appendix).

Occupation-Specific Job Demands and Resources

Empirical research on job characteristics and related occupational stress has traditionally used generic job demands and resources. For example, core work characteristics are autonomy, task variation, task identity, task meaning, and feedback, all of which can be regarded as generic job resources (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006). Important, that is frequently studied job demands, including role ambiguity, role conflict, workload, and work pressure, all of which can be regarded as generic job demands (Karasek, 1979; Lee & Ashforth, 1996). For a comprehensive overview of generic job demands and resources, see, for example, Schaufeli and Taris (2014). The main argument for using generic job demands and resources is that they are widely applicable to most occupations. In a standardized form, they can then relatively easily contribute to the assessment of normative data that make professions comparable (Brough & Biggs, 2014).

However, a major drawback of applying generic job demands and resources is the limited scope (Cox et al., 2000), whereby other job characteristics that can influence worker well-being and motivation are obscured and ignored (Narayanan et al., 1999). Another disadvantage of a global approach to job characteristics involving measuring generic job demands and resources is that in applied organizational research contexts, generic measures of work characteristics hardly ever satisfy the needs of academics or organizational stakeholders (Brough & Biggs, 2014). It is therefore widely recommended to use occupation-specific job demands and resources (e.g. Brough & Biggs, 2015a, 2015b; Sparks & Cooper, 1999).

Applying occupation-specific job demands and resources has three advantages. First, occupation-specific job demands and resources are important because they focus on the occupation-specific work environment and thus contribute to the ecological validity of the study (Brough & Biggs, 2015b; Sundin et al., 2011). Ecological validity determines the extent to which the measurement results are representative of daily practice and are therefore not only valid within the artificial, experimental environment (Andrade, 2018).

Second, applying occupation-specific job demands and resources leads to improved development of interventions related to occupation-specific work stress (Cooper et al., 2001; O’driscoll et al., 2009). Interventions based on occupation-specific models are considered more relevant to the workplace than generic models (Sparks & Cooper, 1999). Interventions with greater relevance to the workplace are positively evaluated or more widely accepted by participants and therefore produce more sustainable changes in the workplace (Brough & Biggs, 2010).

A third important advantage of applying occupation-specific job demands and resources is the additional explained variance. In this case, however, generic and occupation-specific job demands and resources should be used in the same study. For example, in a study of 746 correctional officers, Brough and Biggs (2014) examined the effects of generic and occupation-specific job demands on the outcomes of job satisfaction, work involvement, turnover intention, and psychological stress (see Table 1). The table indicates whether a relationship is significant, and the percentage of explained variance is indicated in parentheses.

Table 1

Explained Variance of Generic and Occupation-specific Job demands

Predictor	Outcome			
	Job satisfaction	Work involvement	Turnover intention	Psychological stress
Generic job demands	ns (2%)	s (1%)	ns (3%)	ns (2%)
Occupation-specific job demands	s (36%)	s (14%)	s (12%)	s (16%)

Abbreviations: s = significant ($\alpha = .05$), ns = non-significant ($\alpha = .05$) (Brough & Biggs, 2014)

All relationships between occupation-specific job demands and organizational outcomes are significant (see Table 1). Of the generic job demands, only the relationship with work involvement was significant. The added value of applying occupation-specific job demands is demonstrated in the significant relationships between generic and occupation-specific job demands and job involvement, with an additional variance of 13% explained by the occupation-specific job demands. This study also makes it plausible that important information can be lost by applying only generic job demands because three of the four relationships are not significant.

However, a major drawback of applying occupation-specific job demands and resources is the inability to make comparisons with established standards and the time-consuming process of developing measures for different occupations (Latack & Havlovic, 1992). Occupation-specific job demands and resources have been studied for different occupations, such as police officers (Juniper et al., 2010), correctional officers (Brough & Biggs, 2015b), teachers (Bakker et al., 2007; Van Der Doef & Maes, 2002), firefighters (Tuckey & Hayward, 2011), nurses (Sundin et al., 2011), dentists (Hakanen et al., 2005), and GPs (Bakker et al., 2000b; Cathebras et al., 2004; Van Ham, 2006; Hutten, 1998). Although the importance of applying occupation-specific job demands and resources has been extensively emphasized earlier in the thesis, only a few studies have investigated the role of occupation-specific job demands and resources among GPs (e.g. Bakker

et al., 2000b; Van Ham, 2006). Based on a questionnaire study, among other items, Van Ham (2006) provides an overview of the Dutch GP's work environment in her PhD dissertation. She (Van Ham, 2006) identified six aspects relevant to the GP's work environment: collaboration and relationships with other workers; the external work environment; satisfaction with time, availability for work and private life; satisfaction with the delivered service; satisfaction with general aspects of the work; and satisfaction with the financial aspects. Although this study provides an interesting insight into the work environment of the Dutch GP, this research focuses on job satisfaction, while the current thesis focuses on job demands and resources in relation to burnout. Likewise, Hutten (1998) researched the workload and the provision of care in general practice. According to his study, earlier investigations into the connection between GPs' workload and the scope and qualities of their care frequently found only marginal connections. Although there are four main effects of workload, it can be argued that more structural factors, such as workload and the remuneration system, influence GPs' decisions more when there is greater discretion in a consultation. This conclusion supports the idea that a GP's primary objective is to give the patient who consults him the best care possible. Although this study provides an interesting insight into the influence of workload and remuneration on GP decisions, the study has no direct relationship with burnout and is therefore not considered further. In a longitudinal study among GPs, Bakker et al. (2000b) investigated the relationship between one occupation-specific job demand, managing demanding patients, and the relationship with burnout.

In summary, contributions to the scientific literature on GPs' occupation-specific job demands and resources remain limited, despite the importance attached to occupation-specific job demands requirements and resources and despite the broad societal importance of the GP's position. Therefore, the first research question this thesis aims to answer is as follows:

Research question 1:

Which occupation-specific and generic job demands and resources are important for Dutch GPs, and to what extent are they related to burnout?

The interaction between the work and home domains¹

What is a life without a home? At some point in my career as a practicing GP, I heard a public health inspector, who visited a single colleague with an alcohol problem, claim that it is impossible to be a GP without a partner. By this, she referred to the important supporting function of the home domain.

The above anecdotal example illustrates the value placed on a GP's home domain. An important burnout prevention measure is implicitly mentioned here, namely a balance between tension (at work) and relaxation (at home).

A social domain refers to a communicative context influenced by its structure. Social domains include school, family (home), religion, work, and government. Social domains are important for various social sciences, such as anthropology, sociology, and management sciences (Turiel & Smetana, 1984). For this thesis, the social domains of work and home are important because their interaction, negative work-home interference, constitutes a vital predictor of burnout (Bakker & Geurts, 2004; Derks & Bakker, 2014). The variables characterizing the home domain are divided into home demands and resources (Frone et al., 1992a; Poelmans et al., 2005). Home demands include family-related obligations, one-parent families (Allen et al., 2000), care for children, and an employed partner (Ten Brummelhuis et al., 2012). Home resources include energy and sleep (Demerouti et al., 2009), support from family members, spending time with family or friends (home quality time) (Sonnetag, 2001), and living with a partner (Ten Brummelhuis et al., 2012).

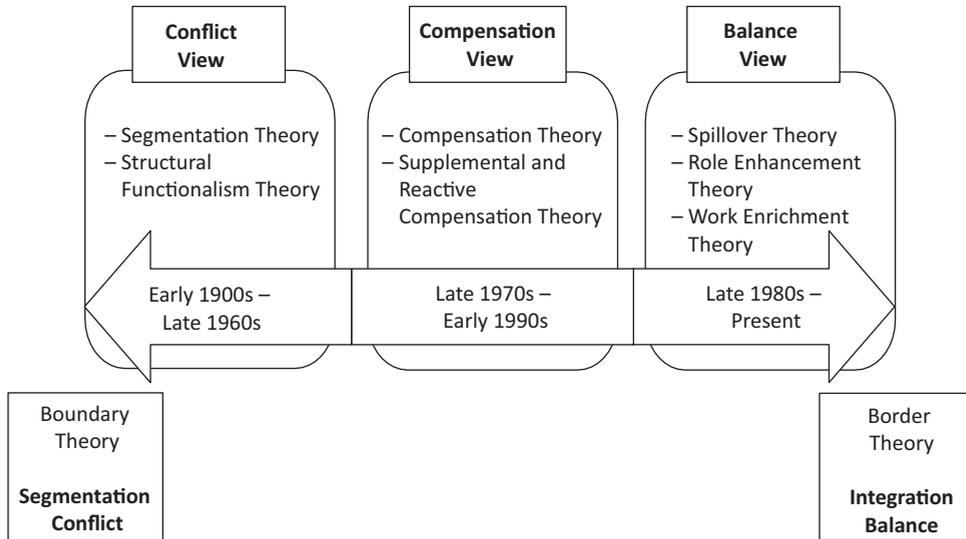
Burnout has traditionally been regarded as a work-related syndrome (Maslach, 1976). This vision has evolved over the years with advancing insight into a debate about the burnout domain. For example, Bianchi et al. (2014) consider burnout a multi-domain syndrome, and several studies have been published that do not consider burnout as exclusively work-related. Examples are studies by Dillon et al. (2022) on burnout among informal caregivers and Roberts et al. (2021) on burnout among volunteers. It could be argued that burnout is indeed work-related but also related to unpaid work. For example, informal carers and volunteers are usually unpaid but often work intensively. However, the debate on the burnout domain falls outside

¹ Existing scientific literature uses the terms home, family and private interchangeably and also the terms interference, interaction, and conflict are used interchangeably. For the sake of consistent terminology, the terms work, home and interference will be used in this thesis.

the scope of this thesis. Nevertheless, an interaction can be identified between the work and home domains (e.g. Frone et al., 1992b; Poelmans et al., 2005).

Many workers know from experience that work and home life influence each other. For example, a pleasant working day usually provides a partner and any children with a more approachable partner and father or mother when the worker returns home. The situation becomes complex if both partners work as GPs, for example, in the same practice, and children must be cared for. How the existing force fields in such a situation influence each other is the subject of a study on work-home relationships (Lavassani & Movahedi, 2014). Work-home relationships have become the subject of scholarly studies due to various sociodemographic changes over the last 3 to 4 decades. The most striking changes are the increasing age of the European population (Thrasher et al., 2016), the increasing number of working women (Frone, 2003), and several government measures (Verbeek-Oudijk et al., 2014), all of which impact the interaction between the work and home domains. An ageing working population mainly affects the working capacity, which gradually decreases (Ilmarinen, 2001). An ageing general population, that is, people living longer, has economic consequences. To keep pensions affordable, various European governments, including the Dutch, Italian, Greek, French, and Belgian governments, have raised the retirement age, which will be 67 in the Netherlands in 2024. This extended working period may influence work-home interaction. Furthermore, the Dutch government encourages older people to continue living in their environments for as long as possible, increasing the pressure on informal care (Verbeek-Oudijk et al., 2014). Additionally, the Dutch government is increasingly pressuring people, including working people, to participate as much as possible in informal care. An increase in the number of dual earners and the number of female workers, from 58.1% to 68.2% in the period 2002–2019 (Eurostat, 2020), implies that workers must more frequently combine paid work with other care responsibilities, such as child care or informal care. Finally, the great technological progress of the last few decades substantially influenced the nature of work, changing it from physically demanding (e.g. mining) to mentally and emotionally demanding (e.g. providing services), leading to a growing number of employees working under high pressure (Paoli & Merllié, 2005; Tutak & Brodny, 2022). These changes require new theories that describe and explain the changing work-home relationships (Lavassani & Movahedi, 2014). The study by Lavassani and Movahedi (2014) provides a historical overview of the different views on the interaction between work and home life and the related theories (see Figure 2; Lavassani & Movahedi, 2014).

Figure 2
The work-family segmentation-integration continuum



Note: Adapted from Lavassani and Movahedi (2014, p.9)

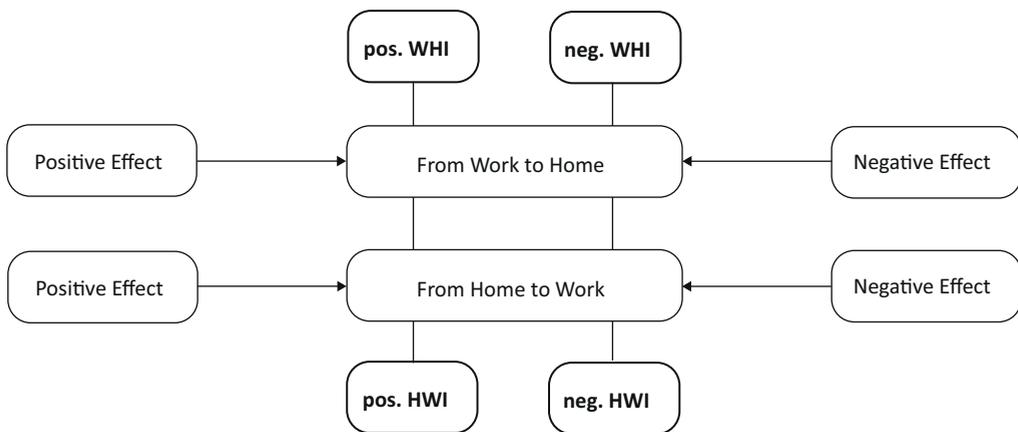
The early conflict view of the work-home relationship is represented by two theories, the segmentation theory (Hart, 1999) and the structural functionalism theory (Macdermid, 2004). These two theories have two common features: the strict division between work and home life and the focus on the negative effects of work-home relationships. The current balanced view is represented by three theories, the spillover theory (Hart, 1999), the role reinforcement theory (Barnett & Hyde, 2001), and the work enrichment theory (Michel et al., 2011). These three theories recognize the relationship between work and home and consider the positive and negative effects of work-to-home and home-to-work. For reasons of relevance, only the spillover theory is discussed here.

The Spillover Theory

The spillover theory defines spillover as the transference of experiences from a worker in one domain (work or home domain) that influence experiences in the other domain (Hart, 1999). Spillover from the work domain to the home domain and from the home domain to the work domain can therefore be distinguished. Both types of spillover can be considered negative and positive (Crouter, 1984). A crossover occurs when the worker’s experiences in

one domain, such as the work domain, are transferred to someone else (Bakker & Demerouti, 2013). The interaction between the work and home domains can be experienced negatively if the demands of work and home roles are incompatible so that participation in one role hinders participation in the other. The interaction between the work and home domains can be experienced positively when participation in one role facilitates participation in the other (see Figure 3; Grzywacz & Marks, 2000; Verweij et al., 2017).

Figure 3
The Multidimensional Aspects of Spillover



Note: Adapted from Lavassani and Movahedi (2014, p.11)

Greenhaus and Beutell (1985) distinguish between three types of interdomain interference: strain-based, time-based, and behaviour-based interference.

Strain-based interference refers to tension arising from participation in a role in one domain that impedes fulfilling the demands of another role in another domain (Geurts & Demerouti, 2003; Greenhaus & Beutell, 1985). Time-based interference arises when the time pressure created in a role in one domain prevents participation in another role in another domain (Geurts & Demerouti, 2003; Greenhaus & Beutell, 1985). Behaviour-based interference arises when specific role behaviour is incompatible with the expectation of behaviour in another role, such as when an individual struggles to combine professional, rational behaviour in the work domain with a sensitive, open attitude in the home domain (Geurts & Demerouti, 2003; Greenhaus & Beutell, 1985). The limited empirical evidence for the existence of behaviour-based work-home interference is associated with the problematic operationalization of the concept (Geurts & Demerouti, 2003). Therefore, this thesis disregards behaviour-based negative work-

home interference and only investigates strain-based and time-based negative work-home interference.

Many determinants and consequences of work-home interference have been studied for many occupations. For example, research among medical specialists demonstrated that the home characteristic of having a partner who frequently works late and the work characteristics of an unfavourable work schedule, a high quantitative workload, and dependence on a problematic supervisor only influenced the occurrence of work-home interference (Geurts et al., 1999). Additionally, the same study found a positive association between a predictor of negative work-home interference and two dimensions of burnout, emotional exhaustion and depersonalization.

According to the COR theory, stress arises when a resource loss is experienced in the work domain (Hobfoll, 2002). Subsequently, according to the spillover theory, negative emotions and stress can be transferred from the work domain to the home domain, increasing negative work-home interference (Staines, 1980). This increase in negative work-home interference may, in accordance with the JD-R theory, increase emotional exhaustion (Demerouti et al., 2001b; Hockey, 1997).

The question of why a balanced family domain is important has been investigated by many scientists and can be summarily answered as follows. A balanced work-home relationship improves employees' satisfaction with their work (Dousin et al., 2019; Kaur & Kaur, 2014; Susanto et al., 2022), the worker's general well-being (Frone, 2003; Grant-Vallone & Donaldson, 2001; Sav et al., 2013), the worker's mental health (Gerbert, 2010), work engagement (Bedarkar & Pandita, 2014; Kaur & Kaur, 2014), the worker's productivity (Kaur & Kaur, 2014), and the work performance (Kaur & Kaur, 2014; Mendis & Weerakkody, 2017; Ryan & Kossek, 2008).

Knowledge about the interplay between the work and home domains is important, and much scientific literature is available on many occupations. However, scientific research on work-home interference among GPs is limited. A literature search yielded only one publication: that by Abrahams et al. (2010).

Scientific knowledge about the interaction between the work and home domains among GPs is important, given the impact of this interaction (including health and burnout) and GPs' social position. Therefore, the second research question this thesis aims to answer is as follows:

Research question 2:

To what extent do strain-based negative WHI and time-based negative WHI mediate the relationships between generic and occupation-specific job demands and generic and occupation-specific job resources and emotional exhaustion and depersonalization among Dutch GPs?

Attendance behaviour

“Those were the days”

In my 40-year career as a self-employed, solo-practicing GP, I have witnessed a significant change in attendance behaviour among GPs. In the beginning, as a GP, you performed practically all possible functions: doctor, pharmacist, obstetrician, clinic doctor, forensic doctor, and insurance doctor, which meant that working weeks of an average of 70 hours were quite common. There was work to do and no time to be sick. The possible substitute colleague also had a busy practice himself, so you didn't want to burden him extra with a replacement due to illness. In short, absenteeism did not exist then; you were always there, on the workforce. Of course, sometimes we were (really) sick, but then you just kept working, with or without self-medication. We hadn't heard of presenteeism then, it seemed. How many times have I not woken up with what, in retrospect, could be considered burnout? Wasn't my functioning during those periods debatable? How many times have decisions been made that had catastrophic consequences?

“But the times they are changing”.

The above anecdote illustrates the cultural shift from an era in which absenteeism and presenteeism were unknown to the present, four decades later, a reality in which both concepts are known and recognized.

Attendance behaviour at work can be divided into absenteeism, which means being absent from work, for example, due to illness, and presenteeism, which means being present at work despite illness (Johns, 2009).

Absenteeism

Various definitions of absenteeism exist in the scientific literature. Absenteeism is defined according to three broad categories: context, causes, and physical presence (Anderson, 2011, 21-45). The first refers to the context from which one is absent, such as absent from school or work. The second refers to the causes of absenteeism, such as unfavourable working conditions (Biron & Bamberger, 2012) or illness (Andersen et al., 2016). The third refers to physical presence (Harrison & Martocchio, 1998; Martocchio & Jimeno, 2003; Patton & Johns, 2007; Robbins, 2001). Various explanatory models fit the category of absenteeism by causality, such as Johansson's (2007) disease flexibility model. In Johansson's (2007) model, sickness absenteeism is considered to depend on the employees' physical ability to work and the motivation to work, which also functions as a moderator. One of the most influential absenteeism models is that of Rhodes and Steers (1990). Also in this model, absenteeism is strongly determined by the

ability to work and motivation but differs from the illness flexibility model in that illness is now regarded as a moderator.

The consequences of absenteeism are mainly economic due to loss of productivity (Johns, 1997; Strömberg et al., 2017). Moreover, healthcare organizations, including GPs, are confronted with disruption of the continuity of care due to physician absenteeism (Gorman et al., 2010).

Voluntary and involuntary absenteeism are distinguished in the academic literature (Birioukov, 2016). The two types differ in the level of control. Involuntary absenteeism is beyond the employee's control and refers to situations where the employee cannot come to work due to illness (Birioukov, 2016; Gilham & Mulenga, 2016). However, voluntary absenteeism refers to situations in which the employee is not motivated to come to work due to unfavourable working conditions (Birioukov, 2016; Duncombe, 2019). Despite the important distinction, neither type of absenteeism is frequently used in research (Behrend, 1959; Duncombe, 2019).

Absenteeism frequency, the frequency of absence from work regardless of the length of the absence period, is considered an indicator of voluntary absenteeism and is predominantly determined by work motivation (Dietz et al., 2020; Duff et al., 2015; Hensing et al., 1998). Absenteeism duration, the total duration of absence from work, regardless of frequency, is considered an indicator of involuntary absenteeism and is predominantly determined by the inability to work, usually due to illness (Dietz et al., 2020; Hensing et al., 1998). Some overlap exists between the two forms of absenteeism, which is demonstrated in empirical research, among other things, by the fluctuating correlation between $-.05$ and $.60$ (Farrell & Stamm, 1988). The existence of overlap also implies that different processes underlie the two forms of absenteeism, which could be explained by the withdrawal hypothesis (Farrell & Stamm, 1988; Mathieu & Kohler, 1990) and the stress hypothesis (Johns, 1997). This reasoning also enables research into the relationship between burnout (emotional exhaustion and depersonalization) and absenteeism (duration and frequency) using the health-limiting and motivational processes in the JD-R model (Bakker & Demerouti, 2007; see Figure 1).

Presenteeism

Presenteeism is defined as a presence at work despite illness (Aronsson et al., 2000) and is commonly used by researchers (Johns, 2010). Until about the turn of the century, managers cherished the concept that employees absent from work represented a loss item (debit) for the organization while being present at work contributed to profit (credit); (Cooper & Dewe, 2008).

Today, the growing awareness of the phenomenon of presenteeism has led to the insight to regard absenteeism and presenteeism as at least equally harmful to the organization through loss of productivity (Cooper & Dewe, 2008). For workers, another consequence of presenteeism is the risk that repeated presenteeism associated with a minor physical or mental condition will eventually degenerate into a major condition due to a lack of opportunity for adequate recovery (Grinyer & Singleton, 2000).

Not only the quantity but also the quality of work is affected by productivity loss in presenteeism (Cicolini et al., 2016; D'errico et al., 2016). Among healthcare employees, including GPs, a reduced quality of work means a reduced quality of care with an increased risk of medical errors (Christopher, 2016; Letvak et al., 2012).

The causes of presenteeism are diverse and can be distinguished by factors that increase or decrease it (Demerouti et al., 2009). Factors resulting in increased presenteeism include social pressure from busy colleagues who would otherwise have extra work, fear of losing promotion opportunities (Grinyer & Singleton, 2000), fear of being fired, the feeling of being indispensable, and financial reasons (Carlsen et al., 2013).

Factors reducing presenteeism are those influencing people to continue working while they are sick. This can be flexible working hours, which gives people the choice to spend less time at work when they are ill (Böckerman & Laukkanen, 2010). The legitimacy of the disorder also plays a role, that is, the extent to which the person, company, or professional group accepts the disorder as a reason to stay at home (Dew et al., 2005).

The prevalence of presenteeism is not accurately known and varies roughly between 17% among civil servants (Kivimäki et al., 2005), 50% among hospital doctors (Bracewell et al., 2010), 53% among unspecified workers (Aronsson & Gustafsson, 2005), and 80% among British GPs (McKevitt et al., 1997). The prevalence of presenteeism among Dutch GPs is not yet known.

Absenteeism and Presenteeism

Although the scientific research on presenteeism is relatively new compared to absenteeism research, the understanding that the two concepts are related and should therefore not be investigated separately has grown rapidly (Gosselin et al., 2013; Johns, 2010). This view has led to the so-called joint models, causal models including absenteeism and presenteeism as outcome variables (Böckerman & Laukkanen, 2010; Johns, 2011). Some researchers have assumed that, regarding illness, a factor that reduces the risk of absenteeism simultaneously stimulates attendance at work (Koopmanschap et al., 2005). This premise is referred to as the

substitution hypothesis (Caverley, 2007). In a study of 237 public works personnel, they found that the workforce had average health. The substitution hypothesis is supported by the finding that presenteeism explains the difference between low absenteeism and half the national average (Caverley, 2007). This view indicates common causes of absenteeism and presenteeism, while the context ultimately determines which decision is ultimately made: to work or not to work, that is, presenteeism or absenteeism (Dew et al., 2005). Another explanation for the relationship between absenteeism and presenteeism is offered by the complementary hypothesis (Johns, 2010), which states that absenteeism and presenteeism share common determinants; thus, with reduced health, absenteeism and presenteeism rates increase (Johns, 2010).

The empirical evidence for the association between absenteeism and presenteeism is gradually increasing (Caverley, 2007; Hansen & Andersen, 2008; Miraglia & Johns, 2016; Munir et al., 2007). Moreover, the literature contains several joint models (absenteeism and presenteeism in one study) that contribute to the theoretical underpinning of the postulated association between the two concepts (Aronsson & Gustafsson, 2005; Gosselin et al., 2013; Johansson & Lundberg, 2004). The similarities between the models mentioned are considerable; all three assume a previous health event (falling ill).

Additionally, all types of models include organizational, individual, and demographic factors (e.g. age, ethnicity, gender, and marital status). However, in all types of models, the contribution of the motivational factor is limited, as in the Rhodes and Steers (1990) model for absenteeism. It is also remarkable that Johansson's model is the only one including the factor of workability (Johansson & Lundberg, 2004). Nevertheless, the insight into the precise mechanism that ultimately leads to the choice of absenteeism or presenteeism is limited (Hansson et al., 2006).

The growing absenteeism among GPs (CBS, 2021; Landelijke Huisartsen Vereniging, 2021) is remarkable and novel and therefore worth investigating, not only because of the economic consequences of absenteeism but also the problematic substitution of workers in the workplace, particularly GPs (De Geit et al., 2022). Doctors who are sick while working pose a threat to not only public health but also themselves. Presenteeism is associated with a reduced quality of care and an increased risk of medical errors, jeopardizing public health. Moreover, medical errors are often grounds for disciplinary proceedings. Thus, presenteeism poses a threat to doctors who experience attending a medical disciplinary tribunal as humiliating.

Further research into the phenomenon of presenteeism among Dutch GPs is therefore highly desirable, partly due to the lack of prevalence figures. Given the importance of insight into the phenomena of absenteeism and presenteeism among GPs, further research is highly desirable. Therefore, the third research question of this thesis is as follows:

Research question 3:

To what extent do relationships exist between burnout, absenteeism and presenteeism among Dutch GPs?

Overview of the thesis

In this final section, the three research questions identified in the previous sections are related to the chapters in which they are examined. Table 2 provides an overview of the chapters in which the three main questions are investigated, the research design(s), and the key terms.

Chapters 2, 3, and 4 investigate **Research question 1**, *What are the most important job-specific job demands and resources for Dutch GPs, and to what extent do they influence burnout development?* **Chapter 2** investigates the state of knowledge about generic and profession-specific job demands and job resources among GPs using a systematic quantitative literature review. Using a qualitative interview study with a convenience sample of eight Dutch GPs, **Chapter 3** explores which factors cost energy in the work domain and the home domain and which factors yield energy. After analysis, the interviews provide several factors in the work domain that cost energy and factors that yield energy and several factors in the home domain that cost energy and factors that yield energy. Based on a quantitative field study among 178 GPs, using questionnaires, **Chapter 4** investigates the relationships between generic and occupational job demands and resources and emotional exhaustion and depersonalization.

Answering **Research Question 1** provides several theoretical insights that contribute to the scientific literature and will thus be discussed in Chapter 7 of this thesis. Chapters 3 and 4 explore **Research Question 2**: *To what extent do strain-based negative work-home interference and time-based negative work-home interference influence the relationships between generic and occupation-specific job demands and job resources and emotional exhaustion and depersonalization among Dutch GPs?* Chapter 3, the qualitative interview study, not only explores factors that cost energy and factors that yield energy in the work domain and the home domain of GPs. On closer analysis of the results, work-home interference appeared to be an important concept and was introduced as an emergent theme. In the quantitative field study in Chapter 4, therefore, the relationships between generic and job-specific job demands and resources and stress and time-based negative WHI and emotional exhaustion and depersonalization are investigated. This investigation also delivers several theoretical contributions that contribute to the scholarly literature on burnout and negative WHI. Chapter 5 investigates **Research Question 3**: *To what extent do relationships exist between burnout, absenteeism and presenteeism among Dutch GPs?* Through a quantitative field study using

questionnaires with 176 GPs, **Chapter 5** investigates the relationships between emotional exhaustion, depersonalization, absenteeism duration and frequency and presenteeism. The mediating role of work ability in these relationships is also examined. Answering research question 3 delivers two theoretical contributions to the scholarly literature. One contribution includes the dimensionality of burnout. The other contribution includes an extension of the JD-R model with absenteeism duration and frequency, presenteeism and work ability as a mediator. Both theoretical contributions will be discussed in Chapter 7. **Chapter 6** of this thesis examines the robustness of the two quantitative field studies in chapters 4 and 5. According to Rothman et al. (2008), the main drawbacks of cross-sectional studies, such as those in Chapters 4 and 5, are limited ability to draw causal conclusions; limited generalizability; lack of temporal relationships (cause and effect); and bias and confounding. Any research design, including cross-sectional studies, must take reliability and validity into account (De Vaus & de Vaus, 2013). A robustness check can boost the value of a cross-sectional study by adding more proof that the findings are valid and independent of particular techniques or presumptions (Gerring, 2016).

Table 2

Overview of research questions and corresponding chapters

Research question	Corresponding chapter, study design, and key concepts
Research question 1	Chapter 2 , Systematic quantitative literature review, generic and occupation-specific determinants of burnout among GPs Chapter 3 , Interview study (n = 8), occupation-specific job demands and resources, personal resources, negative work-home interference Chapter 4 , Cross-sectional quantitative field study (n = 178), generic and occupation-specific job demands and resources, time- based and strain-based negative work-home interference, emotional exhaustion and depersonalization
Research question 2	Chapter 3 , Interview study (n = 8), occupation-specific job demands and resources, personal resources, negative work-home interference Chapter 4 , Cross-sectional quantitative field study (n = 178), generic and occupation-specific job demands and resources, time- based and strain-based negative work-home interference, emotional exhaustion and depersonalization
Research question 3	Chapter 5 , Cross-sectional quantitative field study (n = 176), emotional exhaustion, depersonalization, work ability, absenteeism duration and frequency and presenteeism.

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Chapter 2

Burnout among general practitioners, a systematic quantitative review of the literature on determinants of burnout and their ecological value

This chapter is based on:

Verhoef, N.C., & Blomme, R.J. (2022). Burnout among general practitioners, a systematic quantitative review of the literature on determinants of burnout and their ecological value [Systematic Review]. *Frontiers in Psychology, 13*. <https://doi.org/10.3389/fpsyg.2022.1064889>

Abstract

Burnout is a major social and economic problem, specifically among general practitioners (GPs). The amount of literature on generic determinants of burnout is impressive. However, the size of the library on occupation-specific determinants of burnout among GPs is minimal. With the present study, we aim to gain insight into the existing academic literature on generic and occupation-specific determinants of burnout among GPs. Moreover, we aim to contribute to the ecological validity of this study by emphasizing occupation-specific determinants. We conducted a systematic quantitative literature review in which we followed the PRISMA statement and performed quality assessments according to the AXIS, CASP, MMAT, and 3-MIN procedures.

Furthermore, we assessed frequency effect sizes (FES) and intensity effect sizes (IES). By performing Fisher's exact tests, we investigated whether the quality of the studies influenced the outcomes. An extensive literature search revealed 60 eligible studies among which 28 strong studies, 29 moderate studies, and 3 weak studies were identified. Analyzing those studies delivered 75 determinants of burnout, of which 33 were occupation-specific for GPs.

According to the average FES, occupation-specific determinants play a significant role in acquiring burnout compared to the generic determinants. The results of the Fisher exact tests provided evidence that the quality of the 60 studies did not affect the outcomes. We conclude that it is surprising that a profession with such an important social position and such a high risk of burnout has been so little researched.

Introduction

In the general working population, burnout is considered a significant social and economic problem (Collier, 2017). In contrast to many other professions, relatively little is known about the causes of burnout among general practitioners (GPs).

Burnout is a psychological syndrome characterized by the three core symptoms of emotional exhaustion, depersonalization, and diminished personal effectiveness (Freudenberger & Richelson, 1980; Maslach et al., 2001). Since the introduction of the concept of burnout in the 1970s by Herbert Freudenberger, many studies have passed, attempting to explain this intriguing phenomenon (Freudenberger, 1974). Indeed, after introducing the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981), a psychological assessment tool to measure the three dimensions of burnout, the research on this subject exploded (Maslach et al., 1996). Not surprisingly, considering the background of Freudenberger, the initial researchers found burnout exclusively related to human services, such as social work, healthcare, and teaching (Maslach & Schaufeli, 1993). However, the historical imperfection of exclusively relating burnout to human services has been corrected abundantly in the past two decennia given a large amount of literature outside the human service sectors (Maslach & Schaufeli, 1993). Moreover, there was no theoretical argument to limit burnout to the human service professions (Maslach & Leiter, 1997). Moreover, there is enough evidence that shows that stressors leading to burnout in human services can be found in other non-human service professions as well (Buunk et al., 1998). Therefore, there appear to be sufficient theoretical arguments for releasing the initial conventional definition, restricting burnout to the human service professions. To meet this shortcoming of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), the Maslach Burnout Inventory-General Survey (MBI-GS) was developed, which was suitable for all workers, including those without intensive contact with recipients of services. One of the main differences between the two versions of the MBI was that the depersonalization scale from the MBI-HSS was transformed into the cynicism scale in the MBI-GS. Both scales reflect the social perception of distancing, distancing from people in the case of depersonalization and distancing from things in the case of cynicism (Schaufeli & Leiter, 1996). Simultaneously, the Oldenburg Burnout Inventory (OLB) was developed, which consists of two dimensions: emotional exhaustion and disengagement from work (Demerouti, 1999). Despite their strengths and weaknesses, the MBI-HSS, the MBI-GS, and the OLB are all widely practiced.

According to Schaufeli and Taris (2005), burnout should be conceptualized, primarily as a work-related syndrome with at least emotional exhaustion and depersonalization as dimensions. One of the criticisms of the MBI is that depersonalization is a coping strategy under certain circumstances and should be better studied along with other coping strategies (Tipa et al., 2019). Furthermore, diminished personal efficiency, one of the three burnout dimensions of the MBI, should be perceived as one of the many consequences of long-term stress (Kristensen et al., 2005). These and other objections are amply and dignifiedly refuted by Schaufeli and Taris (2005). To address these concerns, the OLBI (Demerouti et al., 2003) was developed. One of the limitations of the OLBI is its limited construct validity (Halbesleben, 2003). However, a detailed discussion of this debate is beyond the scope of this study.

Despite all the criticism, both the OLBI and the MBI are still widely used measurement tools today. It is remarkable and as yet not easy to explain why the MBI is still so popular, despite all the criticism. In response to the many well-documented objections to the MBI, a new Burnout Assessment Tool (BAT) has been developed (Schaufeli et al., 2019; Schaufeli et al., 2020). The BAT comprises four core dimensions: exhaustion, mental distance, and emotional and cognitive impairment. Moreover, three secondary dimensions emerged: depressed mood, psychological distress, and psychosomatic complaints.

To classify the determinants of burnout globally, this study distinguished between job demands, job resources, and personal resources. Job demands are defined as those physical, social or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with maintaining physiological and psychological costs (Demerouti et al., 2001). Examples of generic job demands are work overload and interpersonal conflict. Job resources were defined as those physical, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; (c) stimulate personal growth and development (Demerouti et al., 2001). Examples of generic job resources are feedback and social support. Personal resources are defined as the psychological characteristics or aspects of the self that are generally associated with resiliency and that refer to the ability to control and impact one's environment successfully (Schaufeli & Taris, 2014). Examples of personal resources are self-efficacy and optimism. Extensive overviews of generic job demands, generic job resources, and personal resources have been published by, among others, Lee and Ashforth (1996) and Schaufeli and Taris (2014).

Common theories in this regard are the job demands-resources (JDR) theory and the conservation of resources (COR) theory. The JDR theory states that a balance between all possible job demands and all possible resources leads to the health and well-being of the worker (Demerouti et al., 2001; Schaufeli & Taris, 2014). The JDR model distinguishes two underlying processes, namely the health-limiting or energetic process and the motivational process (Demerouti et al., 2001). The health-limiting process arises at job demands and is mainly focused on exhaustion. The motivational process arises at job resources and is mainly focused on depersonalization. The JDR theory explains that there is an interaction between job demands and job resources, but the theory does not explain why, this requires additional psychological theories, such as the COR theory (Hobfoll, 2002). The central assumption of the COR theory is that people strive to preserve and protect the things they value, the resources. According to the COR theory, stress then arises when critical resources are threatened with loss, when they are lost, or when they are insufficiently regained after intensive effort (Hobfoll, 2002).

To empirically assess occupational stress, researchers usually study the effect of job demands and job resources on, for example, burnout. This research is usually done through questionnaires with generic job demands and job resources (Brough et al., 2009). The use of generic job demands and job resources is primarily driven by the wide range of occupations to which they apply so that the outcomes of studies can be compared between themselves but also with normative data (Brough et al., 2009).

The inclusion of occupation-specific job demands and job resources focuses on the assessment of the specific work context. This not only increases the ecological validity of the assessment but also improves the description of the work environment (e.g. Brough & Frame, 2004). The assessment of occupation-specific job demands and job resources is also beneficial for the development of targeted interventions (e.g. O’driscoll et al., 2009). Finally, it is often overlooked by researchers that examining occupation-specific job demands and job resources simultaneously, yields additional explained variance over the generic job demands and job resources (e.g., Kop et al., 1999).

Occupational job demands and job resources have now been examined for various professions, for example, police officers (Juniper et al., 2010), teachers (Bakker et al., 2007; Van Der Doef & Maes, 2002), firefighters (Tuckey & Hayward, 2011), prison staff (Brough & Biggs, 2015), nurses (Sundin et al., 2011), dentists (Hakanen et al., 2005), and GPs (Bakker et al., 2000b; Cathebras et al., 2004).

Traditionally, stressors or job demands of GPs have been related to the emotionally charged doctor-patient relationship. The demanding nature of the doctor-patient relationship has once been considered the root cause of burnout (Maslach, 1978). In the meantime, other than emotionally bound occupation-specific job demands for GPs have been identified, for example, high workload, and administrative job demands but also conflicts with social work (Cathebras et al., 2004).

Given the above-described added value of research into occupation-specific job demands and job resources, and the importance for a society of a well-functioning and healthy primary healthcare system, in particular for GPs, it is surprising that so little is known about occupation-specific job demands and job resources of GPs. The amount of academic literature on the determinants of burnout is impressive. However, the amount of literature on the determinants of burnout among GPs is much less. The amount of literature on occupation-specific determinants of burnout among GPs is very limited.

Therefore, the present study aims to gain insight into the existing academic literature on generic and occupation-specific determinants of burnout among GPs. We aim to contribute insight into and knowledge of the determinants that govern the mental energy household of GPs and that often lead to burnout. Moreover, by emphasizing occupation-specific determinants, we want to contribute to the ecological validity of this study.

We propose the following **research question** for the present study:

What is the current state of knowledge regarding the generic and occupation-specific determinants of burnout among GPs?

Methods

In the present study, we used the systematic quantitative literature review (Pickering & Byrne, 2014). The method is systematic because of how studies are initially identified for inclusion, i.e., explicit and reproducible. The method quantifies where there is research but also where there are gaps. The technique can be used for all types of studies, qualitative, quantitative and mixed-method. The method bridges the gap between traditional narrative review methods and meta-analyses (Pickering & Byrne, 2014).

The present study was conducted in four phases. First, the literature search was conducted over the period 1970–2021. In the first phase, existing literature on determinants of burnout among GPs was collected. The beginning of the search marks a period when the term burnout was introduced in the scientific literature by Freudenberger (1974) and Maslach (1976). The search was performed with the search terms “burnout,” “general practice,” “GP,” “family practitioner,” “family doctor,” “family physician,” “primary care,” “primary care practitioner,” “primary care doctor,” “primary care physician,” and combinations of these search terms. The following search engines were used: Open University digital library interface, including Web of Science, Embase, PsycINFO, Google Scholar, PubMed, and Mendeley. The fact that the burnout dimensions of emotional exhaustion, depersonalization and reduced personal efficiency were not included separately in the literature search has to do with the unidimensional approach to the concept of burnout, i.e. overall burnout.

The following inclusion criteria were used in the second phase, the screening phase, to narrow the natural result. An abstract of an identified study must be available for screening purposes, and the language of the study must be Dutch or English. Type of study means any study that addresses the nature of a determinant and its relationship with burnout, i.e., no intervention studies. In 2016, a comparative study on GPs was published by Schäfer et al. (2016), which included 34 nationalities because they have comparable and well-documented primary care. It concerns 31 European countries, Canada, Australia, and New Zealand. The inclusion criterion “Nationality” in the present study is based on the said study by Schäfer et al. (2016), i.e., we used the 34 nationalities as a “Nationality” inclusion criterion. A separate inclusion criterion, the “Language” criterion, which is separate from the “Nationality” criterion, is the language in which the study is published and must be English or Dutch.

The USA is a rich source of scientific literature on primary care. This literature has provided evidence that a well-developed primary healthcare system offers benefits in terms of

better coordination, continuity of care and possibilities for cost control. However, part of this research has limited relevance to the European situation (Kringos et al., 2010). Therefore, in the current study, we have limited ourselves to the European situation, and a comparable situation, i.e., the 34 nationalities mentioned in the study by Schäfer et al. (2016).

After identifying duplicate studies and screening on title and abstract with the above inclusion criteria, phase three followed.

In the third phase, the full text of the remaining studies was reviewed and assessed against the same inclusion criteria as in the previous screening phase. Naturally, the full text of the study had to be available. The remaining studies were used for further analysis in the next phase.

In the fourth and final phase, the remaining studies were coded according to a range of variables: authors, year of publication, source journal, area of focus of the journal, study location, type of study, psychological theories used, and outcomes of the studies. Finally, the results of the studies were ranked according to generic and occupation-specific job demands and job resources, job characteristics, socio-demographic data, personal characteristics and a group of miscellaneous. The miscellaneous group consists of determinants that cannot be classified into other categories.

At several points in the procedure, decisions have to be made that are open to discussion. Making those decisions by only one reviewer increases the risk of selection bias. For example, concerning the inclusion criteria or the distinction between generic and occupation-specific job demands and resources. Concerning the latter, the distinction between generic and occupation-specific job demands and resources is made by several authors who have used a profession-specific measurement scale, for example, Bakker et al. (2007) concerning teachers and Hakanen et al. (2005) concerning dentists. Therefore, in the present study, we have taken the measurement scale for job-specific job demands and resources from our previous study (Verhoef et al., 2021) as a starting point and the categories in the current study have been adjusted accordingly.

To better compare and interpret the results, two effect sizes were calculated, namely, the frequency effect size (FES) and the intensity effect size (IES) (Onwuegbuzie, 2003; Sandelowski et al., 2007). The FES is used to determine the relative magnitude of the abstracted findings and is calculated by dividing the number of studies that found a result by the total number of studies. The IES represents the impact of a study and is calculated by dividing the number of findings in that study by the total number of results in all studies.

Quality assessment

As part of a systematic review, a formal assessment of the quality of studies indicates the strength of the evidence on which conclusions are based. This makes it possible to compare studies based on the risk of bias (Whiting et al., 2017). Following the PRISMA statement, the present study established the quality of our identified studies (Page et al., 2021). The quality of the quantitative studies was assessed according to the AXIS procedure (Downes et al., 2016); the quality of the qualitative studies according to the CASP procedure for qualitative studies (Long et al., 2020); the quality of the mixed methods studies according to MMAT procedure (Hong et al., 2018); the quality of the meta-analysis according to the 3-MIN procedure (Hussain et al., 2011) and the quality of the systematic review according to the CASP procedure for systematic reviews (Nadelson and Nadelson, 2014).

It is a conventional view that research questions should guide decisions about the design and methodology of a research project (Bryman, 2007). Therefore, it is an essential element of quantitative, qualitative and mixed- method studies (Haynes, 2006). Furthermore, there are various methods to construct a good research question, for example, the Picot criteria (Haynes, 2006) and the Finer criteria (Hulley, 2007).

Results

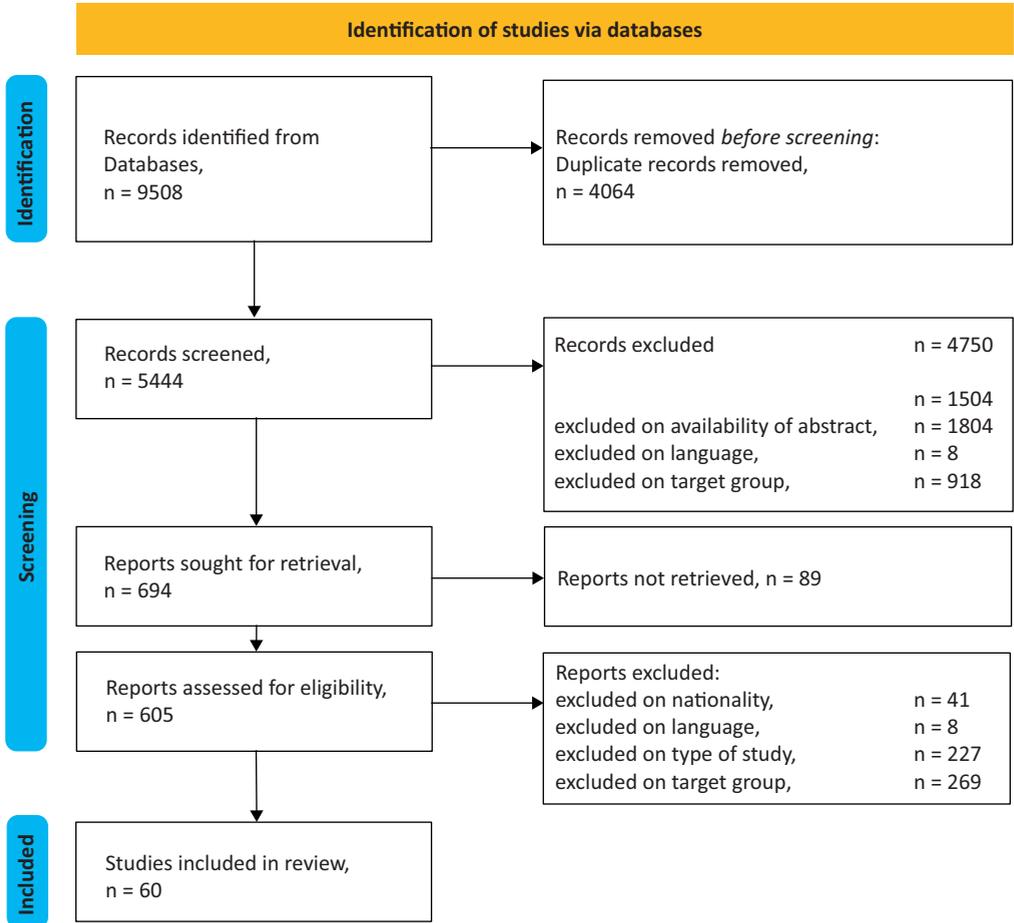
The outcomes of the four screening phases are indicated in the process diagram in Figure 1. The first rough search identified 9,508 studies, of which 60 studies ultimately remained for further analysis. The bibliographical details of these studies (authors and journals) are presented in Table 1. The methodological details of these studies are presented in Table 1. The outcomes of the quality assessments of all studies are presented in Table 1 and are denoted as strong, moderate or weak.

The findings of the study are explained in detail, including the FES, in Tables 2 to 8. Table 1 lists the locations of the 60 studies reviewed. Of the 22 different nationalities, the Netherlands and England produced the highest number of studies, namely 9. The psychological theories used for the theoretical underpinning in the studies examined indicate a study's solidity. Note, that the limited space in a journal can also cause the absence of a theory! Several methodological parameters have been identified and included in Table 1. Of the 24 distinct psychological theories, the COR theory (Hobfoll, 2002) and the JD-R theory (Demerouti et al., 2001) have the highest frequencies with 7 (29,1%) and 6 (25%), respectively. Of the 60 studies examined, 65% do not appear to use a supporting psychological theory (see Table 1). Furthermore, of the 60 studies examined, only 10% appear to have formulated and tested a hypothesis and 55% a research question that guides the research. The results of an additional critical appraisal of the quality of the studies are presented as part of Table 1. The impact of a study is represented by its intensity effect size (IES) and is shown in Table 8 for all 60 studies examined. The mean IES = 1,99 (range 0,35–13,99). This parameter shows that the meta-analysis of Lee and Ashforth (1996) showed an IES = 13,99 and had thus the greatest impact on the current study. In addition, the qualitative study by Clough et al. (2020) (IES = 5,59) has a major impact on the results of the current study.

Finally, a Fisher exact test was conducted to test the null hypothesis that there is no difference between the FES in the strong studies ($n = 30$) and the moderate studies ($n = 30$) (see Tables 2, 3, 4, 5, and 6) (Freeman & Julious, 2007). Tables 2, 3, 4, 5, 6 and 7 demonstrate that of the 75 items in total, only two had a significant p-value. Those items were Stressful events, table 2, Job demands, which had a p-value of .0001, and the other item was Patient care, Table 3, Job resources, which had a p-value of .0007.

Figure 1

Prisma 2020 flow diagram



Note: From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

Table 1

Results of the systematic literature review (details of documents included in the data analysis)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ)	Quality assessment
1	(Abrahams et al., 2013)	Gender en burnout bij Nederlandse huisartsen.	Netherlands	261	Quantitative	no	RQ	strong
2	(Adam et al., 2018)	Potential correlates of burnout among general practitioners and residents in Hungary: The significant role of gender, age, dependant care and experience.	Hungary	196	Quantitative	no	no	moderate
3	(Adarkwah et al., 2018)	Burnout and work satisfaction in general practitioners practicing in rural areas: Results from the HaMedSi study.	Germany	85	Quantitative	no	no	strong
4	(Adžić Zlata et al., 2013)	Is Burnout in Family Physicians in Croatia Related to Interpersonal Quality of Care?	Croatia	125	Quantitative	no	no	moderate
5	(Akova et al., 2021)	Evaluation of the relationship between burnout, depression, anxiety, and stress levels of primary health-care workers (Center Anatolia).	Turkey	338	Quantitative	no	no	moderate
6	(Anagnostopoulos et al., 2012)	Physician Burnout and Patient Satisfaction with Consultation in Primary Health Care Settings: Evidence of Relationships from a one-with-many Design.	Greece	30	Quantitative	The Job demands – Resources theory (Demerouti et al., 2001) The Conservation of resources theory (Hobfoll, 2002)	RQ	strong

Note: H = hypothesis, RQ = research question.

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality of assessment
7	(Arigoni et al., 2009)	Prevalence of burnout among Swiss cancer clinicians, paediatricians and general practitioners: who are most at risk?	Switzerland	371	Quantitative	no	no	strong
8	(Aygun & Mevsim, 2019)	The impact of family physicians' thoughts on self-efficacy of family physician's core competencies on burnout syndrome in Izmir: A nested case-control study.	Turkey	395	Quantitative	no	RQ	strong
9	(Bakker et al., 2000)	Patient demands, lack of reciprocity, and burnout: A five-year longitudinal study among general practitioners.	Netherlands	207	Quantitative	The Equity theory (Walster et al., 1973) The Social Exchange theory (Blau, 1964)	H	moderate
10	(Bakker et al., 2001)	Burnout contagion among general practitioners.	Netherlands	507	Quantitative	Theory of emotional contagion (Hatfield, 1994) Theory of cognitive dissonance (Aronsson, 1969)	H	strong
11	(Baptista et al., 2021)	Physician Burnout in Primary Care during the COVID-19 Pandemic: A Cross-Sectional Study in Portugal.	Portugal	214	Quantitative	no	RQ	moderate
12	(Brown et al., 2019)	Personality and burnout among primary care physicians: an international study.	Canada	77	Quantitative	Five-Factor theory of personality (McCrae, and Costa, 2008)	RQ	strong
13	(Bugaj et al., 2020)	Mental health of postgraduate trainees in primary care: A cross-sectional study.	Germany	211	Quantitative	The Control theory of Job demands (Karasek, 1979)	H	moderate

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality assessment
14	(Cagan & Gunay, 2015)	The job satisfaction and burnout levels of primary care health workers in the province of Malatya in Turkey.	Turkey	186	Quantitative	no	no	moderate
15	(Cheshire et al., 2017)	Influences on GP coping and resilience: A qualitative study in primary care.	England	22	Qualitative	no	RQ	strong
16	(Clough et al., 2020)	Stressors and protective factors among regional and metropolitan Australian medical doctors: A mixed-methods investigation.	Australia	20/252	Mixed methods	The Job demands – Resources theory (Demerouti et al., 2001)	H, RQ	strong
17	(Cooke et al., 2013)	A survey of resilience, burnout, and tolerance of uncertainty in Australian general practice registrars.	Australia	128	Quantitative	no	H	moderate
18	(Croxon et al., 2017)	GPs’ perceptions of workload in England: a qualitative interview study.	England	34	Qualitative	no	RQ	strong
19	(Doran et al., 2016)	Lost to the NHS: A mixed-methods study of why GPs leave practice early in England.	England	34/143	Mixed methods	no	RQ	strong
20	(Dreher et al., 2019)	Prevalence of burnout among German general practitioners: Comparison of physicians working in solo and group practices.	Germany	214	Quantitative	no	RQ	strong
21	(Dusmesnil et al., 2009)	Professional burnout of general practitioners in urban areas: Prevalence and determinants.	France	511	Quantitative	no	no	moderate

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ)	Quality of assessment available
22	(Eley et al., 2018)	Professional resilience in GPs working in areas of socioeconomic deprivation: A qualitative study in primary care.	England	15	Qualitative	no	RQ	strong
23	(Ercolani et al., 2020)	Burnout in Home Palliative Care: What Is the Role of Coping Strategies?	Italy	207	Quantitative	no	RQ	strong
24	(Ferreira et al., 2021)	Burnout and health status differences among primary health-care professionals in Portugal.	Portugal	1751	Quantitative	no	RQ	moderate
25	(Galletta-Williams et al., 2020)	The importance of teamwork climate for preventing burnout in UK general practices.	England	50	Mixed methods	no	RQ	strong
26	(Gyórfy et al., 2014)	Reproductive health and burnout among female physicians: nationwide, a representative study from Hungary	Hungary	723	Quantitative	no	H, RQ	strong
27	(Hall et al., 2018)	Strategies to improve general practitioner well-being: Findings from a focus group study.	England	25	Qualitative	no	RQ	weak
28	(Hall et al., 2019)	Association of GP well-being and burnout with patient safety in UK primary care: a cross-sectional survey.	England	232	Quantitative	no	RQ	strong
29	(Van Ham, 2006)	De arbeidssatisfactie van de Nederlandse huisarts	Netherlands	711	Quantitative	The Control theory of Job demands (Karasek, 1979) The Stress theory (Selye, 1950)	RQ	strong

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality of assessment
30	(Hirsch & Adarkwah, 2018)	The issue of burnout and work satisfaction in younger GPs – A cluster analysis utilising the HaMedSi study.	Germany	85	Quantitative	no	RQ	strong
31	(Houkes et al., 2011)	Development of burnout over time and the causal order of the three dimensions of burnout among male and female GPs. A three-wave panel study.	Netherlands	212	Quantitative	Gender socialisation theory (Benschop, 1996)	no	strong
32	(Houkes et al., 2008)	Specific determinants of burnout among male and female general practitioners: A cross-lagged panel analysis.	Netherlands	349	Quantitative	The Job demands – Resources theory (Demerouti et al., 2001) The Control theory of Job demands (Karasek, 1979) The Conservation of resources theory (Hobfoll, 2002) Gender socialisation theory (Benschop, 1996) Process model of burnout (Leiter, 2018)	H, RQ	moderate
33	(Karakose, 2014)	An Evaluation of the Relationship between General Practitioners' Job Satisfaction and Burnout Levels.	Turkey	71	Quantitative	no	RQ	moderate
34	(Kjeldmand et al., 2008)	Balint groups as a means to increase job satisfaction and prevent burnout among general practitioners.	Sweden	9	Qualitative	no	RQ	weak

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality or assessment
35	(Lamothe et al., 2014)	To be or not to be empathic: the combined role of empathic concern and perspective-taking in understanding burnout in general practice	France	294	Quantitative	no	H	moderate
36	(Lee & Ashforth, 1996)	A meta-analytic examination of the correlates of the three dimensions of job burnout.		61	meta-analysis	The Conservation of resources theory (Hobfoll, 2002) Process model of burnout (Leiter, 2018)	RQ	strong
37	(Lovell et al., 2009)	May I long experience the joy of healing: professional and personal well-being among physicians from a Canadian province	Canada	165	Qualitative	Ecological model (Bronfenbrenner & Morris, 1998)	RQ	weak
38	(Marcelino et al., 2012)	Burnout levels among Portuguese family doctors: a nationwide survey.	Portugal	153	Quantitative	no	H, RQ	moderate
39	(Montero-Marin et al., 2015)	Mindfulness, Resilience, and Burnout Subtypes in Primary Care Physicians: The Possible Mediating Role of Positive and Negative Affect.	Spain	622	Quantitative	no	H, RQ	moderate
40	(Murray et al., 2016)	A systematic review of interventions to improve the psychological well-being of general practitioners		4	systematic review	no	RQ	moderate
41	(Nørpøe et al., 2018)	Mental well-being and job satisfaction among general practitioners: A nationwide cross-sectional survey in Denmark.	Denmark	1697	Quantitative	no	RQ	strong

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size used	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ)	Quality assessment
42	(O'Dea et al., 2016)	Prevalence of burnout among Irish general practitioners: a cross-sectional study.	Ireland	683	Quantitative	Physician wellness model (Wallace, 2009)	RQ	moderate
43	(Pedersen et al., 2013)	Risk of Burnout in Danish GPs and Exploration of Factors Associated with Development of Burnout: A Two-Wave Panel Study.	Denmark	216	Quantitative	Process model of burnout (Leiter, 2018)		moderate
44	(Pedersen & Vedsted, 2014)	Understanding the inverse care law: a register and survey-based study of patient deprivation and burnout in general practice.	Denmark	601	Quantitative	no	H	strong
45	(Pedersen et al., 2018)	Empathy, burnout and the use of gut feeling: A cross-sectional survey of Danish general practitioners.	Denmark	588	Quantitative	Simulation theory of mind-reading (Gallese & Goldman, 1998)	H, RQ	moderate
46	(Pedersen et al., 2020)	Influence of patient multimorbidity on GP burnout: a survey and register-based study in Danish general practice.	Denmark	1676	Quantitative	no	H, RQ	strong
47	(Pedersen et al., 2021)	Burnout of intrinsically motivated GPs when exposed to external regulation: A combined panel data survey and cluster randomised field experiment.	Denmark	846	Quantitative	The Self-determination theory (Deci et al., 1989)	H, RQ	strong
48	(Putnik & Houkes, 2011)	Work-related characteristics, work-home and home-work interference and burnout among primary health-care physicians: A gender perspective in a Serbian context	Serbia	373	Quantitative	The Job demands – Resources theory (Demerouti et al., 2001)	RQ	moderate

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality assessment
49	(Riley et al., 2018)	What are the sources of stress and distress for general practitioners working in England? A qualitative study.	England	47	Qualitative	no	RQ	moderate
50	(Schaufeli et al., 2011)	Stability and change in burnout: a 10-year follow-up study among primary care physicians.	Netherlands	567	Quantitative	The Selection Optimization and Compensation (SOC) theory (Baltes & Rudolph, 2012) Motivational theory of lifespan development (Heckhausen et al., 2010) Physician-patient cycle model (Williams et al., 2006) Dynamic equilibrium model (Headley & Wearing, 1989) Stability and change model (Ormel & Schaufeli, 1991)	RQ	moderate
51	(Soler et al., 2008)	Burnout in European family doctors: the EGPRN study.	England Greece Hungary Italy Malta Poland Spain Turkey Sweden France Croatia Bulgaria	1393	Quantitative	Process model of burnout (Leiter, 2018)	RQ	moderate

(Continued)

Table 1. (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ)	Quality assessment
52	(Stanetić & Tesanović, 2013)	Influence of age and length of service on the level of stress and burnout syndrome.	Serbia	239	Quantitative	no	RQ	moderate
53	(Taris et al., 2005)	Job control and burnout across occupations.	Netherlands	562	Quantitative	The Control theory of Job demands (Karasek, 1979) The Conservation of resources theory (Hobfoll, 2002)		moderate
54	(Torppa et al., 2015)	Emotionally exhausting factors in general practitioners' work.	Finland	165	Quantitative	no	RQ	moderate
55	(Vedsted et al., 2013)	Open Access to General Practice Was Associated with Burnout among General Practitioners.	Denmark	376	Quantitative	no	RQ	strong
56	(Verhoef et al., 2021)	Relationship between generic and occupation-specific job demands and resources, negative work-home interference and burnout among GPs.	Netherlands	178	Quantitative	The Job demands – Resources theory (Demerouti et al., 2001) The Broaden-and-Built theory of positive emotions (Fredrickson, 2004) The Stress theory (Selye, 1950)	H, RQ	strong
57	(Werdecker & Esch, 2021)	Burnout, satisfaction and happiness among German general practitioners (GPs): A cross-sectional survey on health resources and stressors.	Germany	549	Quantitative	The Job demands – Resources theory (Demerouti et al., 2001) Stress theory of allostatic load (McEwen, 2017)	RQ	moderate

(Continued)

Table 1 (Continued)

Nr	Author	Title	Study location	Sample Size	Methods used	Psychological theories	Hypotheses (H) or Research question (RQ) available	Quality assessment
58	(Yuguero et al., 2017a)	Association between low empathy and high burnout among primary care physicians and nurses in Lleida, Spain.	Spain	136	Quantitative	no	RQ	strong
59	(Yuguero et al., 2017b)	Occupational burnout and empathy influence blood pressure control in primary care physicians.	Spain	267	Quantitative	no	RQ	moderate
60	(Yuguero et al., 2019)	A cross-sectional study of the association between empathy and burnout and drug prescribing quality in primary care.	Spain	108	Quantitative	no	H, RQ	moderate

Table 2*Study outcomes Job demands*

	Generic Job demands	Association with burnout	FES	All studies (n = 60)	Strong studies (n = 28)	Moderate studies (n = 29)	Weak studies (n = 3)
1	Burden	+	1.67	1	1	0	0
2	Empathy	+	1.67	1	0	1	0
3	lack of reciprocity	+	3.33	2	0	2	0
4	Stressful events	+	20	12	12	0	0
5	Workplace incivility	+	1.67	1	0	0	1
6	Complexity of workload	+	5	3	3	0	0
7	Market competition	+	1.67	1	1	0	0
8	Work pressure	+	13.33	9	9	0	0
9	Workload	+	16.67	12	7	5	0
10	Administration	+	8.33	5	4	0	1

(Fisher exact test of independence, $p < .001$)

(Fisher exact test for difference between strong and moderate studies, $p < .001$)

Occupation-specific Job demands

1	Demanding patients	+	11.67	7	2	4	1
2	Emotional job demands	+	5	3	1	2	0
3	Indirect patient care	+	6.67	4	4	0	0
4	Palliative care	+	1.67	1	0	1	0
5	Patient behaviour	+	3.33	2	2	0	0
6	Relationships with insurers increased regulation	+	3.33	2	1	0	1

(Fisher exact test of independence, $p < .001$)

(Fisher exact test for difference between strong and moderate studies, $p = .031$)

Generic Job demands FES_{avg} 7.33

Occupation-specific job demands FES_{avg} 5.27

Table 3*Study outcomes Job resources*

	Generic Job demands	Association with burnout	FES	All studies (n = 60)	Strong studies (n = 28)	Moderate studies (n = 29)	Weak studies (n = 3)
1	Autonomy	–	13.33	8	4	3	1
2	Collaboration	–	5	3	2	0	1
3	Mindfulness	–	6.67	4	0	3	1
4	Motivation	–	5	3	2	1	0
5	Participation	–	3.33	2	2	0	0
6	Personal rewards	–	1.67	1	1	0	0
7	Recovery experience	–	1.67	1	0	1	0
8	Unmet expectations	–	1.67	1	1	0	0
9	Job satisfaction	–	15	11	5	6	0
10	Compulsory daily coffee breaks	–	1.67	1	0	0	1
11	Leisure time	–	3.33	2	2	0	0
12	More administrative staff	–	1.67	1	0	0	1
13	Resilience	–	–	6	5	1	0

(Fisher exact test of independence, $p < .001$)(Fisher exact test for difference between strong and moderate studies, $p = .228$)**Occupation-specific Job resources**

1	Balint group	–	1.67	1	0	0	1
2	Continuity of care	–	3.33	2	2	0	0
3	Education	–	5	6	3	2	1
4	Skill utilization, including specialisation, providing education and sixth sense experience	–	3.33	2	2	0	0
5	Long-term relationship with patients	–	3.33	2	2	0	0
6	Patient care	–	48.33	30	23	5	2
7	Social support from colleagues	–	18.33	11	7	3	1

(Fisher exact test of independence, $p < .001$)(Fisher exact test for difference between strong and moderate studies, $p = .683$)Generic Job resources $FES_{avg} = 5.38$ Occupation-specific Job resources $FES_{avg} = 11.90$

Table 4*Study outcomes Work characteristics*

	Work characteristics	Association with burnout	FES	All studies (n = 60)	Strong studies (n = 28)	Moderate studies (n = 29)	Weak studies (n = 3)
1	Open access	+	3.33	2	2	0	0
2	Practice years	+	6.67	8	1	7	0
3	Practice type	Varying effect	5	3	1	2	0
4	Rurality	+	3.33	2	2	0	0
5	Work hours	+	3.33	2	2	0	0
6	Professional relations with social services and paramedics	Varying effect	3.33	2	2	0	0
7	Nr of patients per day	+	8.33	8	6	2	0
8	Negative portrayal of the profession	+	3.33	2	2	0	0
9	Ageing population	+	1.67	1	1	0	0
10	Changing the relationship between primary care and secondary care	+	3.33	2	2	0	0
11	Illegitimate tasks	+	1.67	1	0	1	0

(Fisher exact test of independence, $p < .001$)
(Fisher exact test for difference between strong and moderate studies, $p = .015$)

Occupation-specific Work characteristics FES_{avg} 3.94

Table 5*Study outcomes Personal characteristics*

Work characteristics	Association with burnout	FES	All studies (n = 60)	Strong studies (n = 28)	Moderate studies (n = 29)	Weak studies (n = 3)
1 Depression	+	5	3	0	3	0
2 Anxiety	+	1.67	2	0	2	0
3 Insufficient belief in core competencies	+	1.67	3	2	1	0
4 Neuroticism	+	1.67	1	1	0	0
5 Agreeableness	+	1.67	1	1	0	0
6 Conscientiousness	+	1.67	1	1	0	0
7 Economic status	+	6.67	4	0	3	1
8 Coping	-	6.67	4	2	2	0
9 Positive attitude	-	1.67	1	1	0	0
10 Loneliness	+	1.67	1	0	1	0

FES_{avg} 3.00(Fisher exact test of independence, $p = .202$)(Fisher exact test for difference between strong and moderate studies, $p = .129$)(p -values are calculated according to Fisher exact (Freeman & Julious, 2007))**Table 6***Study outcomes Sociodemographics*

Socio-Demographics	FES	All Studies (n = 60)	Strong Studies (n = 28)	Moderate Studies (n = 29)	Weak Studies (n = 3)
1 Age	20	14	4	10	0
2 Gender	13.33	12	6	6	0
3 Female	10	6	6	0	0
4 Male	13.33	8	5	3	0
5 Marital status	3.33	2	0	2	0
6 Lack of Support partner	1.67	2	2	0	0
7 Nr. of children	1.67	1	0	1	0

FES_{avg} 9.05(Fisher exact test of independence, $p = .015$)(Fisher exact test for difference between strong and moderate studies, $p = .015$)(p -values are calculated according to Fisher exact (Freeman & Julious, 2007))

Table 7*Study outcomes miscellaneous category*

	Miscellaneous	Association with burnout	FES	All studies (n = 60)	Strong studies (n = 28)	Moderate studies (n = 29)	Weak studies (n = 3)
1	Patient Satisfaction	-	1.67	1	0	0	0
2	Burnout among colleagues	+	1.67	1	1	0	0
3	Reproductive disorders (miscarriage/ high-risk pregnancy)	+	1.67	1	1	0	0
4	Legal matters	+	5	3	0	3	0
5	Deprived patients	+	1.67	1	1	0	0
6	Patient multimorbidity	+	1.67	1	1	0	0
7	Accreditation	+	1.67	1	1	0	0
8	Patient's blood pressure control	-	1.67	1	0	1	0
9	Strain-based neg. WHI	+	3.33	2	2	0	0
10	WHI	+	13.33	9	6	2	1

FES_{avg} 3.34
(Fisher exact test of independence, $p = .470$)
(Fisher exact test for difference between strong and moderate studies, $p = .164$)
(p -values are calculated according to Fisher exact (Freeman & Julious, 2007))

Table 8*Intensity effect size (IES) of all studies*

Nr	Study	Intensity Effect Size	Nr	Study	Intensity Effect Size
1	(Abrahams et al., 2013)	5.59	31	(Houkes et al., 2011)	0.70
2	(Adam et al., 2018)	1.40	32	(Houkes et al., 2008)	2.45
3	(Adarkwah et al., 2018)	2.45	33	(Karakose, 2014)	1.40
4	(Adžić Zlata et al., 2013)	2.80	34	(Kjeldmand, 2008)	0.35
5	(Akova et al., 2021)	0.70	35	(Lamothe et al., 2014)	0.70
6	(Anagnostopoulos et al., 2012)	0.35	36	(Lee & Ashforth, 1996)	13.99
7	(Arigoni et al., 2009)	0.70	37	(Lovell et al., 2009)	3.15
8	(Aygun & Mevsim, 2019)	2.45	38	(Marcelino et al., 2012)	1.05
9	(Bakker et al., 2000)	1.05	39	(Montero-Marin et al., 2015)	0.70
10	(Bakker et al., 2001)	0.35	40	(Murray et al., 2016)	0.35
11	(Baptista et al., 2021)	1.40	41	(Nørøxe Karen et al., 2018)	0.70
12	(Brown et al., 2019)	1.05	42	(O'Dea et al., 2017)	0.70
13	(Bugaj et al., 2020)	0.35	43	(Pedersen et al., 2013)	0.35
14	(Cagan & Gunay, 2015)	0.70	44	(Pedersen & Vedsted, 2014)	0.35
15	(Cheshire et al., 2017)	4.90	45	(Pedersen et al., 2018)	0.35
16	(Clough et al., 2020)	5.59	46	(Pedersen et al., 2020)	1.05
17	(Cooke et al., 2013)	1.05	47	(Pedersen et al., 2021)	1.05
18	(Croxson et al., 2017)	4.20	48	(Putnik & Houkes, 2011)	1.40
19	(Doran et al., 2016)	2.80	49	(Riley et al., 2018)	2.45
20	(Dreher et al., 2019)	1.40	50	(Schaufeli et al., 2011)	0.35
21	(Dusmesnil et al., 2009)	2.10	51	(Soler et al., 2008)	1.05
22	(Eley et al., 2018)	1.75	52	(Stanetić & Tesanović, 2013)	0.70
23	(Ercolani et al., 2020)	1.05	53	(Taris et al., 2005)	0.35
24	(Ferreira et al., 2021)	2.10	54	(Torppa et al., 2015)	1.40
25	(Galleta-Williams et al., 2020)	0.35	55	(Vedsted et al., 2013)	0.35
26	(Györfy et al., 2014)	0.35	56	(Verhoef et al., 2021)	5.59
27	(Hall et al., 2018)	2.10	57	(Werdecker & Esch, 2021)	2.10
28	(Hall et al., 2019)	1.40	58	(Yuguerro et al., 2017a)	0.35
29	(Ham, 2006)	0.70	59	(Yuguerro et al., 2017)	0.35
30	(Hirsch & Adarkwah, 2018)	0.70	60	(Yuguerro et al., 2019)	0.35

Discussion

It is essential to gain a good understanding of the nature and strength of generic job demands and resources. However, to increase ecological validity, it is also important to identify and further explore occupationally specific job demands and resources (Brough & Biggs, 2015; Sundin et al., 2011).

In the present study, we identified a substantial number of generic and some occupation-specific job requirements and resources for general practitioners (see Tables 2 and 3). To better evaluate the results of a systematic review and the studies used for it, we used two effect measures. The FES of a finding, for example, a job requirement, is considered a measure of the strength of evidence for that finding (Sandelowski et al., 2007). The IES is regarded as a measure of the influence of the study in question on the final result of the ongoing study (see Table 9). For example, a study with an IES of 10 had much more influence on the final result of the ongoing study than a study with an IES of 2. In the current study, we selected four studies with relatively high IES, from Table 8, that is, Abrahams et al. (2013) (IES 5.59), Clough et al. (2020) (IES 5.59), Croxson et al. (2017) (4.20) and Cheshire et al. (2017) (IES 4.90).

The quantitative study by Abrahams et al. (2013) aimed to investigate sex and gender differences in the prevalence and determinants of burnout among 349 Dutch GPs. The authors conclude that there is a relationship between gender and burnout that is mediated by work pressure, social support from the partner and a depressive response pattern. While these are highly recognizable job demands and resources, they are all generic.

The mixed methods study by Clough et al. (2020) aimed to compare stressors leading to burnout and protective factors among 252 Australian GPs. The authors found 12 stressors (e.g. workload and time management) and 9 protective factors (e.g. clinical interest). Except for this last resource, clinical interest, the other stressors and protective factors (resources) mentioned are generic.

The qualitative study by Croxson et al. (2017) aimed to investigate perceptions and attitudes towards workload among 34 UK GPs. The reasons cited for an increased workload are increased needs and expectations of patients, a changed relationship between primary and secondary health care and bureaucracy. It is primarily the workload balance within the practice that erodes the resource continuity of care. They, therefore, conclude that the management of patient expectations and the reduction of bureaucracy should be a high priority. It is the increased expectations of patients and the changed relationship between primary and

secondary health care that can be regarded as occupation-specific job demands and continuity of care as a profession-specific resource.

Finally, the qualitative study by Cheshire et al. (2017) among 22 British GPs aimed to explore experiences with workplace challenges, stressors, and coping. It was experienced as very stressful by the participants to feel bound by the moral implications of good doctors, resulting in anxiety, sleep disorders and stress. As individuals, they felt powerless to do anything about it. Various generic job demands are mentioned (e.g. administration, workload, complexity of the work) as well as occupation-specific job demands (e.g. demanding patients). Continuity of care is mentioned as an important occupational resource.

All in all, it is mainly generic job demands and resources that are mentioned in the results of the above four studies and relatively few profession-specific job demands and resources. Moreover, the generic job demands with an FES avg of 7.33 seem more important than the occupation-specific job demands with an FES avg of 5.27 (see Table 2). Further exploration of job-specific job demands and resources among general practitioners seems highly desirable. The situation is reversed for the resources, the generic resources with an FES avg = 5.38 seem much less important than the profession-specific resources with a much higher FES avg 11.90 (see Table 3.).

The fact that the share of England with nine studies and the Netherlands with nine studies have the largest share in the current study may mean that primary health care is changing in both countries.

Finally, Table 1, containing several methodological parameters, raises concerns about the methodological quality of studies. That only 35% of the studies use a supportive psychological theory is low. That only 10% of the studies generate a hypothesis is too low. That 55% of the studies use a directional research question seems average. However, to overcome this concern, we paid additional attention to the presence of the research question, supporting theory and hypotheses in the included studies and whether the quality assessments accounted for these items. Subsequently, we performed Fisher exact tests. From the results, we learned that only two out of 75 p -values were significant. We concluded that there was insufficient evidence to reject the null hypothesis. In other words, the quality of the studies did not affect the outcomes of the present study. We consider this finding a strength of this study.

Conclusion

General practitioners (GPs) are independent healthcare professionals in small-scale working groups outside the hospital. As a medical specialist, the GP has a broad medical knowledge of many diseases and disorders and is the first contact for people with various physical or mental complaints (Verstappen & Hobma, 2002). GPs are considered gatekeepers for hospital access (Van der Zee et al., 2004). The GP can also offer a solution if you have problems at home, school, or work. At least as necessary is GP care for the elderly in an ageing society (Grol et al., 2022; Verlee et al., 2017). GPs must know their patients and must have time for a good conversation (Van Ballegooijen et al., 2021). Fewer referrals to hospitals and less medication are also crucial for better health, to which the general practitioner can make an excellent contribution (Gillam, 2022). During the current COVID-19 pandemic, the importance of good primary care has become apparent, as we can also learn from UK experiences (Mitchell et al., 2021). Some GPs vaccinate but also motivate people to get vaccinated. By taking over hospital care by the GP, patients can be discharged earlier and thus reduce the pressure on hospitals (Cals et al., 2021; Kloos, 2020).

If GPs are so important and valuable and have such a high risk of burnout (Bakker et al., 2000a; Soler et al., 2008), why is research into the causes and consequences of burnout among GPs so limited in size? The answer to this question, while partly obscure, is likely to be pluralistic. For example, recruitment problems for participants in research projects in primary health care have been reported (Bower et al., 2009; Graffy et al., 2009). Also, understaffed academic institutes for primary health care, with too few researchers, contribute to the limited literature (Campbell et al., 2015). Therefore, the urgent call in the current study to stimulate and initiate more research into burnout among GPs requires an ultimate effort that is worth it.

Limitations

A significant limitation of the current study is that only one researcher conducted the study. Several researchers, at least two, preferably assess the many studies studied in a systematic review. Bias is a systematic error that leads to the acceptance of results and conclusions of a study that can be misleading. Selection bias in a systematic review can be reduced by conducting the study with multiple reviewers (Cooper et al., 2019).

Future research

Given the results of the present study, it is vital to conduct more qualitative studies to identify and further explore occupation-specific determinants of burnout among GPs. At the same time, this implies that the results of qualitative studies should be generalised by performing quantitative studies. However, given the recruitment constraints and understaffing of academic primary care research institutes, as discussed in the conclusion of the current study, more research will require an extra effort that is well worth it.

Data availability statement

The original contributions presented in this study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

RB supervised this project. NV wrote the main body of the manuscript and carried out selection procedures. Both authors carried out extraction and synthesis procedures, and read and approved the final manuscript.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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note: references preceded by the symbol ● are included in the review

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Chapter 3

**Factors that play a role in the
experience of GPs' energy
management**

Abstract

Initially, burnout in human services (teachers, nurses, and doctors) was attributed to frequent and intensive contact with the recipients of services and care. Traditionally, general practitioners (GPs) have a high risk of developing burnout. Different generic job demands (e.g. workload and demanding patients) and job resources (e.g. autonomy and supervisor support) explain the emergence of burnout using the job demands-resources model. However, from this viewpoint, the added value of occupation-specific job demands and resources is ignored. In an opportunistic sample of eight Dutch GPs, the research question explored which factors costing energy (demands) and which mitigating factors (resources) could be identified within the work and home domains of Dutch GPs. The eight semi-structured interviews were audio recorded, transcribed, and analyzed using the template analysis method. Across the eight transcribed interviews, a significant number of different factors within the work domain of GPs were identified that cost energy, as well as a significant number of factors that yield energy. To a lesser extent, factors within the home domain of general practitioners that cost energy as well as factors that yield energy were identified. An interaction was also identified between the work domain and the home domain.

Keywords

GPs, burnout, occupation-specific job demands, occupation-specific job resources, personal resources, job demands-resources model, work-home interference, qualitative analysis, template analysis

Introduction

In a survey of high-contact professionals (e.g. teachers, nurses, and physicians), the percentages of clinical burnout ranged from 0.8%–13.9%. Only informal caregivers, occupational health doctors, and psychiatrists outranked general practitioners (GPs), in whom clinical burnout occurred in 8.2% of cases (Bakker et al., 2000). These differences in burnout frequencies between different professions are not explained by the number itself. The underlying complexity of the profession under study may explain this. A qualitative study is desirable to uncover this complexity (Creswell, 2007). The objective of this study is to unravel the complexity and subtlety of GPs' work by breaking it down into definable building blocks. Here, we take the perspective of the job demands-resources (JD-R) theory and focus on the demands and resources in the work and home domains of GPs. Empirical research traditionally employs generic job demands and resources. However, applying occupation-specific job demands and resources is appreciated because it focuses on the specific work environment of the occupation in question and thus contributes to the ecological validity of the study (e.g. Brough & Biggs, 2015). In the present study, we focus on the occupation-specific job demands and resources of GPs.

The consequences of burnout can leave deep marks on individual workers, the organization, and society overall. The sick person is confronted with a long-term illness that greatly undermines their mental well-being. High levels of burnout have also been associated with an increased risk of cardiovascular diseases and diabetes mellitus type II (Melamed et al., 2006). Moreover, salary loss and additional medical treatment costs may be involved. The organization, in turn, may be confronted with the payment of wages during its employee's illness, as well as the consequences of absenteeism and presenteeism. Absenteeism is defined as sick and not at work, while presenteeism is defined as sick and still at work (Bartlett, 2013; Yildiz et al., 2015). Absenteeism often entails the need to replace staff, which is extremely problematic, especially for doctors, while presenteeism predominantly leads to a loss of productivity. Society overall is confronted with the costs of disability benefits (Ahola et al., 2009). However, in the case of presenteeism, not only the quantity but also the quality of the work is reduced. In the case of doctors, this means a reduced quality of care with a high risk of medical errors (Christopher, 2016; Letvak et al., 2012). Despite the enormous efforts of many scholars through the years, which have resulted in a worthwhile burnout library, the GP profession remains underexposed.

Occupational burnout is a regular occurrence among GPs and causes intense distress to all parties involved. In a recent study on the mental health status of Dutch GPs, a burnout prevalence of 19,4% was determined (Twellaar et al., 2008). With the present study, we aim to contribute to the theoretical and practical knowledge of burnout. This knowledge may function as a tool to improve preventive and therapeutic measures of burnout among GPs. A call for improving these measures was recently included in a systematic review on this subject (Clough et al., 2017). The author conducted a systematic review of research papers reporting on psychosocial interventions targeting occupational stress and burnout among medical doctors. The hopeful conclusion was that interventions focused on cognitive and behavioural principles appear promising in reducing doctor stress and burnout (Clough et al., 2017). Additionally, this study aimed to develop a questionnaire from the results regarding occupation-specific job demands and occupation-specific job resources among GPs. According to Creswell (2007), several reasons exist for performing qualitative analysis. We have chosen to conduct a qualitative study because of the complexity of GPs' interactions with their work and home environments. Based on this study of complex and subtle interactions, we aim to extract more manageable building blocks to expand existing knowledge on burnout among GPs.

This paper is organized as follows. The next section presents the theoretical background and development of the research question. The methodology section discusses methods, procedures, sampling and analyses. Subsequently, we present the results of our study and discuss the outcomes. We conclude our paper with a discussion of theoretical and practical implications and suggestions for future research.

Theoretical background and development of the research question

In this section, we first present the JD-R theory. Within the framework of this overarching theory, important aspects are discussed and used as building blocks for our research question at the end of this section.

Burnout refers to a psychological syndrome characterized by three core dimensions: emotional exhaustion, depersonalization, and diminished personal accomplishment (Demerouti et al., 2001). Emotional exhaustion refers to feelings of exhaustion caused by the demands of work. Depersonalization or cynicism refers to a detached and cynical response to the recipients of service or care. Diminished personal accomplishment addresses the self-evaluation of being no longer effective in working and fulfilling job responsibilities (Freudenberger & Richelson, 1980).

The JD-R theory appeared in the scientific literature in 2001 (Demerouti et al., 2001). The theory is popular among scientists mainly due to its flexibility (Schaufeli & Taris, 2014). Flexibility in this context means that based on the first assumption of the JD-R theory, any combination of job demands and resources can be used for any profession, including general practice.

The first assumption or premise of the JD-R theory states that each occupation has specific risk factors for work-related stress. These work factors are divided into job demands and resources. Job demands are defined as physical, social, or organizational aspects of work that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs (e.g. exhaustion; Demerouti et al., 2001). Job resources are defined as the physical, psychological, or organizational aspects of work that (a) are functional in achieving job goals, (b) reduce job demands based on the associated physiological and psychological costs, or (c) stimulate personal growth and development (Demerouti et al., 2001). The second assumption of the JD-R theory describes two underlying processes: the health-impairment process and the motivational process (Bakker & Demerouti, 2007). The health impairment process arises from the job demands and mainly concerns exhaustion. The motivational process arises from job resources and mainly focuses on depersonalization (or cynicism).

The outcomes of both processes are organizational, for example, absenteeism or intention to leave the profession (Bakker & Demerouti, 2007). While organizational outcomes such as burnout, depression, and cardiovascular disorders can be valued negatively (Melamed et al., 2006), other organizational outcomes can be valued positively, including high work involvement or work performance (Bakker et al., 2004).

However, epistemologically, the JD-R model is not explanatory but descriptive (Schaufeli & Taris, 2014). The model specifies the relationships between demands and resources without providing the underlying psychological explanation, except that, by definition, job demands consume energy and can ultimately lead to exhaustion and burnout. Furthermore, job resources, by definition, have motivational potential (meaning they produce energy) (Schaufeli & Bakker, 2004). Additional psychological models are usually necessary to explain why certain demands interact with certain resources. Commonly used theories are the job demands-control theory (Karasek, 1979), conservation of resources theory (Hobfoll, 2002), broaden-and-build theory (Frederickson, 2004), social cognitive theory (Bandura, 2001), and self-determination theory (Deci et al., 1989). For example, Van Dierendonck et al. (1994) argued, based on the

equity theory, that harassment by patients is a GP job demand that can eventually lead to emotional exhaustion and burnout (Adams, 1965). Another example is the control model of demands, which concerns the use of coping strategies under the influence of environmental stressors (Hockey, 1997). The environmental stressors correspond with the job demands. The coping strategies work through activation of the autonomic nervous system and may ultimately lead to energy drainage and result in exhaustion.

Stressors or job demands among GPs have traditionally been related to emotionally charged relationships with patients. According to the equity theory of social exchange, a GP expects their efforts to cure the patient to be rewarded (Adams, 1965). The demanding nature of the doctor-patient relationship has long been regarded as a root cause of burnout (Maslach, 1978). Repeated confrontation with demanding patients over a prolonged period causes perceptions of inequity or lack of reciprocity, depleting emotional resources and initiating burnout. It is not the patient demand alone that causes emotional exhaustion but the resulting perception of imbalance in the relationship between GP and patient (Bakker et al., 2000). However, the primacy of social interactions as a cause of emotional exhaustion and burnout gradually faded. Causes of burnout among French GPs, for example, proved to be not only relational but also especially organizational and administrative (high workload, administrative demands, and conflicts with social welfare organizations; Cathebras et al., 2004).

The job resources were originally distinguished according to two categories: external resources (organizational and social) and internal resources (cognitive and action patterns; Richter & Hacker, 1998).

Organizational resources include job control, the potential for qualification, participation in decision-making, and task variety. Social resources include social support from colleagues, family, and peer groups. When the external environment lacks resources, individuals cannot cope with the negative influences of environmental demands, such as high workload, and subsequently cannot reach their goals, leading to frustration. The reasons why so many people remain healthy despite substantial job demands emerge from health protection theories and are called resources (Richter & Hacker, 1998). A more complete overview of different demands and resources, work- and home-related, has been presented (Schaufeli & Taris, 2014).

In the post-war 1950s, dissatisfaction among GPs about their position in health care resulted in the foundation of the Dutch College of General Practitioners (GPs) (Nederlands Huisartsen Genootschap) in 1956 (Aulbers & Bremer, 1996). The Woudschoten Conference was organized in 1959 to reflect on the role of the NHG and formulate a definition of GPs' work

(Aulbers & Bremer, 1996). One outcome of this conference was the formulation of three core values of GP care: generalistic, person-oriented, and continuous (Huygen, 1959a, 1959b, 1959c, 1959d). A fourth core value, "joint", was added to this series in 2019 (LHV, 2019). Five core tasks were then derived from these core values: general medical care, urgent GP care, terminal palliative care, preventive care, and care coordination. These core tasks have been developed into an extensive package of basic tasks of GPs, which are summarized in Table 1:

Table 1

Summary of basic tasks of GPs

Domain of attention	Nature of involvement
Support Staff	Management Human resources Finance
Chronic conditions	Acute care Supervision
Pharmacotherapy policy	Consultation with a pharmacist
Mental health care	Acute care Supervision
Terminal palliative care	Acute care Consultation
Youth care	Consultation
Nursing home	Consultation
District nurses	Consultation
Insurers	Consultation Conflict of interest
Paramedics	Consultation
Secondary care	Consultation
Management	Human resources Finance
Care Inspectorate	Consultation Conflict of interest
Gatekeeper	Access to secondary healthcare Conflict of interest

Not only direct patient care but also supervision and consultation structures are relational activities within the GP profession with time pressure, often in emotionally charged situations. However, a situation or activity can be perceived as threatening by one individual but judged as pleasant by another; that is, a job demand for one person means a job resource for another person. Briefly, the structure in which GPs work is complex and cannot easily be represented schematically. A qualitative research method is ideal for disentangling this difficult problem.

The introduction of this study emphasizes the importance of research into occupation-specific job demands and resources. In a recent systematic review (Verhoef & Blomme, 2022), we concluded that knowledge of occupation-specific job demands and resources is limited. Briefly, the structure within which GPs work is further complicated by this view and, partly due to this, it is not easily represented schematically.

Research question:

Which energy-consuming factors (demands) and mitigating factors (resources) can be identified within the work and home domains of Dutch GPs?

Methodology

In this study, we take the philosophical position of limited realism as a starting point. Various realist movements exist (critical realism, subtle realism, natural realism and limited realism) but they all have the common premise that there is a reality, independent of human consciousness and which is considered a prerequisite for knowledge and thinking (Maxwell, 2012). The world has a reality outside of humanly constructed reality, but our understanding of it is limited by our position in that reality. Hence the term “limited realism” (King & Brooks, 2017). This means that limited realism in qualitative research not only does not claim objectivity but also simultaneously rejects the position of the relativist and the radical constructionist who argue that no interpretation of data is better than any other interpretation (King & Brooks, 2017, p 18). Moreover, what the various realist movements have in common is that they are committed to a realist ontology and a constructivist epistemology (King & Brooks, 2017). Constructivism postulates that multiple truths are constructed by and between people (Hacking, 1999).

Methods

Justification of a Qualitative Approach

Qualitative research can be defined as “the study of the nature of phenomena” (Maso, 1987). The nature of the phenomena to be studied refers to their quality, their manifestations, the context in which they occur, the perspective from which they can be viewed, etc. (Philipsen & Vernooij-Dassen, 2004). This excludes other characteristics, such as the size and frequency of the phenomena and the place of the phenomena in the chain of cause and effect. Quantitative research is more suitable for these latter characteristics (Philipsen & Vernooij, 2004). The choice for a qualitative approach or a quantitative approach is determined by the problem to be studied and therefore also by the research question (Philipsen & Vernooij-Dassen, 2004).

In the current study, the research question is: “Which factors that cost energy (demands) and factors that yield energy (resources) can be identified in the work environment and the home environment of Dutch GPs?”. This research question and the definition of qualitative research described above show that the current study requires a qualitative approach to answer the research question.

Justification of Template Analysis

In qualitative research, three commonly used general approaches can be distinguished: Grounded theory, Ethnography and Phenomenology (Teherani, 2015). Phenomenology is an approach to qualitative research that seeks to describe the essence of a phenomenon by exploring it from the perspective of those who have experienced it (Neubauer et al., 2019; Teherani, 2015). In the current study, we try to understand in the work domain the factors that cost energy and the factors that yield energy and in the home domain the factors that cost energy and the factors that yield energy, from the perspective of those who experience these factors i.e. GPs.

The choice of a particular qualitative data analysis method can be approached pragmatically and is determined, among other things, by the researcher's scientific interest, his preference for a particular method, the researcher's expertise in a particular method, the current popularity of a particular method and the relevance of a method for the target group (Priebe & Slade, 2007). One of the many qualitative analysis techniques is Thematic Analysis, which concerns the process of identifying patterns or themes in qualitative data (Maguire & Delahunt, 2017). Template Analysis is a form of Thematic Analysis that is more structured than

Thematic Analysis and uses predefined categories (Brooks et al., 2015). Template Analysis is not considered a separate methodology but rather a style of analysis (King & Brooks, 2017). This implies that Template Analysis can be used in qualitative research based on different philosophical positions, including limited realism (King & Brooks, 2017). Application of Template Analysis also and emphatically implies that the researcher is explicit and honest about the position taken.

The division of the a priori categories was based on the practical insight that for a worker there is an important distinction between the work domain and the private domain, and also on the basic distinction between phenomena that cost energy and phenomena that yield energy. That is why the a priori categories are named as follows: (1) factors in practice that cost energy, (2) factors in practice that yield energy, (3) factors in private life that cost energy and (4) factors in private life that yield energy. However, the literature, especially the literature on burnout, also uses the terminology job demands, job resources, personal demands and personal resources. For example, job demands and job resources are defined as factors that require sustained mental or physical effort, and as factors that reduce job demands, with associated physiological and psychological costs (Demerouti et al., 2001). This indicates a crucial relationship between the a priori factors we defined and the JD-R model of burnout (Demerouti et al., 2001). The a priori categories make the method very suitable for the current study.

Procedure and sample

Sample

We first comment on the method of selection or sampling. In qualitative research, four sampling methods are distinguished: probability sampling, opportunistic (convenience) sampling, non-random sampling for representativeness and theoretical sampling (Murphy et al., 1998). The first and third sampling methods concern empirical generalization, the fourth method concerns theoretical generalization, and the second method does not concern generalization (Hammersley & Atkinson, 1995). We opted for the second method, opportunistic (convenience) sampling, mainly because of its accessibility. It is generally known that GPs are very busy people who are always involved in direct or indirect (administration, etc.) patient care and who consider these activities to be part of their core tasks, i.e. main matters. As a result, they generally do not have time for side activities that are considered side hustles. This last category also includes completing surveys from, for example, the pharmaceutical industry and participating in scientific research, no matter how relevant those activities may sometimes be for their daily practice. However, for collegial reasons, some fellow GPs were willing to participate in the current study on burnout.

We started with one GP and eventually recruited eight GPs using the snowball method until data saturation was reached (Parker et al., 2019).

Sample size in qualitative research is determined by several factors, but the guiding principle should be the concept of saturation because saturation determines the majority of the sample size (Mason, 2010). In his study of 560 PhD studies, Mason (2010) found an average sample size of 31 interviews with a range between 1 and 95 interviews. Several factors that influence the sample size according to Ritchie et al. (2003) are: (1) Heterogeneity of the study population, (2) The number of selection criteria, (3) The extent to which nested criteria are necessary, (4) Groups requiring intensive research, (5) Multiple samples within one study, (6) Available budgets and resources, (7) Types of data collection.

Due to the many factors that influence sample size in qualitative studies, most researchers are hesitant to make suggestions about what an adequate sample size should be (Guest et al., 2006, p. 59). Nevertheless, guidelines regarding sample size are available in the literature: for ethnographic studies 30–50 interviews (Morse, 1994, p. 225), for grounded theory studies 20–30 interviews (Creswell, 1998, p. 64), for phenomenological studies 5–25

interviews (Creswell, 1998, p. 64) and for all qualitative studies at least 15 interviews (Bertaux, 1981, p. 35).

It should be noted that in qualitative research the sample size cannot be determined in advance, i.e. before the start of the study, because ultimately the sample size is determined by saturation. This means that the sample size will become clear during the data analysis, i.e. afterwards. For phenomenological studies, Creswell (1998, p.64) recommends 5–25 interviews. The eight interviews in the current study fit within this range and would represent an adequate sample size according to this guideline. The characteristics of the sample in the current study are shown in Table 2.

Table 2

Characteristics of participating GPs

GP	Gender	Age in Yrs	Marital status	Nr of years working as a GP	Children	Type of Practice	Nr of Days Working Per Week	Interview Duration in Minutes
A	male	56	married	25	yes	group practice	5	40
B	female	51	married	15	yes	group practice	4	33
C	female	42	married	17	yes	duo practice	3	39
D	male	65	partner	35/retired 3 yrs	yes	solo practice	5	45
E	male	51	married	17	yes	duo practice	4	42
F	male	53	partner	19	yes	duo practice	5	37
G	male	66	married	37/retired 1 yr	yes	solo practice	5	37
H	female	32	partner	3	no	Duo practice	3	48

However, several additional factors can be mentioned that are important in determining the sample size (Ritchie et al., 2003). The study by Ritchie et al. (2003) describes seven criteria that partly determine the sample size and of which the heterogeneity factor of the study population is considered important for the current study. A population that is highly diverse concerning the subject of study requires a larger sample size. For example, the topic of the current study, factors that cost energy and factors that provide energy, at work and home, will be approached differently by women than by men. For example, female GPs may see more children at their consultation hours than male GPs and male GPs may be asked for forensic tasks more often than female GPs. Likewise, solo GPs will be confronted with management tasks more often than, for example, GPs who work in a group practice. If the group of female GPs and the

group of solo-working GPs are overrepresented in the sample, a distortion of the study results may occur, for example, other factors will emerge that provide energy (children in consultation hours) and more factors that cost energy such as management tasks. The current study has in its sample three female GPs out of eight participants and there are two solo working GPs out of eight participants, in other words, homogeneity is not present and may be an issue regarding the sample size ($n = 8$). We can conclude that the sample size of eight in the present study is not optimal.

Saturation

If a researcher remains true to the principles of qualitative research, the sample size will follow the concept of saturation in most cases. Saturation is the situation in which new data no longer sheds light on the issue under investigation (Glaser & Strauss, 1967; Mason, 2010). Several types of saturation are known (Saunders et al., 2017). In the current study, the Data Saturation type was chosen because this type reflects the repetition of what was already known from previous data (Saunders et al., 2017). No new insights into the various themes or indications of new emerging themes occurred. The collection of new data was therefore stopped. The point of data saturation was reached in eight interviews.

Procedure

Interviewing participants and analyzing the interviews took place between September 2016 and September 2017. All participants were fully informed about the scope and purpose of the research project, and pseudonymity, and they were informed of the right to opt out at any stage of the research. The interviews were audiotaped, transcribed and translated into English. After analysis of the eight interviews, no new items emerged. The results were considered saturated and further sampling of participants was stopped.

Data collection

The interviews were semi-structured according to the following protocol. Each participant was asked four basic questions, covering the work and non-work domains. Example questions are: “What costs you energy in practice?”, “What gives you energy in practice?”, “What gives you energy, at home, in your spare time?” and “How much energy do you spend at home?”

The duration of the eight interviews ranged from 33 minutes to 48 minutes with an average duration of 40 minutes (see Table 1). After the eight interviews were analyzed, no new factors emerged; therefore, the results were considered saturated and further sampling of participants was stopped.

Analysis strategy and quality criteria

Analysis Strategy

Audio-taped interviews were transcribed, translated into English, loaded into NVivo11 (Nvivo, 2012), and analyzed using Template Analysis (Crabtree & Miller, 1999; King, 1998).

Step 1: A priori categories

Template analysis allows the use of a priori themes, based on theoretical, empirical and practical insights (King, 2012). A priori themes can be employed in a variety of scenarios, such as when the focus of a study is on specific elements or when the significance of a problem in connection to the research topic has already been established (King & Brooks, 2017). The application of the a priori framework in the current study is based on the literature and the assumption that factors related to work and private life that cost energy and that yield energy are significantly related to the development of burnout (e.g. Verhavert et al., 2020). The literature, especially the literature on burnout, also uses the terminology job demands, job resources, personal demands and personal resources. For example, job demands and job resources are defined as factors that require sustained mental or physical effort, and as factors that reduce job demands, with associated physiological and psychological costs (Demerouti et al., 2001). This indicates a crucial relationship between the a priori factors we defined and the JD-R model of burnout (Demerouti et al., 2001). Nevertheless, and perhaps unnecessarily, it should be mentioned that it was expressly not the purpose of this study to investigate this link between energy-consuming factors and energy-yielding factors and burnout. The aim of this

study was primarily to identify occupation-specific factors. The a priori categories make the method very suitable for the current study.

Step 2: Constructing the initial template

The template analysis method involves the construction of an initial template of codes representing themes. Although after an initial round of analysis, a priori themes could have been removed from the initial template, this did not happen. This was not expected because the initial template contained four main categories, namely factors that cost energy and factors that yield energy in the work domain and the home domain, which were also addressed in each interview according to the semi-structured interview protocol. Moreover, the four main categories also appeared in every interview transcript, with three exceptions, hence. The initial template was based on the four a priori categories, factors that cost energy and factors that yield energy, in both the work domain and the private domain, and was further developed utilizing data from the first two interviews. During the analysis, the initial template was subjected to several transformations, coding categories were deleted, others were revised, and others emerged from the data during iterative reading and interpreting the transcripts. For example, the emerging theme WHI was introduced. Another example concerns the main category of factors that cost energy in practice under which the second-level category of out-of-hours services was introduced based on the data, which was no surprise since it is generally assumed that most GPs are not fans of out-of-hours services. A surprise, however, related to the main category of factors that generate energy in practice, under which the second-level category of out-of-hours services was introduced. This GP colleague enjoyed the services. However, at a later stage, just before the final template, this subcategory was removed because it turned out to be a non-viable category according to the Borgen principle (Borgen & Amundson, 1984). During the analysis of the transcripts, the idea gradually emerged that an interaction could exist between the factors that cost and yield energy in the work domain and factors that cost energy and yield energy in the private domain. This hypothesized interaction was included as an emergent theme in the analyses of the transcripts. This emerging theme was indicated as the fifth main category with work-home interaction (see Table 3).

Step 3: Creating the final template (Borgen principle)

Before constructing the final template, the data was subjected to the Borgen principle, meaning that the standard of category viability was set to a minimum number of 25% of

the participants in that category (Borgen & Amundson, 1984). If the viability of a category is questionable, the items in question should be placed in a different, existing category. Alternatively, it can be investigated whether a new category can be created that includes the smaller ones (Borgen & Amundson, 1984).

Notably, this process may imply a remarkable reduction of the data. For spatial reasons, only the final template is presented in Table 3. A complete overview of the preceding templates, which is an overview of the entire hierarchical coding system, including second and third-level subcategories, is given in Table 5, Appendix 3.1 of this study.

Additional analysis

A respectable number of occupation-specific job demands, occupation-specific job resources, personal life demands and personal resources could be presented as the result of this study. Nevertheless, the sight of the large number of numbers in the extensive final template prompted reflection on whether the current results were all there were and whether the numbers might have more to say. Therefore, in an ultimate attempt to extract as much information as possible from the final template, some additional quantitative analyses were performed. The final template (Table 3) indicates very different score counts for the different GPs. For example, in Table 3, in the row of the main category factors related to work that costs energy, GP A scores 20 and GP H scores 1. The counts in the main category represent the sum of the counts of the underlying second-level subcategories: management tasks, out-of-hours services, direct patient care and work pressure. The other main categories in Table 3 also show variations in the counts of the different GPs. To indicate whether there are systematic differences in counts, additional analyses were carried out on the counts in the main categories of job demands, job resources, personal life demands, personal resources and the emergent category of negative work-home interference (negative WHI). Also, the row of total counts, the bottom row in Table 3, was subjected to additional analysis. The usual test for the analysis of categorical variables is the non-parametric Chi-square test. Because a substantial number of counts in Table 3 have the value zero, the condition that the minimum cell count must be five is not met. Therefore, the Fisher exact test was chosen as an alternative (Freeman & Julious, 2007).

Limited realism, a philosophical position taken in this study, is associated with a realist ontology and a constructivist epistemology. Limited realists believe that the world has a reality beyond human constructions of reality. However, our understanding of reality is limited by our

position in that reality. Limited realists therefore take a position that defends that the analytical process can never be completely free from subjectivity and they therefore do not claim objectivity. Nonetheless, this statement can never absolve a researcher from the obligation to ensure that potentially new knowledge is freed from inconsistencies as much as possible. In line with this responsibility, the additional analyses described above have been carried out.

Quality

The goal of (social) scientific research is to create scientific knowledge, a set of laws and theories intended to explain a phenomenon or behavior (Battacherjee, 2012). This knowledge can be used to expand existing knowledge or solve a social or organizational problem. The condition is that knowledge is obtained through a scientific method (Battacherjee, 2012). The coherence and mutual influence of the research question, the research paradigm and its philosophical determinants, epistemology and ontology and the research network and methods are shown in Figure 1 (Bergman et al., 2012). It is clear from this figure that research design and methods form the basis of scientific knowledge. However, the evaluation methods of quantitative scientific research and qualitative scientific research differ considerably.

The quality of quantitative research is determined by its internal validity, external validity, reliability and objectivity (Frambach et al., 2013; Whitemore et al., 2001). However, the quality criteria used for quantitative research are not considered appropriate for assessing the quality of qualitative research, because quantitative research focuses on 'hard', objective numbers with an explicit meaning and qualitative research focuses on 'soft', subjective text with an implicit meaning (Guba & Lincoln, 1994). Over the years, a debate has been going on in the literature about the explicitation of quality criteria for qualitative research (Whittemore, 2001). The discussion about terminology and the comparability of quality criteria for quantitative research with quality criteria for qualitative research is sometimes not easy to understand. Nevertheless, a transparent overview of four quality criteria for qualitative research, credibility, transferability, dependability and confirmability, is available at Frambach et al. (2013).

Credibility refers to the extent to which the research results are trustworthy to others. Credibility can be enhanced by using multiple data sources, collecting data for a prolonged period of time and asking for feedback from participants.

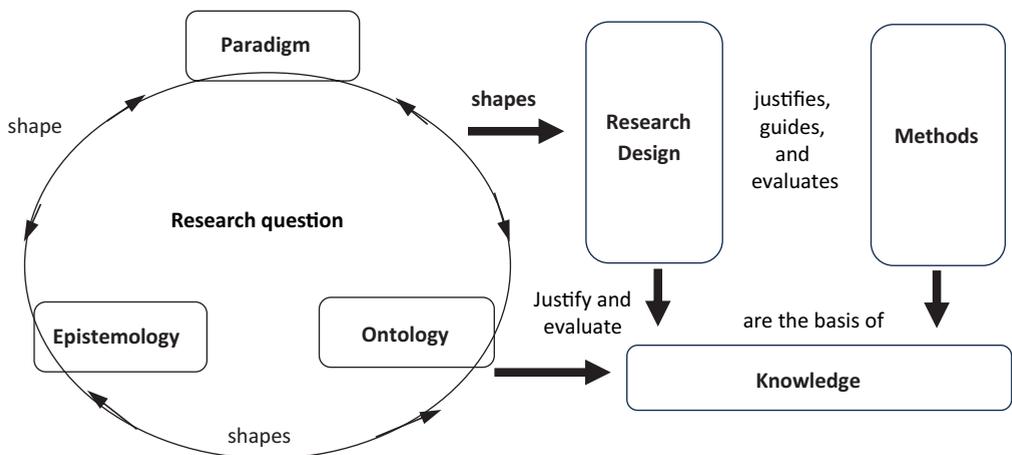
Transferability is the degree to which the results can be applied to various contexts. By using a thick description, explaining the sampling strategy and discussing the findings compared with existing literature, transferability can be enhanced.

Dependability is the degree to which the results are consistent with the setting in which they were produced. Strategies that increase dependability include correctly applying saturation and reflexivity.

Confirmability refers to the extent to which the findings are based on the participants in the study and not on researcher bias. Confirmability can be secured by rigorous reflexivity and by documenting steps and decisions (Frambach et al., 2013; Korstjens & Moser, 2018).

Figure 1

The philosophical basis of knowledge



Source: (Bergman et al., 2012, p.545)

Results

The final template is the starting point for presenting our results (see Table 3). Please note the full coding system incorporated in the preceding templates and represented in Table 3, Appendix 3.1. According to the process of template analysis, the creation of the final template provides a means of representing the results, although in a rudimentary form (Brooks et al., 2015; King & Brooks, 2017). The categories and number of quotes in Table 3 offer an impression of the relative importance of the different categories. A **detailed description of the final template follows, illustrated with quotations** from the interviews. We have chosen the most memorable and appealing quotes, contributing to the credibility of the results (Guba & Lincoln, 1994; King & Brooks, 2017). We describe five main categories: factors related to work that cost energy, factors related to work that generate energy, factors related to private life that cost energy, factors related to private life that generate energy and the emergent theme of negative WHI. Of these main categories, the most important subcategories are illustrated with an appealing quote.

Table 3

The final template for each GP, including category counts and marginal totals

Work domain	GP A	GP B	GP C	GP D	GP E	GP F	GP G	GP H	Total
Factors related to work that cost energy	20	7	12	17	22	6	12	1	97
Management tasks	16	0	7	12	17	3	11	0	66
Out-of-hours services	1	0	1	5	2	0	0	0	9
Direct patient care	0	0	4	0	1	3	1	1	10
Work pressure	3	7	0	0	2	0	0	0	12
Factors related to work that generate energy	14	5	10	4	4	8	10	16	71
Autonomy	1	0	0	0	0	1	0	0	2
Direct patient care	0	0	3	0	1	0	1	4	9
Out-of-hours services	0	1	0	0	0	1	1	0	3
Professional side activities	0	0	1	2	1	3	2	4	13
Relationships with patients	0	4	2	1	0	3	2	0	12
Craftsmanship	13	0	4	1	2	0	4	8	32
Non-work domain									
Factors related to private life that cost energy	1	2	0	3	1	1	1	0	9
Combi work-children	1	2	0	0	1	0	1	0	5
Divorce	0	0	0	3	0	1	0	0	4
Factors related to private life that generate energy	4	4	0	3	0	6	4	2	23
Family	0	2	0	0	0	0	2	0	4
Personal hobbies	3	1	0	3	0	5	2	1	15
Having a relationship	1	1	0	0	0	1	0	1	4
Emergent themes	1	9	4	1	1	4	3	2	25
Work-home interference	1	9	4	1	1	4	3	2	25
Total	40	27	26	28	28	25	30	21	225

Factors that cost energy in the work domain

The job demands were subdivided into four second-level subcategories: management tasks, out-of-hours services, direct patient care, and work pressure. All participating GPs responded in this main category. With a total of 97 quotes, this category was the most frequently mentioned. Of the job demands, the subcategory management tasks with 66 quotes were the most frequently mentioned subcategory. The subcategory out-of-hours services scored 9 quotes, the subcategory direct patient care scored 10 quotes, and the subcategory work pressure scored 12 quotes.

Management tasks

“Management” is an umbrella term for many different tasks, which, in the current study, have been identified as administration (accountant, contracts, financial administration), information technology, forms, external relationships, colleagues, collaboration, health insurers, business relationships, and personnel. This particular job demand was given the most attention by all participants. Of eight participating GPs, six responded in this subcategory.

Administration (accountant, financial administration, contracts)

“Well what cost me a lot of energy is particularly administration and uh what cost me too much energy is uh the endless many consultative structures” (participant GP F)

Information technology

“I am annoyed about it but I’ve noticed just that there remain things because, just besides what I do, I really cannot muster the energy for it, quite a simple example: I’m still not registered with the LSP. I do have all the forms and so forth, but I still have to authorize all those UZI passes and allocate tasks eh and so on and start the whole thing so that the LSP well that for example, is something I actually do not have the energy for but of which I know it must be done; there is a wonderful scanner there in the back office that I really have to connect for my accountant, and then I think to myself, why don’t you fucking come to connect it yourself? Just as an IT did eh you know but that’s eh,” (participant GP A)

Note: The National Switching Point (LSP) is an electronic healthcare infrastructure intended to share medical data with various healthcare providers, such as GPs, medical specialists and pharmacists.

External relationships

External relations comprise a wide range of relationships, for example, with other GPs, specialists, paramedics, public health authorities, health insurance companies, psychologists, physiotherapists, home nurses, and pharmacists. Some relations are *ad hoc*, but most require structural consultations, which, in turn, consume much time and energy.

“I, of course, do have feelings of powerlessness about all regulations, all automation requirements and all others who are involved in the practice management without being able to exercise control over them ... take a care group, take, for example, the obligation of all kinds of compulsory and complicated consultations to conduct with the pharmacist by order of the inspection to public health” (participant GP A)

Colleagues and collaboration

“and uh collaboration was mostly limited to the minimum while I think there are lots of opportunities for collaboration and uh, I remember when I applied here, where I came from, the colleagues were very progressive and there we did a lot in terms of collaboration and that it was one of the reasons why they wanted me here but when you do all kinds of proposals for collaboration then the heels went in the sand and nothing happened, every man for himself and every man his own kingdom; that has been a great disappointment to me through the years”(participant GP D)

Health insurers

“And health insurers too cost me too much energy but it will be well-known, I think, constant bickering and bargaining and uh yes you know that it is money controlled, and I think that, yes, it also takes a lot of energy ... the insurance companies are money-driven, they are not quality controlled”(participant GP C)

Business relationships

“and um, I, of course, I do have feelings of powerlessness about all regulations, all IT requirements and all others who are involved in the practice management without being able to exercise control over it”(participant GP A)

Personnel

“Bullshit, bullshit takes energy ... things you think of eh what's this about? Hey, uh assistants serving each other's throats because the one who made a wrong note with respect to the other and the other that runs away whining and then again it must be bonded and then now you know have to do and then you think again what exactly is this about well you know, that's an example eh yes right.” (participant GP E)

Factors that generate energy in the work domain

Surprisingly, a wide variety of coping strategies was identified, each providing energy to a greater or lesser extent. All participating GPs responded in this main category with 71 quotes. Autonomy scored two quotes, direct patient care scored 9 quotes, out-of-hours services scored three quotes, professional side activities scored 13 quotes, relationships with patients scored 12 quotes, and, finally, yet importantly, evidently the most important subcategory, craftsmanship scored 32 quotes.

Craftsmanship

This category may be subdivided into good conversation, good diagnosis, and (professional) sixth sense. Of eight participating GPs, six responded in this subcategory with 32 quotes.

Good conversation

“If a patient walks out the door very satisfied, pleasant conversation and looks at you in some particular way and that you feel that the patient is very grateful so thank you doctor, and they walk away really happy ... yes, I think that that gives most satisfaction yes” (participant GP H)

Correct diagnosis and sixth sense feeling

“And eh yes, that could give me energy and also not the heroism of the job or as though I once made a beautiful diagnosis for diagnosing I have never actually considered as a priority, I’m more of a fluff and non-fluff doctor ... it also gives me a feeling of success and that gives you energy” (participant GP G)

Factors that cost energy in the home domain

This main category was subdivided into two second-level themes: combi work-children and divorce. Of eight participating GPs, six responded in this category with nine quotes. The subcategory combi work-children scored five quotes, and the subcategory divorce scored four quotes.

Combination work-children

“Yes, I would find it extremely restless when you are on tenterhooks about your consulting and uh because you know that in the meantime the child is almost crying at the school gate, which I would find a very unpleasant feeling” (participant GP B)

Divorce

“I’ve two failed marriages behind me, and that takes a lot of energy,” (participant GP D)

Factors that generate energy in the home domain

This main category was subdivided into three second-level themes: family, personal hobbies, and having a relationship (Scheier, 1985). Of eight participating GPs, six responded in this category with 23 quotes. The subcategory family scored 4 quotes, having a relationship scored four quotes, and the most important subcategory, personal hobbies, scored 15 quotes.

Personal hobbies

Personal hobbies are a subcategory of personal resources and include singing in a choir, walking, bicycle racing and sailing. Of 8 participating GPs, 6 responded in this subcategory with 15 quotes.

Additional analysis

The confidence level or significance level (α) represents the maximum chance that the null hypothesis (H_0) is incorrectly rejected (type I error) (Altman, 1990). The p -value, or exceedance probability, of a given sample result, is the probability that in the distribution given by H_0 , the value of the test statistic observed in the sample is achieved or exceeded (Altman, 1990). A high p -value ($> .05$) therefore indicates that the sample result is observed in the distribution under H_0 . In the current study, a p -value $> .05$ means that H_0 is not rejected, the differences found in a series are considered to be coincidental. Differences do not exist in reality. A low p -value, $\leq .05$, means that H_0 is rejected. Differences in a series are not considered coincidental. Differences exist in reality. The test results of the Fischer exact test, applied to the final template (Table 3), are shown in Table 4. The significance of the test results is discussed under Future Research in the Discussion section.

Table 4*Additional analyses results*

Main Category	Count series	Fisher exact test <i>p</i> -value	H ₀	Remarks
Job demands	(20,7,12,17,22,6,12,1)	<i>P</i> =< .001	reject	differences assumed
Job Resources	(14,5,10,4,4,8,10,16)	<i>P</i> = .02	reject	differences assumed
Personal life demands	(1,2,0,3,1,1,1,0)	<i>P</i> = .52	don't reject	differences not assumed
Personal resources	(4,4,0,3,0,6,4,2)	<i>P</i> = .15	don't reject	differences not assumed
WHI	(1,9,4,1,1,4,3,2)	<i>P</i> = .02	reject	differences assumed
Total all categories	(40,27,26,28,28,25,30,21)	<i>P</i> = .38	don't reject	differences not assumed

Discussion

Research on burnout among GPs, a major organizational and societal problem, commonly uses the JD-R model with generic job demands and resources. This course of action ignores the added value of job-specific job demands and job resources. Occupation-specific job characteristics (job demands and resources) focus specifically on the working environment of the profession in question, general practice. This provides a better insight into the factors influencing the emergence of burnout.

The research question of the current study is, therefore, *“What energy-consuming factors (demands) and mitigating factors (resources) can be identified within the work and home domains of Dutch GPs?”*

The primacy of the work domain over the home domain is striking, given the large differences in the number of quotes. Furthermore, prominent findings are the high scores of several citations of the occupation-specific job demands, management tasks, and the occupation-specific job resource, craftsmanship. These findings, while striking, are unsurprising. Based on the many publications in the lay press and based on the author's experiences as a practicing GP, these are expected findings because they were already intuitively known. Contrary to expectations, “out-of-hours services” are valued not only as a job demand, which is traditionally the case but also as a work resource. This finding could be explained by the assessment theory of Lazarus (1998), which states that differences in appraisal can be explained by factors of upbringing and personality. Nevertheless, introducing negative WHI as an emergent theme has yielded interesting results because it emerges as a meaningful concept, even stronger than personal demands and resources. This finding implies that not only the sole presence of the work or home domain but especially the interaction between these two domains, negative WHI is important.

Future research

In the current study, a constructivist epistemology was taken as a starting point for a qualitative phenomenological methodology in which the researcher's attention focuses on the individual experiences of the respondents. However, any differences in the number of codings require a quantitative approach from an empirical analytical epistemology, for example, relative objectivism. This quantitative approach aims to investigate whether systematic differences are present in the data that could indicate inconsistencies among respondents. A main aim of the

study was the preparation of a questionnaire that required a phenomenological approach. This quantitative side track is of secondary importance and the added value of the additional analyses is considered limited, but could nevertheless contribute to the trustworthiness (via credibility) and therefore the quality of the study.

The additional analyses of the final template, the results of which are summarized in Table 4, show interesting findings. Three null hypotheses, about job demands, job resources and WHI, were rejected, in favor of the alternative hypothesis that differences in counts are real. The significance of these findings is speculative and could receive renewed attention in future research. The presence of differences in counts in the main category job demands is partly explained by the high score of GP A (20) and the low score of GP H (1). This could mean that GP H experiences less stress than GP A. Furthermore, the differences in counts in the main category job resources show that GP H scores high (16), which could mean that GP H is better able to mobilize adequate resources, which is in line with the previous suggestion that this GP H might experience less stress.

Furthermore, it is striking that many zeros can be observed throughout the final template in Table 3. This could indicate that the GPs in question are less talkative and therefore provide less useful hints in the interviews, which could influence the results of the study. The null hypothesis, that no differences exist in the total counts of the different GPs, is not rejected, meaning there are no systematic differences. From this point of view, it can be concluded that bias of the study results by less talkative participants is not likely.

The findings in this study have several similarities with the Van Ham (2006) study. From the perspective of job satisfaction, she unraveled the work and life of Dutch GPs and found six factors influencing the job satisfaction of Dutch GPs. These six factors are named: cooperation with and relationships with other workers, external working conditions, general aspects of the job, out-of-hours services, time available for work and home activities, and financial aspects of the job. Based on these factors, a reasonable number of detailed characteristics of the work and home domains were derived and tested with a questionnaire survey. The study by Van Ham (2006) focuses on job satisfaction and not, like the current study, on burnout. However, job satisfaction is considered a predictor of burnout (Akman et al., 2016; Hayes et al., 2015).

Nevertheless, she identified many detailed work and home characteristics which partly overlap with the findings of the current study. The difference between the Van Ham (2006) study and the current study is that Van Ham (2006) mainly used literature on job satisfaction in the general working population, while the current study is based on an in-depth interview

approach to GPs. We conclude that despite the different methodologies, the results of both studies are comparable. Specifically, the study by Van Ham (2006) adds to the credibility of the current study.

A prominent strength of the current study is that it demonstrates GPs' actions in their consulting rooms. The respondents' reliability during the interviews can be determined by their authenticity, as perceived by the interviewer (Thiel, 1970). The frankness of all the GPs concerning professional and private matters discussed was evident during the interviews. Specifically, we observed optimal authenticity, reinforcing the credibility of this study's results. Although a strength of this study is that the interviewer and interviewees are equal because the interviewer is a practicing GP and can therefore competently assess the interviewees' authenticity, this aspect can also be a weakness. Indeed, the equivalence of interviewer and interviewees led to frequent and intensive self-reflection by the interviewer to ensure the objectivity of the study.

A possible limitation of the current study may be the small sample size of the participating GPs, which may undermine reliability, particularly dependability. However, it is illogical to continue collecting data when no new aspects emerge, that is, when saturation has occurred. Both the work characteristics (job demands and job resources) of GPs and the interaction between the work and private domains (negative WHI) offer valuable contributions to knowledge about the development of burnout among GPs for future explanatory research.

The current study provides a differentiated representation of the work of GPs, particularly those occupational aspects of GPs' work that can contribute to the development of burnout complaints (demands) or, conversely, attenuate their development (resources). Moreover, the study enhances the ecological validity by identifying a large number of occupation-specific work characteristics and delivers a theoretical contribution to the knowledge of the socially important GP profession. This theoretical contribution, particularly the occupation-specific job demand management tasks and the occupation-specific job resource craftsmanship may show important predictors of burnout among GPs for future quantitative explanatory research. We also recommend focusing on the negative WHI in future research because the current study suggests that this interesting concept, positioned in the border area between the work and home domains, maybe a relevant predictor of burnout.

Conclusion

In conclusion, the following can be stated. We started the current study based on the research question *What energy-consuming factors (demands) and mitigating factors (resources) can be identified within the work and home domains of Dutch GPs?*, and based on the assumption that more knowledge would lead to a better understanding of the development of burnout among GPs. This improved understanding can be used to develop more targeted therapeutic and preventive procedures. In the present study, we identified a substantial number of factors from the work and private domains of GPs as well as the border area between these two domains (negative WHI), which can lead to burnout (demands) or prevent burnout (resources). These outcomes may be utilized as input for a future quantitative study employing occupation-specific job demands and occupation-specific job resources as an object of study. Since burnout is a growing problem, we made a theoretical contribution to the burnout literature with this study to manage the problem of burnout.

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Appendix 3.1

Table 5

Hierarchical Coding Structure

Main Category	Second-level subcategory	Third-level subcategory
1 Factors related to work that cost energy	1.1 Management tasks	1.1.1 Administration (accountancy, contracts, financial administration)
		1.1.2 Information technology
		1.1.3 Forms
		1.1.4 External relationships
		1.1.5 Colleagues
		1.1.6 Collaboration
		1.1.7 Health insurers
		1.1.8 Business relationships
		1.1.9 Personnel
2 Factors related to work that generate energy	1.2 Out-of-hours services	
	1.3 Direct patient care	
	1.4 Work pressure	
	2.1 Autonomy	
	2.2 Direct patient care	
	2.3 Out-of-hours services	
3 Factors related to private life that cost energy	2.4 Professional side activities	
	2.5 Relationship with patient	
	2.6 Craftsmanship	2.6.1 Good conversation
		2.6.2 Professional sixth sense
	3.1 Combination work-children	
	3.2 Divorce	
4 Factors related to private life that generate energy	4.1 Family	
	4.2 Personal hobbies	
	4.3 Private relationship	
5 Emergent themes	5.1 Work-home interference	



Chapter 4

Relationship between generic and occupation-specific job demands and resources, negative work-home interference and burnout among GPs

This chapter is based on:

Verhoef, N., De Ruiter, M., Blomme, R., & Curfs, E. (2021). Relationship between generic and occupation-specific job demands and resources, negative work-home interference and burnout among GPs. *Journal of Management & Organization*, 1-29. doi:10.1017/jmo.2021.16

Abstract

Scholars often examine the effect of generic job demands and resources on burnout. However, to increase ecological validity, it is important to also examine the effects of occupation-specific characteristics. An extended version of the job demands-resources model with work-home interference as a mediator is examined among a cross-sectional sample of 178 general practitioners (GPs). Interviews with GPs were used to develop questions on occupation-specific work characteristics. Hypotheses were tested in MEDIATE. Both generic and occupation-specific job demands positively affected emotional exhaustion, while only occupation-specific job demands affected depersonalization. Only strain-based work-family interference mediated the relationship between generic and occupation-specific job demands, emotional exhaustion and depersonalization. This study offers an important extension of the job demands-resources model by including occupation-specific job characteristics. This broader perspective can aid in more targeted job design to reduce burnout among GPs.

Introduction

Scholars often examine the effect of generic job demands on burnout. However, professionals also experience demands specific to their occupation (Brough & Biggs, 2015; De Croon et al., 2002; Sundin et al., 2011). To increase the ecological validity of a study, it is therefore important to also examine the effects of occupation-specific demands and resources (Brough & Biggs, 2015). For example, a study among correctional workers showed that generic demands were associated with engagement, while occupation-specific demands were associated with both engagement and psychological strain (Brough & Biggs, 2015). Moreover, Sundin et al. (2011) found that one of four occupation-specific demands is linked to emotional exhaustion among nurses. Though not all occupation-specific demands are related to well-being, studies point to an important role of at least some occupation-specific demands. Several studies (Abrahams et al., 2013; Kushnir et al., 2013; Torppa et al., 2015) examined the antecedents of burnout among general practitioners (GPs).

However, while these studies examined the role of generic job characteristics, such as work pressure (demand) and job control (resource), they generally failed to consider the role of occupation-specific job demands and resources (an exception includes Bakker et al. (2000). Although Bakker et al. (2000) found that demanding patients (a GP-specific job demand) are connected to emotional exhaustion through perceptions of a lack of reciprocity, they did not examine the effects of both occupation-specific and generic demands. Therefore, by excluding either occupation-specific or generic demands and resources, important information is overlooked. To effectively reduce burnout, it is important to examine what type of demands (occupation-specific or generic) play a particularly important role. In the present study, these relationships are examined through an extended version of the job demands-resources (JD-R) model, which includes both generic and occupation-specific characteristics. To better understand why generic and occupation-specific work characteristics affect burnout, this study examines the mediating role of strain-based and time-based negative work-home interference (WHI).

Several changes have taken place in the past 50 years that have contributed to major changes in the work and home domain (Barnett, 2005; Kossek et al., 2011). First, coinciding with economic globalization, the nature of work has changed, particularly in emotionally and mentally demanding jobs (Guest, 2002). Economic globalization is defined by commodity markets, labor markets and capital markets (International Labor Organization, 2016; Schaufeli

& Taris, 2005). It includes cross-border mobility of goods, services, capital and labor (Korpi & Tåhlin, 2011). However, as the economy becomes global, competition increases in the battle for market shares and survival. Simultaneously two processes are set in motion by globalization, that is downsizing and restructuring of work with increasing pressure on workers (Hoel et al., 2001). Moreover, pressures of work have been intensifying due to factors such as advances in information technology and information load, the need for speed of response, the importance of quality of customer service and the pace of change. These all demand our time and can be sources of pressure (Guest, 2002; Singh & Kumar, 2011). Second, a growing number of women have joined the workforce (Fernández & Wong, 2014; Kossek et al., 2011; Thijs et al., 2019) which is also the case among GPs (Van Der Velden & Batenburg, 2017). In 2006, approximately one-third of GPs in the Netherlands were female compared to approximately 50% in 2016 (Van Der Velden & Batenburg, 2017). Therefore, balancing work and home life has become an increasingly difficult and growing challenge (Kossek et al., 2011; Mcnall et al., 2010; Michel et al., 2011). When the work and home domain pressures are mutually incompatible, negative WHI occurs (Amstad et al., 2011; Bellavia & Frone, 2005). Responding to recent calls for research (e.g. Bakker et al., 2011), this study distinguishes between time-based and strain-based negative WHI (Derks et al., 2015; Greenhaus & Beutell, 1985). Time-based interference occurs when time devoted to one domain makes it difficult to fulfil the other domain's expectations. Strain-based interference is experienced when fatigue or strain produced in one domain affects a person's performance in the other domain (Greenhaus & Beutell, 1985). It is essential to make this distinction as 'time' and 'strain' are fundamentally different entities that 'are statistically distinct and demonstrate specific relations with antecedents and outcomes' (Van Steenbergen et al., 2007, p. 280). Although negative WHI is a significant predictor of burnout (Derks & Bakker, 2014; Koekemoer & Mostert, 2006; Linzer et al., 2001), it is unclear whether strain or time-based negative WHI is more critical in the development of burnout.

This study aims to make several significant contributions to the literature. First, by focusing on both generic and occupation-specific demands and resources, this study aims to enhance the JD-R model's ecological validity. Moreover, by including occupation-specific demands, this study aims to enhance the understanding of the types of demands that play the most crucial role in developing burnout among GPs. In addition, we aim to enhance the understanding of the role of negative WHI by considering time and strain-based negative WHI as separate constructs. By examining their roles separately, we hope to gain a better understanding of the type of WHI that is most prominent in the development of burnout among GPs.

Theoretical background

Burnout

Burnout refers to a psychological syndrome originally characterized by the trias of emotional exhaustion, depersonalization and reduced personal accomplishment (Maslach et al., 2001). Emotional exhaustion refers to feelings of exhaustion from the demands of the job (Maslach & Leiter, 2016).

Depersonalization refers to a negative detachment from work (Maslach & Leiter, 2016). Reduced personal accomplishment refers to the self-evaluation of no longer being effective in fulfilling the responsibilities belonging to the job (Freudenberger & Richelson, 1980). Over the years, there has been much debate about the main components of burnout (Kristensen et al., 2005; Schaufeli & Taris, 2005). While some argue for a three-dimensional structure (Cropanzano et al., 2003; Green et al., 1991; Lee & Ashforth, 1996; West et al., 2018), others propose there are two main dimensions (emotional exhaustion and depersonalization) that are much stronger correlated with each other than with reduced personal accomplishment (Lee & Ashforth, 1996). Moreover, it is argued that reduced personal accomplishment more closely resembles an individual difference characteristic than a burnout component (Cordes & Dougherty, 1993; Shirom, 2003). In the present study, burnout is composed of two main components, emotional exhaustion and depersonalization.

The JD-R framework can be used to identify the causes of burnout. JD-R theory was first introduced in the scientific literature in 2001 (Demerouti et al., 2001) and owes its popularity to its flexibility (Schaufeli & Taris, 2014). The JD-R model's central assumption is that each occupation is associated with two broad types of work characteristics, demands and resources. It is an overarching model which can be applied to many occupations including that of GPs. Job demands are defined as aspects of the work that require sustained physical or cognitive effort (Demerouti et al., 2001). Resources are defined as those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for the attainment of these objects, personal characteristics, conditions, or energies (Hobfoll, 1989). Concerning burnout, the JD-R model postulates that job demands from which employees do not adequately recover may lead to sustained activation of the autonomic nervous system resulting in negatively valued health problems such as burnout, depression and cardiovascular diseases (Melamed et al., 2006). In a meta-analytic study, Crawford et al. (2010) showed that while job demands are positively linked to burnout, job resources negatively affect burnout. The JD-R

model is descriptive. Although it specifies the relationships between demands, resources and burnout, it does not provide an underlying psychological explanation (Schaufeli & Taris, 2014). Therefore, scholars use other theories to help explain why demands are positively related to burnout, while resources negatively affect burnout. In the following sections, we draw from Hobfoll's (1989) conservation of resources theory (COR) and physiological stress theory (Selye, 1950) to explain the expected relationships between demands, resources, and burnout.

Job demands and burnout

According to existing research, GPs are confronted with generic demands such as high workload (Van Den Berg et al., 2009; Zantinge et al., 2005) and mental pressure (Croxon et al., 2017; Iacobucci, 2014). In addition, there are several demands related to the GP's specific occupation that require sustained effort. Traditionally, stressors or job demands among GPs are related to the emotionally charged relationship with patients (Dierendonck et al., 1994). The demanding nature of the doctor-patient relationship has been regarded as a root cause of burnout (Maslach, 1978). Repeated confrontation with demanding patients over a prolonged period of time causes perceptions of inequity or lack of reciprocity, depleting emotional resources and initiating the onset of burnout (Bakker et al., 2000).

Although Bakker et al. (2000) investigated the relationship between demanding patients and emotional exhaustion, this is likely only a limited demanding aspect of the GP's work. Van Ham (2006) presented several occupation-specific characteristics, such as out-of-hours services or locum (locum tenens physician) that are also likely to affect burnout. However, such characteristics have not been examined in relation to burnout among GPs.

The expected relationship between job demands, depersonalization and emotional exhaustion will be explained, drawing from physiological stress theory. The general adaptation syndrome (GAS) consists of three phases, the alarm phase, the resistance phase, and the exhaustion phase. Noxious agents invoke this syndrome, later called stress (Selye, 1936). After the initial alarm phase, the organism in the resistance phase reacts by increased glucocorticoid production due to intensifying the systemic response. If the stressor persists, the chemical resources will gradually deplete (Fink, 2017; Selye, 1950a). Depleting resources leads to the final phase of recovery or exhaustion. When the bodily compensation mechanisms have successfully overcome the stressor effect, homeostasis or recovery will occur. However, if the stressor persists and compensation mechanisms fail, bodily biochemical resources will become depleted. Whilst unable to function normally, the body will react with serious illnesses, such as angina pectoris,

clinical depression and other mental illnesses (Fink, 2017; Selye, 1950; Shirom et al., 2005). While stress refers to the organism's response to noxious agents or stressors, and psychological stress refers to the emotional and physiological reactions experienced when an individual is confronted with a situation in which the demands go beyond their coping resources (Folkman, 2013). Occupational stress, in turn, is psychological stress related to one's job. It stems from pressures that do not align with knowledge, skills, or expectations (Barron, 2019). Although it is essential to consider individual differences in personality and coping skills, evidence suggests that certain working conditions are stressful to most people (Paoli & Merllié, 2005). Examples of these stressful working conditions are workload (Katz & Kahn, 1978), long hours, status, economic factors, bullying (Colligan & Higgins, 2006), narcissism and psychopathology (Boddy, 2011), workplace conflicts (Keenan & Newton, 1985), sexual harassment (Gyllensten & Palmer, 2005) and occupational groups. Stressful working conditions can lead to three types of strain, behavioural (withdrawal behaviour such as absenteeism and poor performance), physical (e.g. headaches and fatigue) and psychological strain (e.g. anxiety or depressed mood) (Burns et al., 2016). If exposure to stressors in the workplace is prolonged, chronic health problems may occur, including cardiovascular diseases and burnout (Naghieh et al., 2015; Taris et al., 2001).

In summary, job stress can, in the long term, through the general adaptation system, lead to emotional exhaustion and depersonalization. Moreover, the relationship between job demands, emotional exhaustion and depersonalization is empirically well-documented (Cordes & Dougherty, 1993; Lee & Ashforth, 1996). Hence, we propose the following:

Hypothesis 1: Generic job demands are positively related to (a) emotional exhaustion and (b) depersonalization.

Hypothesis 2: GP-specific job demands are positively related to (a) emotional exhaustion and (b) depersonalization.

Job resources and burnout

Generic resources have been studied extensively in the academic literature (Schaufeli & Taris, 2014), while occupation-specific job resources have hardly received any attention (cf. Brough & Biggs, 2015). Existing work has shown that generic job resources such as social support, low job control and performance feedback are related to a wide range of withdrawal reactions such as reduced organizational commitment, turnover and alienation (Barling et

al., 2010; Buunk et al., 1998; Kahn & Byosiére, 1992). When the external environment lacks resources, individuals can no longer cope with environmental demands, such as high workload. In this situation, withdrawal from work is an important self-protection mechanism that can ultimately lead to depersonalization (Demerouti et al., 2001). These considerations and findings suggest a direct relationship between job resources and depersonalization (Crawford et al., 2010; Demerouti et al., 2001; Hobfoll, 1989; Hobfoll & Shirom, 1993; Lee & Ashforth, 1996). The direct relationship between generic job resources and emotional exhaustion and depersonalization is supported in the academic literature (Bakker et al., 2004; Demerouti et al., 2001). In the current study, we use three different generic job resources, namely, performance feedback (Hackman & Oldham, 1975), collaboration (Montgomery et al., 2015) and opportunity for personal development (Van Ruysseveldt et al., 2011).

According to COR theory, people seek to obtain, retain and protect resources, either instrumentally (e.g. shelter), socially (e.g. social support) or psychologically (e.g. self-esteem). COR theory implies that stress is a reaction to an environment in which there is a threat of loss of resources or an actual loss of resources. Even the lack of an expected gain of resources causes stress (Hobfoll, 1989; Hobfoll & Shirom, 1993). COR theory distinguishes four types of resources, namely objects (e.g. a house), conditions (e.g. social support from a colleague), personal characteristics (e.g. self-efficacy) and energy (e.g. money) (Hobfoll, 2002). Resources are those entities that either are centrally valued in their own right (e.g. self-esteem, close attachments, health and inner peace) or act as a means to obtain centrally valued ends (e.g. money, social support and credit) (Hobfoll, 2002). Resources can be derived from the organization (e.g., pay), interpersonal and social relations (e.g., supervisor and co-worker support), collaboration (Rabidoux & Rottmann, 2017; Swensen et al., 2016), organization of work (e.g., participation in decision making) and the task (e.g., performance feedback) (Bakker & Demerouti, 2007; Demerouti et al., 2001; Van Emmerik et al., 2004). Job resources may be intrinsically motivating by fostering personal growth and development or they may be extrinsically motivating because they allow employees to achieve their work goals. Thus, job resources are predicted to have a direct negative relationship with emotional exhaustion and disengagement (depersonalization) (Bakker & Demerouti, 2007; Crawford et al., 2010; Demerouti et al., 2001). Hence, the following relationships are hypothesized:

Hypothesis 3: Generic job resources are negatively related to (a) emotional exhaustion and (b) depersonalization.

Hypothesis 4: GP-specific resources are negatively related to (a) emotional exhaustion and (b) depersonalization.

The mediating role of negative work-home interference

According to Meyman's effort-recovery model (1998), high workload and developing mental or emotional strain is not necessarily unhealthy as long as there is an opportunity for recovery (Meijman & Mulder, 1998; Van Veldhoven et al., 2008). However, when limited time and limited energy resources are further depleted by concomitant high home demands (Geurts et al., 1999), serious conflict in both the work and home domain may occur. In that case, negative WHI is experienced (Greenhaus & Beutell, 1985). These conflicts may be time-based in a way that time makes it impossible to combine work and home responsibilities (e.g., working overtime and taking care of a child at the same time) (Allen et al., 2000). These conflicts may also be strain-based when strain effects build up during the working period and spill over to the home domain (Greenhaus & Beutell, 1985; Kopelman et al., 1983). Spillover is the transference of states of well-being from the work to the home domain and vice versa (Staines, 1980). Insufficient recovery from the incompatible pressures within the home and work domain is likely to result in psychological health complaints that eventually may increase and lead to emotional exhaustion when strain dominates (Demerouti et al., 2009). However, when a lack of resources dominates it is likely that in the long run, depersonalization may occur. It is expected that a positive relationship exists between negative WHI (time-based or strain-based) and emotional exhaustion and depersonalization. It is also expected that a positive relationship between job demands and negative WHI exists.

The role of negative WHI as a mediator between work-related demands and burnout has been supported empirically by a substantial number of studies (Bacharach et al., 1991; Geurts et al., 1999; Geurts et al., 2003; Janssen et al., 2004; Kinnunen & Mauno, 1998; Lingard & Francis, 2005; Lu et al., 2015; Montgomery et al., 2006; Parasuraman et al., 1996). Montgomery et al. (2006) conducted a study among Greek doctors and found that negative WHI partially mediated the relationship between job demands and emotional exhaustion and also that the relationship between emotional job demands and depersonalization was partially mediated by negative WHI. Similar results were found by Geurts et al. (1999) in a study among medical residents. Geurts et al. (1999) suggested that insufficient recovery from incompatible pressures in the work domain and the home domain (i.e. negative WHI) leads to chronic psychological

health problems (e.g., burnout). Hence, it is suggested that high job demands can lead to high negative WHI and high negative WHI, in turn, leads to burnout.

In conclusion, there is theoretical and empirical evidence for the mediating role of strain-based and time-based negative WHI between job demands and burnout. We, therefore, propose the following hypotheses:

Hypothesis 5: Time-based negative WHI mediates the relationship between generic job demands and (a) emotional exhaustion, and (b) depersonalization.

Hypothesis 6: Time-based negative WHI mediates the relationship between GP-specific job demands and (a) emotional exhaustion and (b) depersonalization.

Hypothesis 7: Strain-based negative WHI mediates the relationship between generic job demands and (a) emotional exhaustion and (b) depersonalization.

Hypothesis 8: Strain-based negative WHI mediates the relationship between GP-specific job demands and (a) emotional exhaustion and (b) depersonalization.

The relationships as described in the above hypotheses are depicted in Figure 1.

Methods

Sample and procedure

Data were collected among a sample of GPs registered in the Netherlands. At the time of data collection, 11,834 GPs were registered. Of this total number, a random sample of 900 GPs received an invitation letter in which they were asked to participate in a study on work characteristics, work-home conflict and burnout among GPs. The data were collected through an online questionnaire, which was distributed via SurveyMonkey from July to September 2017 (see Appendix 4.1). After six weeks, a reminder was sent. Immediately upon receipt of the completed survey, confidential data (name, address, email address) were separated and destroyed. The remaining data were anonymized and were stored on a USB stick in a safe.

One hundred and seventy-eight GPs responded to the questionnaire. Of the 178 respondents, 14 respondents (7.87%) did not fill in all the items of the study constructs, while 18 respondents (10.11%) did not respond to all demographic questions. The impact of missing data on quantitative research can be serious, leading to biased estimates of parameters (Newman, 2014; Rubin, 1988; Schafer, 1997), loss of information, decreased statistical power, increased standard errors (Peng et al., 2006) and weakened generalizability of findings (Schafer & Graham, 2002). Due to the relatively low level of missing data for the study constructs, the expectation-maximization (EM) algorithm for single imputation is considered appropriate for the present study (Dempster et al., 1977; Malhotra, 1987). Of the 178 respondents, 66 (37.07%) were female, 94 (52.80%) were male, while 18 (10.11%) respondents did not indicate their gender. Participants were between 31 and 70 years old, with a mean age of 50.54 years ($SD = 10.26$). One-hundred forty-four respondents (80.90%) lived together with a partner, nine (5.01%) were single, while seven respondents (3.94%) did not indicate their living situation. Thirty-nine (21.91%) respondents practiced in a solo practice, 46 (25.84%) in a duo practice, 59 (33.15%) in a group practice, while 16 (8.99%) practiced as a locum. Of those respondents that held a practice, they employed an average of 6.28 employees ($SD = 3.05$), ranging from 1 to 10 employees. The average tenure with the practice was 15.96 years ($SD = 10.33$) ranging from 1 to 37 years.

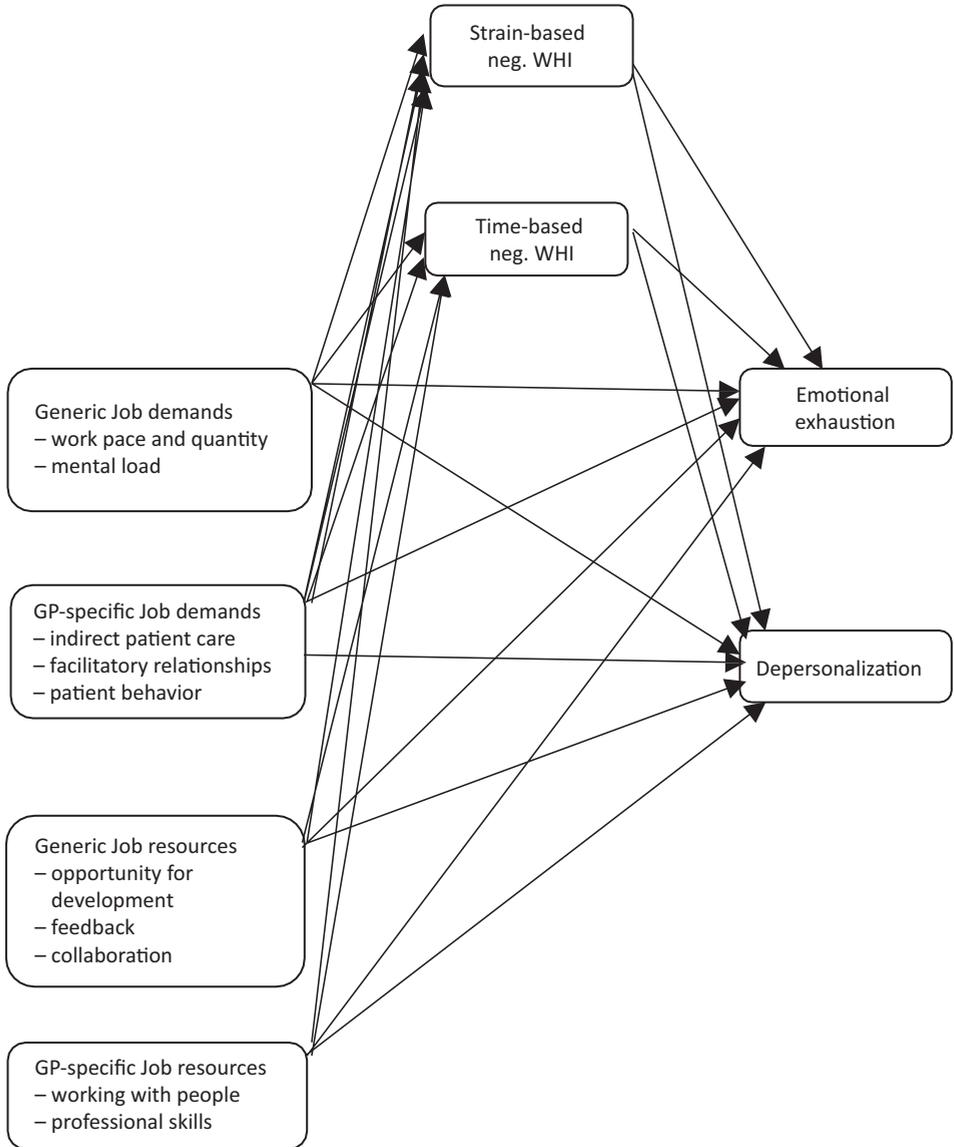
To determine how well the sample ($n = 178$) generalized to the population of GPs ($n = 11834$) we compared our sample's characteristics with regard to practice type, gender and age to that of the broader population (Van Der Velden et al., 2017). The percentage of GPs that practiced in a solo practice was not very different from the general population (21.9% vs. 18%).

However, there were substantial differences between our sample and the general population with regard to practicing in a duo practice (25.88% vs. 40%) and group practice (33.15% vs. 22%). In our sample, 20.8% of the respondents were below the age of 40 years, which was not very different from the population (25%). However, in our sample, the percentage of female respondents (37.1%) was underrepresented compared to the percentage of females in the general GP population (51%). All in all, the results show that the sample of GPs is similar to the population of GPs in some respects but also differs in other aspects.

Measurement instruments

For all measurement instruments except those assessing occupation-specific demands and resources, existing validated Dutch measurement instruments were used. For the measurement scales of occupation-specific demands and resources, items were self-constructed based on interviews with eight GPs.

Figure 1
Conceptual model



Note: In Figure 1, the occupation-specific job demands and job resources that are examined in this study are indicated. These variables have not specifically been introduced in the theoretical framework, as the identification of these variables was part of the results of a pre-study in which interviews with GPs were conducted.

Occupation-specific job demands and resources

Interviews were conducted with eight GPs to obtain a better understanding of the occupation-specific job demands and resources experienced by GPs in the Netherlands. The interviews inquired about aspects of the work and non-work domains that cost energy and those that provide energy. Interviews lasted from 33 to 48 min with an average of 40 min. Three female and five male GPs with an average age of 52 years ranging from 32 to 66 years participated. On average, interviewees had worked as a GP for 21 years.

The interviewees worked in different types of practices, four worked in a duo practice, two in group practice and two in a solo practice.

The interviews were analysed employing template analysis (Crabtree & Miller, 1999; King, 1998; King, 2012). Based on the analysis, themes with the highest number of quotes were assumed to represent what is important among GPs. While some GPs experienced out-of-hours services and management tasks as costing energy, others experienced them as providing energy. These two work characteristics were included in the questionnaire under occupation-specific job demands and resources. However, as a demand, they were preceded by the statement that it was an activity that consumed energy, as a resource, they were preceded by the statement that it was an activity that generated energy.

Occupation-specific job demands were measured by 13 items which were formulated based on the outcome of the interviews. Respondents were given the following instructions. Below are some aspects of the daily practice that generally cost energy. Please check how often a situation applies to you. Examples of aspects of daily practice included 'Dissatisfied patients', 'Maintaining external relations (physiotherapists, community nurses etc.)' and 'Insurers'. Respondents could answer on a 7-point Likert scale ranging from never to always.

A principal component analysis (PCA) was conducted to determine any underlying dimensions of the occupation-specific job demands. Factor extraction was based on parallel analysis (Horn, 1965). Parallel analysis was performed in Monte-Carlo PCA Parallel Analysis Software developed by Watkins (2000) based on 13 variables, 178 participants, and 1000 replications. Based on these parameters, a random matrix was generated. The unrotated eigenvalues were compared to the eigenvalues of those of the random matrix generated by the software. The number of factors to retain is based on the number of unrotated eigenvalues greater than those of the random matrix (Tolin et al., 2008). The results showed that three unrotated eigenvalues were greater than those of the random matrix. Therefore, three factors were extracted. An oblique rotation method (Direct Oblimin) was used. The minimum cutoff

value for factor loadings was set at .45. According to Hair et al. (2018), with a sample size of 150, a factor loading of .45 is needed, while a sample size of 200 calls for factor loadings of at least .40. As our sample fell in between 150 and 200, we adhered to the more conservative .45 criterion.

Three items were removed based on cross-loadings and factor loadings lower than .45. Ten items were retained representing three factors. The first factor, 'Indirect patient care', explained 37.58 of the variance. The second factor, 'Facilitatory relationships', explained 19.38% of the variance. The third factor 'Patient behaviour', explained 13.26% of the variance. The results of the PCA are presented in Table 1 – panel A.

Occupation-specific job resources were measured by 10 items which were formulated based on the outcome of the interviews. Respondents were asked to consider aspects of daily practice that generally generate energy and indicate the frequency with which a situation applied to them. Example items include 'Having a good conversation with the patient', 'Making a correct diagnosis', and 'Relationship with patients (knowing)'. Respondents could answer on a 7-point Likert scale ranging from never to always.

A PCA was conducted to determine any underlying dimensions of occupation-specific job resources. Factor extraction was calculated using parallel analysis (Watkins, 2000) including 10 variables, 178 participants, and 1000 replications. The results indicated that two factors should be retained. An oblique rotation method (Direct Oblimin) was used. Items with a minimum factor loading of .45 were retained (Hair et al., 2018). Two items were removed, one based on cross-loadings and one due to a factor loading below .45. Eight items representing two factors were retained. The first factor, 'Working with people', explained 44.67% of the variance. The second factor, 'Professional skills', explained 15.57% of the variance. The results of the factor analysis are presented in Table 1 – panel B.

Generic job demands

Work pace and quantity (WPQ) was measured with six items and mental pressure with four items from the Perception and Assessment of Labor questionnaire developed by Van Veldhoven et al. (2015). Example items include 'Do you have to work extra hard to get something done?' (WPQ) and 'Does your work require that you always have to think thoroughly about it?' (mental pressure). The questions were answered on a 4-point Likert scale ranging from always to never.

Generic job resources

The three-item scales presented in Bakker (2014) were used to measure generic job resources. The items measuring opportunity for development and feedback were rated on a 4-point Likert scale, ranging from always to never.

The items for collaboration were rated on a 5-point Likert scale, ranging from always to never. Example items include 'In my work, I can develop myself sufficiently' (development opportunities), 'I receive sufficient information about the results of my work', and 'If necessary can you ask your colleagues for help?'(collaboration).

Negative WHI

The Survey Work-Home Interaction-Nijmegen (SWING) developed by Geurts et al. (2005) was used to measure strain-based negative WHI (4 items) and time-based negative WHI (4 items). Items were measured on a 4-point Likert scale ranging from always to never. Example items include 'How often does it happen that you are irritable at home because your work is demanding' (strain-based) and 'How often do you have to cancel appointments with your partner/family/friends due to obligations at work?' (time-based).

Table 1

Exploratory Factor Analyses Occupation-Specific Demands and Resources

Panel A – Occupation-Specific Job Demands

	Indirect Patient Care	Facilitatory Relationships	Patient Behavior
Colleague GPs (Regular consultation, locum in case of illness, etc.)	0.88		
Collaboration (Colleague GP's, physiotherapists, district nurses, etc.)	0.86		
Personnel	0.82		
Maintaining external relationships (physiotherapists, district nurses, etc.)	0.80		
Administration (Keeping patient records, inquiries, etc.)	0.66		
Information technology (Anything that has to do with computers, operating GP information system, printers, paper, etc.)	0.66		
Insurers		.89	
Business relationships (inspection for public health, suppliers, etc.)		.84	
Dissatisfied patients			.90
Claiming patients			.84
Explained variance	37.58%	19.38%	13.26%

Panel B – Occupation-Specific Resources

	Working with people	Professional skills
Relationship with patients (Interaction)	.85	
Direct patient care	.83	
Relationship with patients (Knowing)	.80	
Professional autonomy	.73	
Having a good conversation with the patient	.64	
Specialization (minor surgery, medical officer)		.89
Providing education		.71
Sixth sense experience		.52
Explained variance	44.67%	15.57%

Note: N = 178.

Principal component analysis (PCA) was used. Factor loadings below .30 were suppressed.



Burnout

Emotional exhaustion ($\alpha = .91$) and depersonalization ($\alpha = .73$) were measured with respectively eight and four items from the UBOS-C scale (Schaufeli & Van Dierendonck, 2000). The items were measured on a 7-point Likert scale, ranging from never to always. Example items include 'I feel mentally exhausted by my work' (emotional exhaustion) and 'I feel that I have become more indifferent to other people since I have this job' (depersonalization).

Measurement model

We used confirmatory factor analysis (CFA) to assess the validity of the measurement instruments. Occupation-specific job demands and resources were not subjected to CFA because they were already subjected to PCA. Due to the relatively large number of items compared to the number of respondents, the suggested subject-to-item ratio of 10:1 for CFA (Tabachnick et al., 2007) was not achieved. Following Restubog et al. (2008), we assessed separate measurement models. Measurement model 1 comprised the generic job demands and resources with a subject-to-item ratio of 9.37:1. Measurement model 2 comprised strain- and time-based negative WHI, emotional exhaustion and depersonalization, with a subject-to-item ratio of 8.90:1.

To assess the fit of the measurement models, the following cutoff criteria were used. The comparative fit index (CFI) and the Tucker–Lewis index (TLI) had to be at least .90 (Hu & Bentler, 1999; Tucker & Lewis, 1973), the root mean square residual (RMR), the standardized root mean square residual (RMSR) and the root mean square error of approximation had to be smaller than .08 (Hu & Bentler, 1999). Furthermore, factor loadings had to be at least .50 (Hair et al., 2010). In addition, the average variance extracted (AVE) of the measures had to be at least .50 (Malhotra & Dash, 2011) and the AVE should be larger than the squared correlations with the other latent variables (Fornell & Larcker, 1981). Composite reliability (CR) should be at least .70 (Malhotra & Dash, 2011), while the heterotrait-monotrait ratio (HTMT) should be smaller than .90 (Henseler et al., 2015).

The results of the initial CFA of measurement model 1 showed an acceptable fit with the data ($\chi^2/df = 1.71$, RMR = .03, SRMR .06, RMSEA = .06, TLI = .90, CFI = .92). However, the AVEs of WPQ and feedback were below .50. To improve the convergent validity, the indicator with the lowest loading (.50) was removed from the model. After the removal of the item, the model fit slightly improved ($\chi^2/df = 1.51$, RMR = .03, SRMR = .06, RMSEA = .05, TLI = .93, CFI = .94), however, the AVEs of WPQ and feedback did not meet the .50 cut-off criterion. As deleting

more items may compromise face validity, we assessed whether the measures adhered to other validity criteria. For all measures, the CRs were well above the cutoff criterium of .70. In addition, Cronbach's alphas were above .70. Moreover, the AVEs were larger than the squared correlations with the other latent variables and the HTMT ratios were below .90. Therefore, despite the lower AVEs for WPQ (.45) and feedback (.47), these measurements adhered to the other discriminant validity criteria. We therefore considered Model 1b to adequately fit the data. Model 1b was compared to two alternative models, namely Model 1c (2-factor model) and Model 1d (1-factor model). The results (see Table 2), show that these models had a worse fit than Model 1b.

Model 2 comprised strain-based and time-based negative WHI, emotional exhaustion and depersonalization. The results of the initial model (Model 2a) show that the model did not have an adequate fit with the data ($\chi^2/df = 2.21$, RMR = .07, SRMR = .08, RMSEA = .08, TLI = .88, CFI = .90). One item from the depersonalization measure had a low factor loading (.47) and was removed. The subsequent Model 2b had a reasonable fit with the data ($\chi^2/df = 2.13$, RMR = .06, SRMR = .07, RMSEA = .08, TLI = .90, CFI = .91). The internal consistency of the measures is adequate, as CRs and Cronbach's alphas are at least .70. The AVEs of two measures are just below the .50 cut-off criterion (strain-based negative WHI = .45, time-based negative WHI is .46). However, as the CRs and Cronbach's alphas are adequate and a model which combines strain-based and time-based negative WHI does not have a better fit with the data (see Model 2d in Table 2), these measurements are considered adequate. Regarding discriminant validity, one item from the emotional exhaustion scale was deleted as the HTMT ratio was above the threshold of .90 for this item. The subsequent Model 2c had a good fit ($\chi^2/df = 2.10$, RMR = .06, SRMR = .07, RMSEA = .08, TLI = .90, CFI = .92) and a reasonable discriminant validity according to the HTMT ratios. Model 2c was compared with two alternative models, namely model 2d (a 3-factor model which combines strain-based and time-based negative WHI) and model 2e (a 2-factor model which combines strain-based and time-based negative WHI and combines emotional exhaustion and depersonalization). Both model 2d and model 2e had a worse fit compared with model 2c (see Table 2).

Table 2*Fit Indices Measurement Models*

Model	χ^2	df	χ^2/df	RMR	SRMR	RMSEA	TLI	CFI
Panel A – Model 1 (Generic job demands and generic job resources)								
1a (Null-model)	243.02	142	1.71	0.03	0.06	0.06	0.90	0.92
1b (5-Factor model)	189.2–	125	1.51	0.03	0.06	0.05	0.93	0.94
1c (2-Factor model)	639.86	134	4.78	.08	.12	.15	.48	.55
1d (1-Factor model)	890.82	135	6.60	.09	.16	.18	.23	.32
1e (CLF model)	189.20	124	1.53	0.03	0.06	0.06	0.93	0.94
Panel B – Model 2 (Strain and time-based negative WHI, emotional exhaustion and depersonalization)								
2a (null-model)	361.79	164	2.21	0.07	0.08	0.08	0.88	0.90
2b (4-factor model)	311.45	146	2.13	0.06	0.07	0.08	0.90	0.91
2c (4-factor model)	271.17	120	2.10	0.06	0.07	0.08	0.90	0.92
2d (3-Factor model)	328.06	132	2.49	0.06	0.08	0.09	0.87	0.89
2e (2-Factor model)	395.67	134	2.95	0.07	0.08	0.11	0.83	0.85
2f (CLF model)	271.21	1.28	2.12	.006	0.07	0.08	0.90	0.92

Note: N = 178.

Common method variance (CMV)

Common method bias or common method variance (CMV) is the bias that arises from the measurement method and not from the measurement model's constructs (Podsakoff et al., 2003). If present, it is suggested that CMV can be detrimental to the parameter estimates of the relationship between constructs (Mackenzie & Podsakoff, 2012). In the present study, a single-source, cross-sectional survey approach was used. Therefore, the presence of CMV in the current study is not unlikely, and it is essential to determine whether CMV is an issue.

Two methods were used to test for the presence of CMV in the present study. First, Harman's single-factor test was conducted. A CFA approach was used for this. Second, common latent factor tests according to the method of Podsakoff et al. (2003) and the modification of Williams et al. (2003) were performed. In Table 2, the fit indices of the one-factor models used to perform Harman's single-factor tests in CFA are presented. The fit indices of both models 1d and 2f show a poor fit with the data. Hence, a single-factor model is not an appropriate fit to represent the data. Next, the results of two CFAs in which a common latent factor was included were performed to test for the presence of CMV. To assess whether CMV is a problem, it is important to examine the factor loadings of the items on their hypothesized factor with and

without the inclusion of a common latent factor. When the common latent factor is included, the items should still load significantly and in the expected direction on their hypothesized factor (Ng & Feldman, 2013). In addition, the loadings should be above .50 on their theorized factor, while the loadings on the common latent factor should be either insignificant or when significant should be lower than the loadings on the theorized factors (Brammer et al., 2015). The results of these analyses are reported in Tables A and B in Appendices 4.2 and 4.3. The results show that the presence of severe CMV is unlikely. That is, all items load significantly and in the expected direction on their theorized factor when the common latent factor was included. In addition, while a few items had loadings below .50 on their theorized factor when the common factor was included, overall the factor loadings on the theorized factors are above .50. Moreover, the loadings on the common latent factor are either not significant or when significant they are lower than on the theorized factor.

Analysis strategy

The hypotheses were tested in *MEDIATE* (Hayes, 2013). Although the *PROCESS* macro has been introduced after the *MEDIATE* macro, *MEDIATE* offers the opportunity to include multiple independent variables in the same mediation analysis, while *PROCESS* only allows one independent variable to be included in the analysis. Hypotheses 1 through 4 involve linear relationships between the independent variables (generic and occupation-specific job demands and resources) and dependent variables (emotional exhaustion and depersonalization) which are denoted by the total effects models in *MEDIATE*. To test the Mediating Hypotheses 5 through 8, the path product approach is used (Alwin & Hauser, 1975). Whereas tests of mediation differ considerably in type I error and statistical power, the recommended mediation test is the product of the coefficients method (Alwin & Hauser, 1975). For mediation to occur, the total effect of the X to Y relationship must be significant. Second, the relationship between the independent variable (X) and the mediator (M), also referred to as path A, and the relationship between the mediator and the outcome variable (Y) must be significant (path B). Next, the product of the a-path and the b-path (AB), which is also denoted as the indirect effect in *MEDIATE*, must be significant. If these conditions are met, there is evidence of mediation (Mathieu & Taylor, 2006). If there is no significant total effect between X and Y, but the other conditions are met, then there is evidence of an indirect effect (Mathieu & Taylor, 2006). To test for the mediated or indirect effect's significance, non-parametric bootstrapping is performed with 5000 subsamples and 95% confidence intervals (Preacher & Hayes, 2008).

Results

The means, standard deviations, correlations, and scale reliabilities (Cronbach α) among the study variables are presented in Table 3.

The results of the hypothesis tests are included in Tables 4 and 5. According to Hypothesis 1, there is a positive relationship between generic job demands and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for Hypothesis 1a but not Hypothesis 1b. WPQ ($B = .91, p < .05$) is significantly directly and positively related to emotional exhaustion. Mental pressure is not significantly related to emotional exhaustion ($B = -.01, p > .05$). WPQ ($B = .24, p > .05$) and mental pressure ($B = -.14, p > .05$) are both not significantly related to depersonalization.

According to Hypothesis 2, there is a positive relationship between occupation-specific job demands and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for both hypotheses. While indirect patient care ($B = .20, p < .05$) and patient behaviour ($B = .16, p < .05$) are significantly directly and positively related to emotional exhaustion, and facilitatory relationships ($B = -.02, p > .05$) are not. Indirect patient care and patient behaviour are significantly directly and positively related to depersonalization ($B = .19, p < .05$ and $B = .17, p < .05$, respectively), while facilitatory relationships ($B = -.07, p > .05$) are not.

Additional hierarchical regression analyses were performed to examine to what extent occupation-specific job demands explained additional variance in emotional exhaustion beyond generic job demands (regression analyses were limited to emotional exhaustion since generic demands were not significantly related to depersonalization). The results are included in Table C, Appendix 4.4. Generic job demands explained a significant proportion of the variance in the outcome variable emotional exhaustion: $R^2 = .36 (p < .001)$. In step 2, the occupation-specific demands were added. Together the variables explained 43% of the variance in emotional exhaustion which is a significant increase of 7% ($\Delta R^2 = .07, p < .05$).

Table 3
Mean, Standard deviation, Pearson Correlation and Cronbach's α (diagonally in boldface)

	Mean	Std. Deviation	N	EE	DP	WPQ	MENT	IPC	FR	PB	OPPOR	FEEDB	COLLA	WWP	PS	STRAIN	TIME
EE	2.68	1.004	178	.91	.603**	.596**	.212**	.407**	.029	.340**	-.262**	-.139	-.201**	-.304**	-.177*	.764**	.491**
DP	2.07	.832	178	.603**	.73	.321**	.087	.381**	-.055	.289**	-.333**	-.120	-.141	-.402**	-.175*	.384**	.265**
WPQ	2.58	.491	178	.596**	.321**	.78	.249**	.335**	.054	.313**	-.175*	-.103	-.090	-.159*	-.143	.567**	.597**
MENT	3.36	.504	178	.212**	.087	.249**	.81	.156*	.017	.322**	-.116	-.118	-.078	-.102	-.176*	.305**	.160*
IPC	3.46	1.052	178	.407**	.381**	.335**	.156*	.87	.067	.091	-.286**	-.096	-.010	-.239**	-.195**	.353**	.310**
FR	2.94	1.171	178	.029	-.055	.054	.017	.067	.75	.190*	-.091	.055	-.050	.150*	.167*	.033	-.036
PB	3.36	1.019	178	.340**	.289**	.313**	.322**	.091	.190*	.71	-.320**	-.108	-.113	-.069	-.036	.355**	.269**
OPPOR	2.96	.531	178	-.262**	-.333**	-.175*	-.116	-.286**	-.091	-.320**	.80	.471**	.270**	.314**	.255**	-.275**	-.144
FEEDB	2.53	.541	178	-.139	-.120	-.103	-.118	-.096	.055	-.108	.471**	.70	.219**	.199**	.371**	-.152*	-.072
COLLA	3.70	.845	178	-.201**	-.141	-.090	-.078	-.010	-.050	-.113	.270**	.219**	.84	.165*	.237**	-.181*	-.082
WWP	5.15	.747	178	-.304**	-.402**	-.159*	-.102	-.239**	.150*	-.069	.314**	.199**	.165*	.85	.413**	-.151*	-.084
PS	4.32	.988	178	-.177*	-.175*	-.143	-.176*	-.195**	.167*	-.036	.255**	.371**	.237**	.413**	.57	-.116	-.050
STRAIN	2.13	.477	178	.764**	.384**	.567**	.305**	.353**	.033	.355**	-.275**	-.152*	-.181*	-.151*	-.116	.76	.625**
TIME	2.25	.486	178	.491**	.265**	.597**	.160*	.310**	-.036	.269**	-.144	-.072	-.082	-.084	-.050	.625**	.76

Note: N = 178. Abbreviations: EE = Emotional exhaustion, DP = Depersonalization, WPQ = Work pace and quantity, MENT = mental pressure, IPC = Indirect patient care, FR = Facilitatory relationships, PB = Patient Behavior, OPPOP = Opportunity, FEEDB = Feedback, COLLA = Collaboration, FEEDB = Feedback, WWP = Working with people, PS = Professional skills, STRAIN = Strain-based negative work-home interference, TIME = Time-based negative work-home interference.

Table 5
Summary of Mediation Analysis Mediation model Dependent variable DP

Antecedent	Consequent														
	M ₁ (STRAIN)		M ₂ (TIME)		Tot.eff.Y		dir.eff.Y		(DP)						
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	indir.eff. through TIME	LLCI	ULCI	indir.eff. through TIME	LLCI	ULCI	
M ₁ (STRAIN)	-	-	-	-	.3313	.1562									
M ₂ (TIME)	-	-	-	-	-.0760										
X ₁ (WPQ)	.4104***	.0644	.5251***	.0671	.2361	.1500	.1360	.0095	.2737	-.0399	-.1847	.1070			
X ₂ (MENT)	.1137	.0607	-.0184	.0632	-.1432	.1424	.0377	-.0040	.0898	.0014	-.0221	.0229			
X ₃ (Indirect Patient Care)	.0786**	.0302	.0719*	.0314	.1947***	.1135	.0260	.0009	.0651	-.0055	-.0321	.0147			
X ₄ (Facilitatory Relationships)	-.0216	.0253	-.0484	.0264	-.0706	.0570	-.0072	-.0277	.0108	.0037	-.0094	.0245			
X ₅ (Patient Behaviour)	.0663*	.0321	.0557	.0334	.1734***	.0471	.0220	-.0019	.0609	-.0042	-.0290	.0135			
X ₆ (OPPOR)	-.0667	.0682	.0048	.0710	-.1854	.0600	-.0221	-.0834	.0270	-.0004	-.0232	.0258			
X ₇ (FEEDB)	-.0226	.0622	-.0118	.0648	.0664	.0730	.1261	-.0075	-.0629	.0331	.0009	-.0250	.0216		
X ₈ (COLLA)	-.0619	.0355	-.0286	.0370	-.0549	.1146	-.0205	-.0585	.0045	.0022	-.0113	.0195			
X ₉ (Working With People)	.0049	.0434	.0254	.0452	-.3133**	.0660	.0016	-.0327	.0317	-.0019	-.0214	.0140			
X ₁₀ (Professional Skills)	.0312	.0341	.0376	.0355	.0382	.0307	.0800	.0103	-.0122	.0385	-.0029	-.0206	.0133		
Constant	.5869	.3799	.4934	.3956	2.9282	2.7713***	.7057								

R² = .4217 R² = .3952 R² = .3629
 F (10,167) = 12.1788 p = .0000 F(10,167) = 10.9121 p = .0000 F(12,165) = 7.8335
 p = .0000

Note: *p < .05 ** p < .01 *** p < .001 total effect = direct effect + indirect effect



According to Hypothesis 3, there is a negative relationship between generic job resources and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for Hypothesis 3a since collaboration is negatively related to emotional exhaustion ($B = -.15, p < .05$). Yet, the other two generic resources are not significantly related to emotional exhaustion (OPPOR $B = .01, p > .05$, FEEDB $B = -.02, p > .05$). Hypothesis 3b is not supported (OPPOR $B = -.19, p > .05$, FEEDB $B = .07, p > .05$ and COLLA $B = -.04, p > .05$).

According to Hypothesis 4, there is a negative relationship between occupation-specific job resources and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for Hypothesis 4a and partial support for Hypothesis 4b. While working with people is significantly negatively related to emotional exhaustion ($B = -.22, p < .05$), professional skills are not ($B = .04, p > .05$). Also, while working with people is significantly directly negatively related to depersonalization ($B = -.31, p < .05$), professional skills ($B = .04, p > .05$) is not.

According to Hypothesis 5, time-based negative WHI mediates the relationship between generic job demands and (a) emotional exhaustion and (b) depersonalization. The results provide no support for this hypothesis. The indirect effect of WPQ on emotional exhaustion through time-based negative WHI was not significant ($B = -.10, 95\% \text{ CI } [-.2580, .0497]$). In addition, the indirect effect of mental pressure on emotional exhaustion through time-based negative WHI was not significant ($B = .00, 95\% \text{ CI } [-.0286, .0373]$). Furthermore, the indirect effect of WPQ on depersonalization through time-based negative WHI was not significant ($B = -.04, 95\% \text{ CI } [-.1847, .1070]$) and the indirect effect of mental pressure on depersonalization through time-based negative WHI was not significant ($B = .0014, 95\% \text{ CI } [-.221, .0229]$).

According to Hypothesis 6, time-based negative WHI mediates the relationship between occupation-specific job demands and (a) emotional exhaustion and (b) depersonalization. The results provide no support for this hypothesis. The indirect effects of indirect patient care, facilitatory relationships and patient behaviour through time-based negative WHI on emotional exhaustion were not significant ($B = -.01, 95\% \text{ CI } [-.0409, .0068]$; $B = .01, 95\% \text{ CI } [-.0047, .0306]$; $B = -.01, 95\% \text{ CI } [-.0404, .0061]$). Also, the indirect effects of indirect patient care, facilitatory relationships and patient behaviour through time-based negative WHI on depersonalization were not significant ($B = -.01, 95\% \text{ CI } [-.0321, .0147]$; $B = .00, 95\% \text{ CI } [-.0094, .0245]$; $B = -.00, 95\% \text{ CI } [-.0290, .0135]$).

According to Hypothesis 7, strain-based negative WHI mediates the relationship between generic job demands and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for this hypothesis. The indirect effect of WPQ through strain-

based negative WHI on emotional exhaustion was statistically significant ($B = .54$, 95% CI [.3677, .7209]). While the indirect effect of mental pressure through strain-based negative WHI on emotional exhaustion was significant ($B = .15$, 95% CI [.0093, .3006]), the relationship between mental pressure and strain-based negative WHI was marginally significant ($B = .11$, $p < .10$). Considering, path A was marginally significant, and the significance of path A is an important precondition for indirect effects (e.g., Mathieu & Taylor, 2006; MacKinnon, Fairchild, & Fritz, 2007), Hypothesis 7a is partly supported. The indirect effect of WPQ through strain-based negative WHI on depersonalization was significant ($B = .14$, 95% CI [.0095, .2737]). However, the indirect effect of mental pressure through strain-based negative WHI on depersonalization was not significant; $B = .04$, 95% CI [-.0040, .0898]). Thus, there is partial support for Hypothesis 7b.

According to Hypothesis 8, strain-based negative WHI mediates the relationship between occupation-specific job demands and (a) emotional exhaustion and (b) depersonalization. The results provide partial support for Hypothesis 8a and partial support for Hypothesis 8b. The indirect effect of indirect patient care through strain-based negative WHI on emotional exhaustion was statistically significant ($B = .10$, 95% CI [.0291, .194]). However, the indirect effects of facilitatory relationships and patient behavior through strain-based negative WHI on emotional exhaustion were not significant ($B = -.03$, 95% CI [-.0930, .0396]; $B = .09$, 95% CI [-.0007, .1831]). The indirect effect of indirect patient care through strain-based negative WHI on depersonalization was significant ($B = .03$, 95% CI [.0009, .0651]). However, the indirect effects of facilitatory relationships and patient behaviour through strain-based negative WHI on depersonalization were not significant ($B = -.01$, 95% CI [-.0277, .0108]; $B = .02$, 95% CI [-.0019, .0609]).

Discussion

Numerous studies have examined the causes of burnout (e.g. Azam et al., 2017; Johnson et al., 2018; Vladut & Kállay, 2010). Moreover, multiple preventative and therapeutic interventions have been developed, including interventions aimed at strengthening resources and coping strategies as well as interventions aimed at reducing sources of stress and attempts to change the professional context (Ahola et al., 2017; Panagioti et al., 2017). Still, burnout among GPs remains a significant problem (Rotenstein et al., 2018; West et al., 2016). In this study, we therefore specifically examined the effects of both occupation-specific and generic job demands and resources to enhance further knowledge on the factors that are related to burnout among GPs. Besides, we explored the role of negative WHI (strain-based and time-based) to increase our understanding of how generic and occupation-specific demands and resources are related to burnout. In this way, an extended version of the JD-R model was considered, which can further enhance the development of new, or refined preventative and therapeutic interventions for burnout among GPs.

Although the importance of occupation-specific job demands and resources is emphasized in connection with the ecological validity of a study (Brough & Biggs, 2015), only a few studies have examined the role of occupation-specific demands (Bakker et al., 2000; Van Ham, 2006) among GPs. Based on a survey study, Van Ham (2006) provided an overview of a GP's working environment. The results of our analysis of occupation-specific demands and resources show several overlaps with Van Ham's (2006) study. The study by Van Ham (2006) study pointed to six aspects that are relevant to a GP's work environment, namely collaboration with and relationships with others, external work environment, satisfaction with the time available for work and private life, satisfaction with services, satisfaction with general aspects of the work and satisfaction with financial aspects. Several of these components are linked explicitly to the demands of GPs and can be linked to dimensions identified in our study. Those dimensions are indirect patient care, professional skills and facilitatory relationships. There are also differences; for example, the occupation-specific job demand 'patient behaviour' and the occupation-specific resource 'working with people' were not identified by Van Ham (2006). Hence, our study points to the importance of focusing on occupation-specific demands and resources related to relational aspects of the GP's work.

Bakker et al. (2000) investigated the relationship between one occupation-specific demand, having to deal with demanding patients, and burnout. In a longitudinal study, Bakker

et al. (2000) demonstrated that perceiving patients to be demanding, ultimately leads to burnout among GPs. In our research, 'demanding patients' was also identified as an essential element of occupation-specific job demands that are negatively related to burnout. Although our study was cross-sectional, by examining the role of generic and occupation-specific demands simultaneously, our study adds to the existing body of knowledge, by showing the importance of this occupation-specific demand also when generic demands are examined. More specifically, while occupation-specific and generic job demands were both significantly related to emotional exhaustion, only occupation-specific job demands were significantly related to depersonalization.

Furthermore, we compared the results of our study with the results of Brough and Biggs (2015) and the results of De Croon et al. (2002). Both studies considered the role of occupation-specific job demands on outcomes. In both studies, additional variance in the outcome variables was explained by adding occupation-specific job demands to the model. In our study, the occupation-specific job demands explained additional variance in emotional exhaustion. Hence, we partially supported the central hypothesis of Brough and Biggs (2015) and De Croon et al. (2002) that by adding job-specific job demands to the research model, extra variance in the outcome variables (i.e., emotional exhaustion in our study) can be explained.

In this study, we examined the effects of strain-based and time-based negative WHI separately. Since not all independent variables were directly significantly related to the burnout components (WPQ was not significantly related to depersonalization), we refer to the general term intervening effects as opposed to the more specific mediated or indirect effects (see Mathieu & Taylor, 2006) for a discussion of different types of intervening effects). As expected, strain-based negative WHI acted as an intervening variable in the relationships between both generic (WPQ) and occupation-specific demands (indirect patient care) and emotional exhaustion and depersonalization. However, contrary to our expectations, time-based negative WHI did not act as an intervening variable in the relationship between the job demands (generic and occupation-specific) and both components of burnout. Most existing research has examined the role of negative WHI as one unidimensional variable encompassing items assessing both time- and strain-based negative WHI. For example, Bakker et al. (2011) investigated the effects of several job demands and resources on negative WHI among a sample of medical residents and their partners. A combination of high job demands and low job resources was related to negative WHI. While the study was conducted among healthcare employees, since Bakker et al. (2011) did not distinguish between time- and strain-based negative WHI, previous research does not

offer many insights into potential reasons for the result that time-based negative WHI does not play an indirect role in the relationship between demands and burnout in our study. There are several potential reasons for the unexpected finding. First, the results of our study point to the importance of the relational aspects of the GP's work. It is conceivable that relational aspects are not related to time but predominantly to stress. This proposition about the nature of job demands and resources could be further investigated in a future multigroup study in which the relationship between job demands of a different nature and strain- and time-based negative WHI are compared among employees from for example healthcare and financial organizations. Second, the nonsignificant findings may be a result of the combination of predictors included in the study. We draw from Hargis et al. (2011) study on antecedents of work-family conflict for a possible explanation. The results of this study suggest that combinations of variables can change a strong predictor of WHI (e.g., job stressors or negative affectivity) into a weak predictor of WHI. As an example, Hargis et al. (2011) mention family support. Previous research suggests that family support is significantly related to the different types of WHI (Ford et al., 2007). In contrast, however, when this relationship was considered simultaneously with a significant number of antecedents, family support was found to explain only 0–5% of the predicted variance of the different types of WHI. Changes in predicted variance are known for some combinations of predictors, but not for many combinations. For future studies of WHI, this could mean that only a limited number of new predictors can be added to various known combinations from the literature.

Additionally, the results showed that only one generic job resource was significantly related to emotional exhaustion while none of the generic job resources had a significant relationship with depersonalization. One occupation-specific job resource, namely, working with people, was associated with both emotional exhaustion and depersonalization. These results show that it is essential to investigate occupation-specific job resources in the primary JD-R model, in addition to the generic job resources because otherwise, the occupation-specific resources would have gone unnoticed. These results thus emphasize the added value of the occupation-specific extension of the JD-R model.

Limitations and recommendations for future research

The present study was cross-sectional, which means no conclusions about cause-and-effect relationships can be drawn. In the methods section, we demonstrated that although the sample represents the Dutch GP population in some respects, the sample does not represent

the population of GPs well in a few other aspects. As a result, we need to be cautious about generalizing to the broader population. Addressing the representativeness of the present study, we would recommend replicating the present study among a more extensive, stratified sample (Groves, 2004; Rubin, 1987).

In our study, the indirect effect of strain-based negative WHI in the relationship between demands and emotional exhaustion was supported. However, an essential type of demand, i.e., home demands, was not considered in this study. A growing number of GPs are confronted with dual responsibilities, namely being a GP and at the same time, a caregiver for children (Michel et al., 2011). In addition to home demands, other types of resources, particularly personal resources such as self-efficacy (Consiglio et al., 2013; Xanthopoulou et al., 2007) and coping behaviour should be included in future research.

Practical implications

The current study demonstrates the dominant role of work pressure, both in the work environment (WPQ, indirect patient care, patient behaviour) and in the interplay between the work environment and the home environment (strain-based negative WHI) in the emergence of burnout symptoms. This finding indicates a direction of intervention measures, namely the reduction of work pressure and a better balance between work and private life. From the perspective of occupation-specific demands, this could mean reducing the administrative burden. Because most GPs do not work in an employment contract but are independent entrepreneurs, intervention measures are not directly dependent on national politics, but GPs can take these measures independently. Another approach for intervention measures is the mediator framework which is a relatively new application in prevention and therapy research. In mediator frameworks, interventions are aimed at the manipulation of a mediating variable with an assumed causal relationship with the outcome variable. Regarding the current study, targeting a reduction of burnout would mean manipulating the mediator WHI, for example, by implementing childcare facilities.

Conclusion

Overall, our study indicated that the JD-R model should be expanded to include occupation-specific job demands and resources. Our study results show that burnout among GPs is mainly caused by WPQ, indirect patient care, such as administration and personnel, and patient behaviour, such as demanding patients, which are occupation-specific job demands.

Hence, by focusing on both occupation-specific and generic demands, this study was able to shed light on the most relevant variables related to burnout among GPs. Moreover, the results showed that these demands specifically affected strain-based and not time-based negative WHI, which offers essential insights for interventions.

Data availability statement

The first author has made the data and accompanying data management and analysis procedure available online through the Mendeley Database. This information can be accessed through the following link: Verhoef, N. C., De Ruiter, M., Blomme, R. J., & Curfs, E. C. (2021). Burnout among Dutch General Practitioners. Mendeley Data, V2, doi:10.17632/xz9wwsfbxk.2.

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Appendix 4.1



Causes of GP burnout 2017
N.C. Verhoef, GP

Questionnaire Work pace and quantity

Below are some aspects of the daily practice that generally **cost energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

1. Do you have too much work to do?
 - Always
 - Often
 - Sometimes
 - Never

2. Do you have to work extra hard in order to reach a deadline?
 - Always
 - Often
 - Sometimes
 - Never

3. Do you have to work at speed?
 - Always
 - Often
 - Sometimes
 - Never

4. Do you have to deal with a backlog in your work?
 - Always
 - Often
 - Sometimes
 - Never

Questionnaire Work pace and quantity

5. Do you have problems with the work pace?
- Always
 - Often
 - Sometimes
 - Never
6. Do you have problems with the workload?
- Always
 - Often
 - Sometimes
 - Never

Questionnaire Mental strain

Below are some aspects of the daily practice that generally **cost energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

- 7. Does your work require enhanced precision?
 - Always
 - Often
 - Sometimes
 - Never

- 8. Does your work require that you always have to think about it?
 - Always
 - Often
 - Sometimes
 - Never

- 9. Does your work require your constant attention?
 - Always
 - Often
 - Sometimes
 - Never

- 10. Does your work require great care?
 - Always
 - Often
 - Sometimes
 - Never

Questionnaire Autonomy

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

11. Do you have flexibility in the execution of your job?
 - Always
 - Often
 - Sometimes
 - Never

12. Do you have control over how your work is carried out?
 - Always
 - Often
 - Sometimes
 - Never

13. Can you participate in decision-making regarding your work?
 - Always
 - Often
 - Sometimes
 - Never

Questionnaire Opportunities for development

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

14. In my work, I have the opportunity to develop my strong points.?

- Always
- Often
- Sometimes
- Never

15. In my work, I can develop myself sufficiently.

- Always
- Often
- Sometimes
- Never

16. My work offers me the possibility to learn new things.

- Always
- Often
- Sometimes
- Never

Questionnaire Feedback

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

17. I receive sufficient information about my work objectives.
- Always
 - Often
 - Sometimes
 - Never
18. My job offers me opportunities to find out how well I do my work.
- Always
 - Often
 - Sometimes
 - Never
19. I receive sufficient information about the results of my work.
- Always
 - Often
 - Sometimes
 - Never

Questionnaire Collaboration

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

- 20. If necessary, can you ask your colleagues for help?
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

- 21. Can you count on your colleagues to support you if difficulties arise in your work?
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

- 22. In your work, do you feel valued by your colleagues?
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

Questionnaire Self-efficacy

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

23. I am confident that I can deal effectively with unexpected events.

- Never
- Sometimes
- Regularly
- Often
- Very often

24. Thanks to my resourcefulness, I can handle unforeseen situations.

- Never
- Sometimes
- Regularly
- Often
- Very often

25. If I am in trouble, I can usually think of a good solution.

- Never
- Sometimes
- Regularly
- Often
- Very often

26. I can handle whatever comes my way.

- Never
- Sometimes
- Regularly
- Often
- Very often

Questionnaire Optimism

Below are some aspects of the daily practice that usually **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

- 27. I usually expect the best in uncertain times.
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

- 28. I am always optimistic about my future.
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

- 29. I agree with the statement: "Every cloud has a silver lining".
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

- 30. On the whole, I assume that more positive things will happen to me than nasty things.
 - Never
 - Sometimes
 - Regularly
 - Often
 - Very often

Questionnaire Work-home interference

Below are some aspects of daily life; **some cost energy, but others yield energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

31. How often does it happen that you are irritable at home because your work is demanding?
 - Always
 - Often
 - Sometimes
 - Never

32. How often does it happen that you have difficulties fulfilling your obligations at home because your work is always on your mind?
 - Always
 - Often
 - Sometimes
 - Never

33. How often does it happen that you deal more efficiently with your time at home by doing your work?
 - Always
 - Often
 - Sometimes
 - Never

34. How often does it happen that you have to cancel appointments with your partner/family due to obligations at your work?
 - Always
 - Often
 - Sometimes
 - Never

35. How often does it happen that you function better at home with your partner/family/ friends through things you learn at work?
 - Always
 - Often
 - Sometimes
 - Never

Questionnaire Work-home interference

36. How often does it happen that you keep appointments better at home because that is also required of you at work?
- Always
 - Often
 - Sometimes
 - Never
37. How often does it happen that your working hours make it difficult to meet your obligations at home?
- Always
 - Often
 - Sometimes
 - Never
38. How often does it happen that you have no energy through your work to do nice things with your partner /family/friends?
- Always
 - Often
 - Sometimes
 - Never
39. How often does it happen that you have so much work to do that you do not have time for your hobbies?
- Always
 - Often
 - Sometimes
 - Never
40. How often does it happen that you fulfil your responsibilities at home better because you have learned that at work?
- Always
 - Often
 - Sometimes
 - Never

Questionnaire Work-home interference

41. How often does it happen that the demands of your work make it difficult to feel relaxed at home?
- Always
 - Often
 - Sometimes
 - Never
42. How often does it happen that your work takes the time that you would rather spend on your partner/family/friends?
- Always
 - Often
 - Sometimes
 - Never
43. How often does it happen that after a pleasant working day/workweek, you would like to do more activities with your partner/family/ friends?
- Always
 - Often
 - Sometimes
 - Never

The burnout questionnaire.

Again, do not think too long; the first thing that comes to mind is usually correct.

44. I feel mentally exhausted by my work.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
45. I feel empty at the end of a working day.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
46. I feel tired when I get up in the morning, and there is another working day for me.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
47. I can easily empathize with the feelings of patients.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always

The burnout questionnaire.

48. I feel that I treat some patients too impersonal.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
49. Working with people all day is a heavy burden for me.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
50. I know how to solve the problems of my patients adequately.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
51. I feel "burned out" by my work.
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always

The burnout questionnaire.

52. I feel that I positively influence other people's lives through my work.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

53. I feel that I have become more indifferent to other people since I have this job.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

54. I am concerned that my work dulls me emotionally.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

55. I feel frustrated by my job.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

The burnout questionnaire.

56. I think I am too much committed to my work.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

57. Working with patients brightens me up.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

58. I have achieved many valuable things in this job.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

59. I feel at the end of my Latin

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

The burnout questionnaire.

60. In my work, I deal very quietly with emotional problems.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

61. I feel that my patients blame me for their problems.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire Occupation-specific job demands

Below are some aspects of the daily practice that generally **cost energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

62. Dissatisfied patients.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

63. The application of protocols.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

64. Claiming patients.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

65. Administration (keeping records, inquiries, etc.).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire Occupation-specific job demands

66. Information technology (everything that has to do with computers: operating information systems, printers, paper, toner, etc.).
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
67. Maintaining external relations (physiotherapists, community nurses, etc.).
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
68. Colleague general practitioners (regular consultation, locum in case of illness, etc.).
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always
69. Collaboration (colleagues, physiotherapists, community nurses, etc.).
- Never
 - Sporadic
 - Occasionally
 - Regularly
 - Often
 - Very often
 - Always

Questionnaire Occupation-specific job demands

70. Insurers.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

71. Business relationships (inspection for public health, suppliers, etc.).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

72. Personnel.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

73. Work backlog (lists with telephone calls, referral letters, etc.).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire Occupation-specific job demands

74. Out-of-hours services.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire occupation-specific job resources

Below are some aspects of the daily practice that generally **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

75. Autonomy (professional).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

76. Direct patient care.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

77. Teaching.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

78. Direct patient care.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire occupation-specific job resources

Below are some aspects of the daily practice that generally **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

79. Specialization (small surgery, doctor, etc.).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

80. Relationship with patients (knowing).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

81. Relationship with patients (interaction).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

82. Have a good conversation with the patient.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire occupation-specific job resources

Below are some aspects of the daily practice that generally **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

83. Make a correct diagnosis.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

84. Sixth sense experience.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

85. Personal hobbies (walking, cycling, sailing, etc.).

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

86. Family life in general.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always

Questionnaire occupation-specific job resources

Below are some aspects of the daily practice that generally **generate energy**. In the table, you can check how often a situation applies to you. Do not think too long about a question; the first thing that comes to your mind is usually correct.

87. Having a (private) relationship.

- Never
- Sporadic
- Occasionally
- Regularly
- Often
- Very often
- Always
- Never

Questionnaire Demographics

Finally, some questions about age, marital status, etc. Demographic data

88. What is your gender?

- male
- female

89. What is your year of birth? (xxyy).

90. What is your marital status?

- cohabiting or engaged, no children living at home
- cohabiting or engaged, or living at home children
- single, no children living at home
- single, living at home children
- living with my parents
- different

91. In which year did you start working in your current practice? (xx yy)

92. How many employees do you support?

- 0
- 1-2
- 3-5
- 6-10
- more than ten persons

93. Does your partner have a job?

- yes
- no

94. Does your partner often spend more than 5 hours a week on his / her work outside the usual working hours?

- yes
- no

95. Do you have a flexible arrangement for childcare with friends, family or professionals, especially in the case of sudden emergencies?

- yes
- no

Questionnaire Demographics

Finally, some questions about age, marital status, etc. Demographic data

96. Do you have a non-flexible childcare scheme with friends, family or professionals, especially in the case of a sudden emergency?

- yes
- no

97. In what way do you practice?

- solo practice
- duo practice
- group practice
- in employment
- locum

98. How many hours do you spend on average per week on care? (children, informal care, etc.). (xx)

99. How many hours do you work per week on average? (including time for in-service training, meetings, administration, etc.).

- < 30
- 30–40
- 41–50
- 51–60
- > 60

For my administration, it is convenient to have your name, place of residence and email address. Again, it goes without saying, but let me emphasize that this information will be treated strictly **confidentially**. **If you do not want to answer these questions, you can suffice by entering any letter, e.g. x**

100. What is your name?

101. What is your place of residence?

102. What is your email address?

Thank you very much for your willingness and your cooperation in completing this questionnaire!

Appendix 4.2

Table A

Common Method Variance Analysis

Panel A – Model 1 (Generic Job Demands and Generic Job Resources)

Construct	Indicator	(standardized) Loading to proposed Latent Variable	(standardized) Loading to CMLV
Work Pace and Quantity (WPQ)	q0001	.691***	-.067(ns)
	q0002	.902***	-.023(ns)
	q0003	.638***	-.156(ns)
	q0004	.479***	-.175(ns)
	q0006	.507***	-.373***
Mental Load (MENT)	q0007	.603***	-.116(ns)
	q0008	.717***	.100(ns)
	q0009	.828***	.128(ns)
	q0010	.777***	-.063(ns)
Opportunity for development (OPPOR)	q0014	.827***	-.028(ns)
	q0015	.764***	.575***
	q0016	.590***	.332***
Feedback (FEEDB)	q0017	.603***	.011(ns)
	q0018	.870***	-.054(ns)
	q0019	.666***	.209(ns)
Collaboration (COLLA)	q0020	.821***	.138(ns)
	q0021	.867***	-.005(ns)
	q0022	.688***	.096(ns)
Average		.708	.029

Note: CMLV = Common method latent variable

* $p < .05$; ** $p < .01$; *** $p < .001$; ns not significant ($p > =.05$)

Appendix 4.3

Table B

Common Method Variance Analysis

Panel B – Model 2 (Strain-based and Time-based negative WHI, Emotional exhaustion and Depersonalization)

Construct	Indicator	(Standardized) Loading to Proposed Latent Variable	(Standardized) Loading to CMLV
Strain-based negative WHI (STRAIN)	q0038	.704***	.296*
	q0032	.863***	-.231(ns)
	q0041	.580***	.483***
	q0031	.492***	.292*
Time-based negative WHI (TIME)	q0037	.794***	.051(ns)
	q0039	.639***	.096(ns)
	q0042	.591***	.430***
	q0034	.676***	-.097(ns)
Emotional exhaustion (EE)	q0044	.770***	.453***
	q0045	.729***	.406***
	q0046	.559***	.364***
	q0049	.489***	.337***
	q0051	.726***	.573***
	q0055	.600***	.393***
	q0059	.649***	.552***
Depersonalization (DP)	q0053	.790***	.160(ns)
	q0054	.788***	.345***
	q0048	.411***	.096(ns)
Average		.658	.278

CMLV = Common method latent variable

* $p < .05$; ** $p < .01$; *** $p < .001$; ns not significant ($p > .05$)

Appendix 4.4

Table C

Linear regression analysis of generic job demands vs. occupation-specific job demand

Model	Predictor	B	p	R	R-square	SE	F-change	p
1	WPQ	1.19	.000					
	Mental load	.14	.279					
Model summary				.60	.36	.81	49.22	0.000
2	WPQ	.94	0.000					
	Mental load	.01	.970					
	Indirect patient care	.23	0.000					
	Facilitatory relationships	-.04	.426					
	Patient behaviour	.18	.005					
Model summary				.66	.43	.77	7.40	0.000

N = 178. *Note:* The hierarchical regression analyses were performed to assess whether occupation-specific demands explained additional emotional exhaustion variance beyond the generic job demands. The coefficients differ from Table 4 since these additional analyses were limited to generic and occupation-specific demands only, while the analyses in Table 4 included generic and occupation-specific job demands and resources within the same model.



Chapter 5

The mediating role of work ability in the relationship between emotional exhaustion and depersonalization, and absenteeism frequency, absenteeism duration, and presenteeism

Introduction

Health problems, including psychological conditions, such as burnout, are considered the primary cause of productivity loss due to absenteeism (Johns, 1997) and presenteeism (Schultz & Edington, 2007). Burnout is a significant cause of health impairment among professionals with frequent and intensive contact with recipients of services, such as teachers, nurses, doctors, and general practitioners (GPs) (Taris et al., 2005).

Absenteeism is a growing problem among GPs. In recent years, absenteeism in this group was often higher than in other professional groups (National GP Association (LHV), 2021; Statistics Netherlands (CBS), 2021). The replacement of doctors, who are not able to work, is not only necessary for the continuity of care but also implies a substantial financial loss (Gorman et al., 2010). To limit and keep absenteeism manageable, it is necessary to have insight into the contributing factors of absenteeism (Kocakulah et al., 2016). The predominant paradigm of absenteeism research includes the medical model and the withdrawal model (Johns, 1997). Both models distinguish two different types of absenteeism, namely, absenteeism duration and absenteeism frequency (Bakker et al., 2003a; Hardy et al., 2003; Hensing et al., 1998). Absenteeism duration refers to the period of absence from work, expressed in days. By contrast, absenteeism frequency refers to the number of absences from work, regardless of the number of days (Bakker et al., 2003a). The medical model proposes that the health status of the employee is primarily related to absenteeism duration (Hensing et al., 1998), while the withdrawal model suggests that motivational factors play a predominant role in absenteeism frequency (Johns, 1997). The distinction between absenteeism duration and absenteeism frequency is necessary because when tackling absenteeism, it is important to understand whether different factors contribute to absenteeism duration, while other factors may contribute to frequency duration.

Absenteeism duration is regarded as a form of involuntary absenteeism – principally not being able to work – while absenteeism frequency is regarded as a form of voluntary absenteeism – principally not being motivated to work (Schaufeli et al., 2009). In the present study, we examine the differential effects of the health (i.e., emotional exhaustion) and motivational (i.e., depersonalization) components of burnout (e.g. Chênevert et al., 2021) on absenteeism frequency and absenteeism duration.

By distinguishing between the health and motivational components of burnout (e.g. Schaufeli & Taris, 2014), we aim to contribute to a long-standing debate on two issues regarding the dimensionality of burnout. First, empirical research has posed questions regarding the

factorial validity of a well-known and widely used burnout instrument. Vanheule et al. (2012) showed that burnout consists of several constructs, while there was no convincing evidence for the existence of a higher-order construct. Second, in existing empirical work, often one of two approaches is used to capture the concept of burnout. One school approaches burnout as a unitary concept, in which two or more dimensions are merged (e.g. Bakker et al., 2003a; Fernet et al., 2013) and the joint concept is positioned as part of the health-limiting process in the Job Demands-Resources (JD-R) model. The other school views burnout as two or more distinct dimensional concepts (e.g. Jourdain & Chênevert, 2010). Since one burnout component has been argued to play a more important role in the health impairment process, while another burnout component is argued to be more important for the motivational process, we follow the latter. To be more specific, it is argued that emotional exhaustion has serious health consequences (Ahola et al., 2010) and is associated with limited emotional and physical functioning (Tuithof et al., 2017). Therefore, emotional exhaustion plays a role in the health-limiting process (e.g. Jourdain & Chênevert, 2010), resulting in the employee's inability to work (i.e. absenteeism duration). The other burnout component, depersonalization, is considered a strategy by which the employee withdraws from work to limit the loss of energy (e.g. Schaufeli & Taris, 2014). This strategy is positioned in the motivational process of the JD-R model and is believed to influence absenteeism frequency. However, the relationship between motivational components of burnout and absenteeism frequency has been studied sparsely. Therefore, the present study aims to disentangle the effects of the health-impairment component of burnout (emotional exhaustion) and the motivational component of burnout (depersonalization) by examining their individual effects on absenteeism duration and absenteeism frequency.

Absenteeism (duration and frequency) and presenteeism are both types of attendance behaviour considered equally detrimental to the organisation (Miraglia & Johns, 2021). The negative impact of presenteeism is primarily caused by the loss of productivity, resulting in financial expenses for the organization (Cooper & Dewe, 2008; Lerner et al., 2015). However, not only does presenteeism affect the quantity of work (Leggett et al., 2018) but also the quality of work (Cicolini et al., 2016; D'Errico et al., 2016). As a result, and in the case of healthcare organizations, presenteeism has negative consequences for the quality of care. At the same time, GPs and healthcare organizations such as hospitals are under great pressure to deliver high-quality patient care despite declining revenues (Christopher, 2016; Letvak et al., 2012). The awareness has grown among researchers that both types of attendance behaviour, absenteeism and presenteeism, are interrelated and that both concepts should not be examined

separately but simultaneously (Gosselin et al., 2013; Johns, 2010). This insight has led to the gradual development of so-called joint models with which several observations, for example, absenteeism and presenteeism, can be studied simultaneously within the same individual (Böckerman & Laukkanen, 2010; Johns, 2010). While absenteeism refers to “sick and at home” and presenteeism refers to “sick and at work”, the similarity between the two definitions is striking because both concepts are related to the same underlying issue: the impact of illness on work attendance and productivity. This similarity is recognized in the literature, and researchers often study absenteeism and presenteeism together as complementary aspects of the same phenomenon (Johns, 2010). Moreover, there is empirical evidence that both concepts are associated with each other through common determinants (Caverley et al., 2007; Johns, 2010). According to the Selection, Optimization and Compensation (SOC) theory (Baltes 2012), doctors who are confronted with increased job demands, for example, due to burnout, will primarily refocus on the core task, which is patient care. However, doctors are expected to react oppositely to emotional exhaustion and depersonalization. Emotional exhaustion can be met with presenteeism.

However, depersonalization is already used as a protective mechanism by distancing from patient care, so it is unlikely that presenteeism will also be responded to now. In other words, a differential effect of emotional exhaustion and depersonalization on presenteeism is expected.

In addition, we consider the mediating role of work ability in the relationships between emotional exhaustion, depersonalization, absenteeism duration and absenteeism frequency. Work ability is defined as “the physical and mental capacity to perform the job” (Pak et al., 2021, p. 313). Since both health and motivational factors influence work ability, we expect that both emotional exhaustion and depersonalization, although through two different processes, but the same mediating variable work ability, reduce the employee’s ability (health) and willingness (motivation) to do the job, thereby increasing absenteeism duration and frequency.

With the present study, we aim to develop a better understanding of the mechanism by which burnout is related to absenteeism duration, absenteeism frequency and presenteeism. First, we contribute to the debate on the dimensionality of burnout by considering emotional exhaustion and depersonalization as two different predictors of absenteeism duration, absenteeism frequency and presenteeism. This distinction sheds light on the different processes involved in these different types of presence behaviour. Second, despite empirical interest in work ability, current research is often atheoretical (e.g. Martus et al., 2010; Pranjic

& Males-Bilic, 2014; Vänni et al., 2012). By positioning work ability as a mediating mechanism in the health- limiting and motivational process, we aim to make a theoretical contribution by extending the JD-R model with work ability, absenteeism duration, absenteeism frequency and presenteeism and the corresponding relationships. To the best of our knowledge, this aspect of work ability has not been studied before.

Theoretical background and development of hypotheses

Burnout

Burnout is a psychological syndrome originally characterized by three dimensions, emotional exhaustion, depersonalization, and diminished personal accomplishment (Maslach & Leiter, 2016). Emotional exhaustion means feeling tired or exhausted (Bianchi et al., 2013), while depersonalization refers to a cold, distant attitude toward work or people (Martínez et al., 2020). Diminished personal accomplishment refers to the feeling of not being able to do the job properly.

Although burnout was originally conceptualized as consisting of these three dimensions (Maslach & Leiter, 2016), the number of dimensions has been debated over the years (Kristensen et al., 2005; Maslach, 1993; Schaufeli, 2003; Schaufeli & Taris, 2005). Some scholars argue for a multi-dimensional approach to burnout, while others argue for a unidimensional approach. Due to the complex relationships between the three burnout dimensions, significant loss of information would occur through a unidimensional approach (Brenninkmeijer & Vanyperen, 2003; Maslach, 1993). Nevertheless, the simplification of complex multi-faceted ideas to a single-facet-idea is a common procedure in psychological research. This simplification process has the advantage that the results are more visible and easier to explain. The choice of whether to simplify the original idea depends on the research question and the complexity of the idea (Brenninkmeijer & Vanyperen, 2003). An example of the importance of a multi-dimensional approach to burnout comes from the study by Vanheule et al. (2012), in which the factorial validity and measurement invariance of the Utrecht BurnOut Scale (UBOS) were examined. Their study demonstrated that a three-factor model of burnout (emotional exhaustion, depersonalization, and diminished personal accomplishment) could not be transformed into a second-order model. Thus, the researchers were unable to replicate the findings of Taris et al. (1999) who found support for a second-order model of burnout (i.e., supporting a unidimensional approach). A possible cause of this discrepancy could be a causal relationship between the three burnout dimensions. Vanheule et al. (2012) conclude, among other things, that researchers are better off working with sub-dimensions than considering burnout as a uni-dimensional construct. In an extensive commentary on the presentation of the Copenhagen Burnout Inventory, Schaufeli and Taris (2005) argue that emotional exhaustion and depersonalization are undisputedly part of the burnout concept. They further argue that the dimension of diminished personal accomplishment may not be part of the overall concept

of burnout (Schutte et al., 2000). Following Schaufeli and Taris (2005), in the present study, we consider burnout as a two-dimensional construct with the dimensions of emotional exhaustion and depersonalization.

Absenteeism Duration and Frequency

Several causal absenteeism models exist, the most influential is the Rhodes and Steers (1990) model. In this absenteeism model, the employee's presence at work is mainly determined by the perceived ability to be present and the motivation to be present. Ability and motivation are separate constructs. Although not explicitly stated, motivation to be present at work appears to be related to absenteeism frequency, while the ability to be present at work appears to be related to absenteeism duration (Anderson & Geldenhuys, 2011; Brooke, 1986). To be more specific, long-term sick leave, or absenteeism duration, is associated with serious illness or medical conditions that do not (easily) recover, thus referring to the inability to show up for work. Frequent absence from work, or absenteeism frequency, is often regarded by researchers as a psychological phenomenon, driven by motivational or behavioural processes (Kohler & Mathieu, 1993; Petrie & Weinman, 1997; Schaufeli et al., 2009).

One explanation for absenteeism is derived from the "Stress hypothesis", which has its origin in classical stress theory (Cannon, 1939). According to the "Fight-or-Flight" response, an organism that perceives a threat reacts with a massive discharge of the sympathetic nervous system (Cannon, 1939). The subsequent production of hormones and neurotransmitters prepares the organism to fight or flight. The choice a human being makes to fight or flee depends on psychological mechanisms. The choice to fight or flee means a constant threat and thus a continuous source of stress (McEwen, 2007). This stress response and particularly persistent stress, in turn, can lead to increased emotional exhaustion and increased absenteeism due to illness (Demerouti et al., 2001). This type of absenteeism refers to absenteeism duration.

In contrast to absenteeism duration, absenteeism frequency is strongly influenced by the motivation to be present at work (Kanfer et al., 2017; Shantz & Alfes, 2015). Absenteeism frequency is preceded by a cognitive decision to escape from, compensate for, or protest against adverse or demoralizing work conditions (Biron & Bamberger, 2012; Chadwick-Jones et al., 1982). Absenteeism frequency can be elucidated with the withdrawal hypothesis that originates from the withdrawal sequence, which starts with psychological withdrawal (depersonalization) due to unfavourable work conditions and progresses to withdrawal behaviour (absenteeism

frequency) (Beehr & Gupta, 1978; Lyons, 1972). In summary, attendance motivation (Kanfer et al., 2017; Shantz & Alfes, 2015) and withdrawal, refer to absenteeism frequency.

Emotional exhaustion, depersonalization and absenteeism duration and frequency

The JD-R model is used in this study to link the two components of burnout, emotional exhaustion and depersonalization, to absenteeism duration and absenteeism frequency (Demerouti et al., 2001; Schaufeli et al., 2009). Job demands are physical, psychological, social, and organizational aspects of work that require effort from the worker (Demerouti et al., 2001) and include work overload (Bakker et al., 2004; Patel et al., 2018), demanding patients (Bakker et al., 2000) and role stress (Tziner et al., 2015). Job resources refer to physiological, psychological, social and organizational aspects of work that are either (a) functional in achieving work goals, or (b) reduce job demands or (c) stimulate personal growth and development (Demerouti et al., 2001; Richter & Hacker, 1998). The JD-R model distinguishes between two processes that contribute to organizational outcomes, the health-impairment process and the motivational process (Demerouti & Bakker, 2011). The health-impairment process arises at job demands and focuses mainly on emotional exhaustion, while the motivational process arises at job resources and mainly focuses on depersonalization.

According to the seminal study by Demerouti et al. (2001), the lack of job resources leads to an increase in depersonalization and reduced motivation. Existing work has generally focused on the relationship between demands and resources and burnout or burnout components as outcome variables. Although these studies have brought invaluable insights, in the JD-R model, the burnout components were originally positioned as mediating mechanisms (e.g. Bakker et al., 2003a), explaining how demands and resources affect outcomes of the health impairment process. The health impairment process leads through emotional exhaustion and burnout (e.g. Bakker et al., 2003b) to outcomes such as reduced health (Melamed et al., 2006), reduced work performance (Bakker et al., 2008) and absenteeism duration (Bakker et al., 2003a). This latter outcome can be explained by the “Stress hypothesis”. The motivational process leads through motivation (Bakker et al., 2003b) to outcomes such as organizational commitment (Schaufeli et al., 2009), turnover (Gabel Shemueli et al., 2016) and absenteeism frequency (Bakker et al., 2003a). This latter outcome can be explained by the “Withdrawal hypothesis”. Yet not many studies have focused on the second part of the model. In the present study, we take the role of demands and resources in causing emotional exhaustion and depersonalization as a given and

instead focus on the role of these burnout components in absenteeism frequency and duration and the mediating role of work ability herein.

Many antecedents of absenteeism are known according to several review studies (e.g. Darr & Johns, 2008; Johns & Miraglia, 2015). However, in both the Rhodes and Steers (1990) model and the Johansson (2007) model, absenteeism is ultimately determined by the ability to work (i.e., health factors) and the motivation to work (i.e., motivational factors). The ability to work, in turn, is largely explained by health (e.g., emotional exhaustion). Absenteeism duration is proposed to be predicted by both emotional exhaustion and to a lesser extent by motivation (e.g., depersonalization) (Bakker et al., 2003a; Price & Spence, 1994). Absenteeism frequency, on the other hand, is proposed to be predicted by motivation (e.g., depersonalization) and to a lesser extent by emotional exhaustion (Bakker et al., 2003a; Thomson et al., 2000). Given the above, we propose that emotional exhaustion, through its debilitating mechanisms (i.e., health impairment) increases absenteeism duration (the amount of time an employee needs to recuperate from debilitating health conditions). Depersonalization, on the other hand, reduces an employee's motivation to work (i.e., motivational process) and therefore decreases one's willingness to attend work, thereby resulting in an increase in the extent to how often an employee is absent (absenteeism frequency). We therefore expect emotional exhaustion to be more strongly related to absenteeism duration than to absenteeism frequency, while we expect depersonalization to be more strongly related to absenteeism frequency than to absenteeism duration:

H1: *Emotional exhaustion is positively related to (a) absenteeism duration and to a lesser extent to (b) absenteeism frequency.*

H2: *Depersonalization is positively related to (a) absenteeism frequency and to a lesser extent to (b) absenteeism duration.*

Presenteeism

In addition to absenteeism, presence behaviour in a broader perspective also implies presenteeism. The essence of the concept of presenteeism is twofold, namely, being physically present at work and being sick at the same time. For the present study, we have chosen the definition of Aronsson et al. (2000, p. 503): "Going to work despite feeling unhealthy". Several arguments are put forward for the choice of this definition. Clarity and Consistency: By using a

definition that is widely recognized, researchers can ensure that their findings are comparable across studies. Practitioners can also use a common definition to identify and address presenteeism in the workplace (Johns, 2010). **Validity:** The phrase “going to work despite feeling unwell” is a valid definition of presenteeism because it encompasses the essential components of the phenomenon (Aronsson et al., 2000). **Reliability:** According to Lohaus and Habermann (2019), a reliable definition is essential for researchers to use to guarantee that their findings are consistent and transferable to other studies. Finally, it is practical and simple to understand that presenteeism is defined as “going to work while unwell.” It is simple to communicate to staff members, supervisors, and other workplace stakeholders, which can help to raise awareness and support interventions to address presenteeism (Collins et al., 2005).

Until about the turn of the century, managers harbored the idea that employees absent from work are a loss to the organization while presence at work contributes to profits (Cooper & Dewe, 2008). The growing awareness of the phenomenon of presenteeism has led to presenteeism and absenteeism being considered at least equally harmful to the organization through loss of productivity (Cooper & Dewe, 2008). Loss of productivity due to absenteeism and presenteeism is common in healthcare organizations (Rantanen & Tuominen, 2011). Moreover, presenteeism affects labor productivity and the quality of labor (Cicolini et al., 2016; D’Errico et al., 2016). Thus, in the case of healthcare organizations, presenteeism affects the quality of care. At the same time, GPs and healthcare organizations such as hospitals are under high pressure to deliver high-quality care with reduced budgets (Christopher, 2016; Letvak et al., 2012).

While absenteeism refers to “sick and at home” and presenteeism refers to “sick and at work”, the similarity between the two definitions is striking. The dynamic model of presence at work, i.e., presenteeism and absenteeism, by Johns (2010), shows the development of presenteeism and absenteeism in critical variables such as context (e.g. task demands, decision space), individual variables (e.g. work attitude, gender), health event and consequences (e.g. productivity). The model assumes that a fully productive work presence is interrupted by a health event that is either acute (e.g., flu), episodic (e.g., migraine), or chronic (e.g., burnout). To some extent, the nature of the health event will determine whether there will be absenteeism or presenteeism. Therefore, for example, a severe gastrointestinal infection will almost certainly lead to absenteeism, while an incipient burnout will probably lead to presenteeism (Johns, 2010).

Emotional exhaustion, depersonalization and presenteeism

Among the health-related determinants of presenteeism, we find psychological complaints such as depression and burnout (Aronsson et al., 2000; Burton et al., 2004; Pilette, 2005). Burnout represents a chronic response to work and an unfavourable response to sustained stress (Shirom et al., 2005). The two core components of burnout are emotional exhaustion and depersonalization (Schaufeli & Taris, 2005). Some emotional exhaustion does not immediately mean that an employee is sick and unable to work. Despite this, they can fully participate in the work and are fully capable of achieving their work goals (Demerouti et al., 2005). To explain this, we can draw on the SOC theory of Freund and Baltes (1998) and Baltes and Rudolph (2012). The SOC theory states that people have resources that are limited at any point in time. When employees are confronted with increased demands (e.g. illness), an allocation of those limited resources will be necessary (Gorgievski et al., 2011). The process of SOC is done by (a) selecting the goal to be achieved, (b) optimization and the use of goal-relevant means or (c) use of compensation mechanisms to maintain the achievement of the goal when the resources initially used are no longer available (Baltes, 1990; Zajac-Lamparska, 2021). For example, when employees experience increased exhaustion (lack of energy) and withdrawal (decreased willingness to invest effort in work), they will focus their attention on the core task of their work (Selection) (Demerouti et al., 2014). Optimization can consist of learning new procedures, imitating successful colleagues or investing more time in challenging tasks. Finally, compensation refers to organizing alternative ways to achieve the original work goal, for example, by working harder (Baltes, 1990; Zajac-Lamparska, 2021). In other words, despite increased emotional exhaustion and increased depersonalization, work performance remains unaffected. Thus, presenteeism can be seen as a strategy to protect work performance (Demerouti et al., 2014), used by employees experiencing emotional exhaustion and used to limit the decline in work performance and thereby avoid the loss of resources. Empirical clues partially supporting these propositions can be found, among others, in Demerouti et al. (2014). In a sample of 294 employees and their supervisors, they found that compensation is the most successful in overcoming the harmful effects of burnout (emotional exhaustion and depersonalization) on task performance. The above leads to the following hypothesis:

H3: *Emotional exhaustion is positively related to presenteeism.*

According to the E-R theory of Meijman et al. (1998), employees are tired at the end of a working day, and it is functional for them to withdraw to recover mentally and physically. However, with chronic, persistent efforts, and when there is otherwise insufficient recovery, withdrawal (depersonalization) is no longer functional but has become part of burnout (Schaufeli et al., 2008).

According to SOC theory (Baltes & Rudolph, 2012), an employee who is confronted with an increase in demands, for example, due to illness, for example, burnout, will reorient himself to the work situation. The employee does this through selection, optimization and compensation, ceasing additional activities and concentrating on the core task that is relevant to achieving the work goal. In the case of doctors, this core task is to provide care to patients. At the same time, however, these doctors employ strategies such as derogating, stereotyping and blaming that create a psychological distance to protect themselves (Schaufeli & Enzmann, 1998). Therefore, depersonalization towards patients is not to be expected to maintain presenteeism. The above leads to the following hypothesis:

H4: *Depersonalization is negatively related to presenteeism*

Work ability

“Work ability represents the physical and mental capacity to perform the work” (Pak et al., 2021, p. 313). The factors that affect work ability are summarized in a model called “The House of work ability” (Ilmarinen et al., 2005). In this model, the different factors that influence work ability are grouped as work-related factors and worker-related factors (Ilmarinen, 2006). The worker-related factors include health, work motivation, functional capacity, competence, values and attitudes. The present study focuses on two significant worker-related factors of work ability: health (Gould et al., 2008; Tuomi et al., 1997) and work motivation (Birioukov, 2016; Hakanen et al., 2005). An example of a health factor is emotional exhaustion which captures ‘ill health’, and an example of a work motivation factor is depersonalization, which captures reduced motivation (Hakanen et al., 2006).

We expect that work ability mediates the relationship between burnout (emotional exhaustion and depersonalization) and absenteeism (absenteeism duration and absenteeism frequency), which will be explained using the Conservation of Resources (COR) theory. The central assumption of the COR theory is that individuals strive to preserve, cherish and protect those things they value (Hobfoll et al., 2018). Based on this foundation, the COR theory states that stress arises (a) when central or critical resources are threatened with loss, (b) when

central or critical resources are lost, or (c) when central or critical resources are not regained after significant effort (Hobfoll et al., 2018). Two additional assumptions of the COR theory should be mentioned here, the principle of resource loss and the cycle of resource loss (Hobfoll, 1989). Burnout can thus be regarded as a process of depletion of energetic (health impairment) and motivational resources (Hobfoll, 2001; Westman et al., 2004). The inability to replenish lost energetic (health impairment) and motivational resources hinders normal functioning in daily work life and depletes functional capacity and health resources and motivational resources (Gorgievski & Hobfoll, 2008). In addition, the health of the individual is further threatened by the autonomic nervous system, in response to stress, activating acute responses by endocrine glands. Activation of the autonomic nervous system and endocrine glands makes the individual more susceptible to acquiring diseases (Antonovsky, 1987; Hobfoll & Shirom, 2001). Several empirical studies have been published in recent decades that demonstrate the relationship between health status and work ability (e.g. Koolhaas et al., 2014; Kristjuhan & Taidre, 2005). In particular, mental disorders, such as burnout, have been shown to reduce work ability (e.g. Boschman et al., 2014; Ruitenburg et al., 2012; Viotti et al., 2017; Viotti et al., 2019). Thus, the burnout component, emotional exhaustion, reduces work capacity due to the depletion of energetic (health-impairment) resources and the burnout component, depersonalization, decreases work capacity due to the depletion of motivational resources. Based on the above we propose the following hypotheses:

H5: *Emotional exhaustion is negatively related to work ability*

H6: *Depersonalization is negatively related to work ability.*

Work ability and presenteeism

Although both work ability and presenteeism are employed to describe employee productivity, they refer to different characteristics of job performance (Van den Berg et al., 2008). Work ability refers to an employee's capacity to accomplish his or her job while taking into account his or her health, abilities, and environment (Ilmarinen et al., 1997). A high work-ability employee may do his or her job efficiently and successfully, but a low work-ability employee can have poor performance and a higher likelihood of absence. Presenteeism, on the other hand, refers to the phenomenon in which employees attend work but do not perform to their full potential owing to health issues, personal problems, or other circumstances. This can result in decreased productivity and lower work quality (Demerouti et al., 2009a). It is proposed that

there is a link between work ability and presenteeism, as low ability increases the likelihood of work presenteeism (Kinnunen & Nätti, 2018). Employees with low work capacity may struggle to perform their duties efficiently and effectively, increasing the risk of poor performance and absenteeism. Presenteeism, on the other hand, can lead to diminished work ability because employees who are frequently present at work but are not working to their full capacity may develop physical or mental health issues that undermine their work ability (Vänni et al., 2012). The following hypothesis is proposed:

H7: *Work ability is negatively related to presenteeism*

In the previous section, we argued that work ability is negatively related to presenteeism. Combining hypotheses H5, H6 and H7 we propose the following hypotheses:

H8: *Work ability mediates the relationship between emotional exhaustion and presenteeism,*

H9: *Work ability mediates the relationship between depersonalization and presenteeism.*

Although often with suboptimal theoretical support (Cadiz et al., 2019), the relationship between work ability and absenteeism is empirically supported considerably in the literature, for both absenteeism duration (Alavinia et al., 2009; Bertilsson et al., 2015; Notenbomer et al., 2015; Reeuwijk et al., 2015; Rongen et al., 2014) and absenteeism frequency (Bertilsson et al., 2015; Notenbomer et al., 2015). We, therefore, propose the following hypotheses:

H10: *Work ability is negatively related to absenteeism duration*

H11: *Work ability is negatively related to absenteeism frequency*

We argued that emotional exhaustion is positively related to absenteeism duration and a lesser extent to absenteeism frequency (H1a,b). We also reasoned that depersonalization is positively related to absenteeism frequency and a lesser extent to absenteeism duration (H2a,b). Furthermore, we argued that emotional exhaustion, through depletion of energetic (health-impairment) resources, reduces work ability (H5) and that depersonalization, through depletion of motivational resources, reduces work ability (H6). Finally, we reasoned that absenteeism duration is negatively related to work ability (H10) and that absenteeism frequency

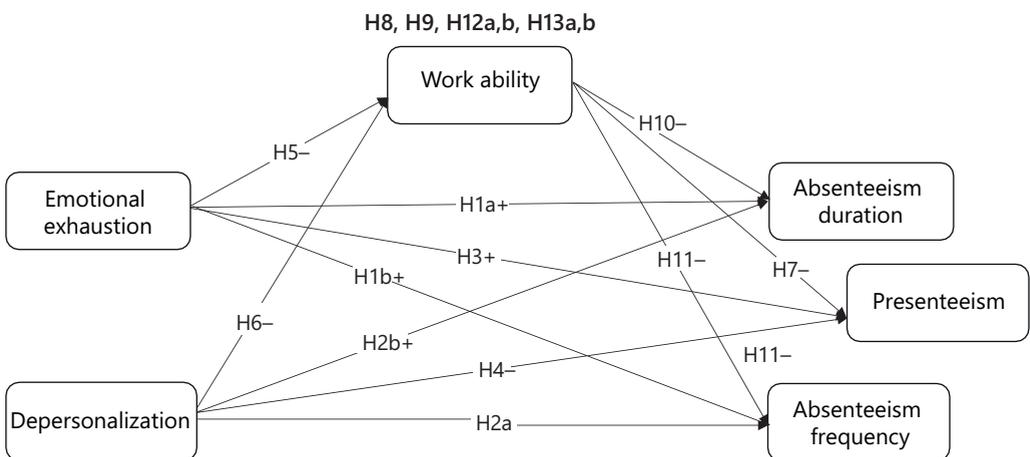
is negatively related to work ability (H11). Therefore, we expect that work ability mediates the relationship between emotional exhaustion and absenteeism duration and to a lesser extent of the relationship between emotional exhaustion and absenteeism frequency. Furthermore, we expect that work ability mediates the relationship between depersonalization and absenteeism frequency and to a lesser extent the relationship between depersonalization and absenteeism duration. Given the foregoing, we propose the following hypotheses:

H12: *Work ability mediates the relationship between emotional exhaustion and*
 (a) *absenteeism duration and to a lesser extent the relationship between emotional exhaustion and*
 (b) *absenteeism frequency*

H13: *Work ability mediates the relationship between depersonalization and*
 (a) *absenteeism frequency and to a lesser extent the relationship between depersonalization and*
 (b) *absence duration*

The proposed hypotheses have been indicated in the conceptual model (see Figure 1.).

Figure 1
 Conceptual model



Methods

Sample and procedure

All Dutch GPs are registered with the Dutch Institute for Primary Care (NIVEL). In the summer of 2017, 11,834 GPs were registered with Nivel, from which we drew a random sample of 900 GPs. These GPs received an invitation letter in which they were asked to participate via an online questionnaire (see Appendix 5.1) in a study into the consequences of burnout among GPs, in particular absenteeism, presenteeism and the role of work ability in this process. When the completed questionnaires were received, they were pseudonymised, that is, the personal data was destroyed, and the IP addresses were separated from the data set and kept separately.

Of the 176 respondents (response rate 19.6%), three respondents (1.7%) did not answer all items of the study variables, while five respondents (2.8%) did not answer all demographic questions. The influence of missing data can lead to loss of information, reduced statistical power increased standard errors (Peng et al., 2006), reduced generalizability (Schafer & Graham, 2002) but also biased parameter estimates (Newman, 2014). Because the missing data rate for the study constructs was judged to be low, the Expectation-Maximization (EM) algorithm in SPSS version 27.0, for single imputation was chosen for the current study (Dempster et al., 1977). In this way, we imputed the missing data of the study variables, except for the demographic items. Of the 171 respondents (5 respondents did not indicate their gender), 88 (50.0%) were female and 83 (47.2%) were male. while 5 (2.8%) respondents did not indicate their gender. The ages of the respondents ranged (5 respondents did not indicate their age) from 31 to 64 years with a mean age of 50.2 years (SD = 9.33). Of the respondents (5 respondents did not indicate their marital status), 145 (82.4%) lived with a partner, 14 (7.9%) were single, while 12 respondents (6.8%) did not answer the question about cohabitation. Of the respondents (5 respondents did not indicate their practice type), 39 (22.2%) practised in a solo practice, 63 (35.8%) in a duo practice, 46 (26.1%) in a group practice and 23 (13.1%) practised as an observer. The respondents who were practice holders indicated that they had an average of 6.2 (Sd = 3.0) employees, varying between 0 and 10 employees. The average tenure (5 respondents did not indicate their years of service) in current practice was 15.25 years (Sd = 10.0), ranging from 1 to 35.

To establish the generalizability of our study results, the distribution of some characteristics of respondents in the sample (n = 171), gender, age and practice type, was compared with the distribution in the general population of general practitioners (n = 11834).

The differences between the sample percentages and the population percentages were tested utilizing the Z-test because the sample size was large (> 100) (Driscoll & Lecky, 2001). A non-significant Z-value means that the null hypothesis (no difference) is not rejected. The percentage of GPs working in a solo practice was not significantly different from the general population of GPs (22.2% vs. 18.0%) ($Z = 1.37$; $p = .17$) and also the differences in percentages of GPs working in a duo practice (35.8% vs. 40.0%) ($Z = -1.12$; $p = .26$) and the differences in percentages of GPs working in a group practice (26.1% vs. 22.0%) ($Z = 1.30$; $p = .19$) were not significant. The percentage of female GPs in the sample (50.0%) also did not differ much from the general population of GPs (51.1%) ($Z = -.26$; $p = .79$).

Furthermore, 17.6% of the respondents in the sample were under 40 years of age, which was 25% of the general population of GPs ($Z = -2.25$; $p = .02$). From this comparison of characteristics, we conclude that the composition of the sample of GPs corresponds well with the general population of GPs in most aspects.

Measurement instruments

Absenteeism

Absenteeism frequency was measured by a single item “During the past twelve months, how often have you been absent from work due to illness?”. The answer possibilities were 1 = never, 2 = once, 3 = 2–5 times, and 5 = more than 5 times. Absenteeism duration was measured by a single item “During the past twelve months, how many days were you absent from work due to illness?”.

The answer possibilities were 1 = none, 2 = max 9 days, 3 = 10–24 days, 4 = 25–99 days, and 5 = 100–354 days. Although the use of single-item scales can have adverse consequences for the validity and reliability of the measurement scales, the use of single-item scales for absenteeism duration and absenteeism frequency is common and therefore we have also used them in the current study (Berry et al., 2012; Johns & Miraglia, 2015).

Presenteeism

Presenteeism was operationalized using the single-item question “Have you happened to go to work in the past twelve months despite the feeling that you should have stayed at home sick?”. Answer possibilities were: 1 = never, 2 = once, 3 = 2–5 times, and 4 = more than 5 times. This single-item scale has been used in several recent studies (Aronsson et al., 2000; De Vroome et al., 2010; Demerouti et al., 2009b; Gustafsson Senden et al., 2016).

Work ability

There are several measurement instruments available to assess work ability. The Work Ability Index (WAI) (Tuomi et al., 1994) has been criticized for its complexity. To overcome this complexity, attention has shifted to less complex measures with fewer questions, such as single-item measures (Ahlstrom et al., 2010; Airila et al., 2014; El Fassi et al., 2013). However, the debate on the pros and cons is still ongoing (Böckenholt & Lehmann, 2015; Diamantopoulos et al., 2012). In a simulation study on the WAI, Diamantopoulos et al. (2012) found that the predictive validity of multi-item scales far exceeds that of single-item scales. By choosing a three-item construct for work ability, we use the advantages of a multi-item construct (Diamantopoulos et al., 2012) and avoid the complexity of the extensive WAI. In addition, we prevent the validity and reliability issues from being expected with a single-item construct. Therefore, we have opted for the 3-item scale of Boelhouwer et al. (2020) in the current study. Although the questions associated with the Work Ability Index (WAI) were used in the original data collection in 2017, the WAI largely overlaps the three items on work ability of Boelhouwer et al. (2020). The scale consists of three questions from the original WAI: “If you rated your workability 10 points at the best time of your life, how many points would you rate your workability right now? (‘0’ means you are currently unable to work at all)” (range 0–10). The second question is: “How do you currently rate your workability in relation to the physical demands of your job?” (range 1–5). The third question is: “How do you currently rate your work ability in relation to the psychological demands of your work?” (range 1–5). The 10-point Likert scale of the first question was transformed into a 5-point Likert scale.

Burnout

Emotional exhaustion and depersonalization were measured with eight and four items from the UtrechtBurnOutScale (UBOS-C scale) (Schaufeli & Van Dierendonck, 2000). The items were measured on a 7-point Likert scale ranging from 0 (never) to 6 (always). Example items include 'Working with people all day is a heavy burden for me.' (emotional exhaustion) and 'I worry that my work will numb me emotionally' (Depersonalization).

Measurement model

We used confirmatory factor analysis (CFA) to determine the validity of the measurement model. The following cutoff criteria were used. The relative chi-square (CMIN/df) should ideally be less than 3 (Kline, 2005). The Comparative Fit Index (CFI) and the Tucker-Lewis index (TLI) are ideally greater than .95 (Hu & Bentler, 1999), the root mean square residual (RMR), and the standardized root mean square residual (SRMR) had to be smaller than .05 (Byrne, 1998). The root mean square error of approximation (RMSEA) should be smaller than .07 (Steiger, 2007). Furthermore, the factor loadings should be at least .50 (Hair et al., 2010). In addition, the average variance extracted (AVE) from the measurements should ideally be at least .50 (Malhotra & Dash, 2011), and the AVE should be greater than the squared correlations with the other latent variables (Fornell & Larcker David, 1981). The composite reliability (CR) had to be at least .70 (Malhotra & Dash, 2011), while the heterotrait-monotrait ratio (HTMT) should be less than .90 (Henseler et al., 2015).

The initial CFA, in which only multi-item measurement scales were considered, of measurement model 1a (emotional exhaustion, 8 indicators, depersonalization, 4 indicators and work ability, 3 indicators) showed an acceptable fit with the data ($\chi^2/df = 1.83$, RMR = .07, SRMR = .06, RMSEA = .07, CFI = .94 and TLI = .93). However, the AVE of depersonalization (.38) is below the threshold of .50. Therefore, the indicator with the lowest factor loading (.42) was removed from the model to improve the convergent validity. After removing the item, the fit of the model (1b) slightly improved ($\chi^2/df = 1.73$, RMR = .06, SRMR = .05, RMSEA = .07, CFI = .96 and TLI = .95), and the AVE of depersonalization improved (.44) but was still below the recommended .50 cut-off criterion. However, according to Fornell and Larcker (1981, p. 47), the convergent validity can be considered adequate if the AVE < .50 and the composite reliability (CR) \geq .6. Moreover, the Heterotrait-Monotrait Ratio (HTMT) of the correlations between the constructs of emotional exhaustion, depersonalization and work ability were well below the cut-off criterion of .9 (Henseler et al., 2015), indicating sufficient discriminant validity. Therefore, model 1b was

accepted with adequate fit, reliability, convergent validity, and discriminant validity. In addition, there is a danger of affecting face validity by removing too many indicators from the construct of depersonalisation. Furthermore, model 1b was compared to several alternative models, model 2, a 2-factor model combining emotional exhaustion and depersonalization, model 3a, a 1-factor model, combining emotional exhaustion, depersonalization and work ability, and model 3b, a CLF model (see Table 1 Panel A). Comparison of the three models 1b, 2 and 3a, using the chi-square test of difference, showed that model 1b had the best fit to the data. A comparison of the two models 1b and 3b showed that model 3b had a better fit to the data, which is understandable because model 3b is a CLF model, which introduces considerably more parameters and creates a larger model (Ng & Feldman, 2013).

Table 1
Fit indices models

Panel A – Measurement model and alternative models										
Model	Description	χ^2	df	χ^2/df	RMR	SRMR	RMSEA	TLI	CFI	model comparison $\Delta\chi^2(\Delta df)$
1a	Three-factor model, 15 items EE, DP and WA	161.65	87	1.86	.07	.06	.07	.93	.94	
1b	Three-factor model, 14 items	130.65	74	1.77	.07	.05	.07	.94	.95	
2	2-factors model; combining EE and DP	193.41	76	2.55	.08	.07	.09	.89	.91	Model 2 vs. model 1b $\Delta\chi^2(2, N = 176) = 62.76, p < .001$
3a	1-factor model, combining EE, DP and WA	246.79	77	3.21	.09	.08	.11	.84	.86	Model 1b had a better fit to the data than Model 2 Model 3a vs. model 1b $\Delta\chi^2(3, N = 176) = 116.14, p < .001$ Model 1b had a better fit to the data than model 3a
3b	CLF model	91.37	61	1.50	.05	.04	.05	.96	.98	Model 3b vs. model 1b $\Delta\chi^2(13, N = 176) = 39.28, p < .001$ Model 3b had a better fit to the data than model 1b

Panel B – Structural model and alternative model										
Model	Description	χ^2	df	χ^2/df	RMR	SRMR	RMSEA	TLI	CFI	model comparison $\Delta\chi^2(\Delta df)$
4a	structural model	164.67	109	1.51	.06	.06	.05	.96	.96	
5	Reversed model	177.29	110	1.61	.07	.06	.06	.95	.96	model 5 vs model 4a $\Delta\chi^2(1, N = 176) = 12.62, p < .001$ Model 4a had a better fit to the data than model 5

Note, Abbreviations: EE=emotional exhaustion, DP=depersonalization, WA=work ability, CLF = common latent factor



Common Method Variance

Common method variance (CMV) is the bias that arises from the measurement method and not from the measurement model (Podsakoff et al., 2003). If present, CMV can interfere with parameter measurements or the relationship between two different constructs (Mackenzie & Podsakoff, 2012). In the current study, a cross-sectional study, a single source for the data is used. Therefore, the presence of CMV is not unlikely and it is important to determine if CMV is a concern.

Because it is better to compare the results of more than one method, two methods were used to test the presence of CMV in the current study, including Harman's single factor test although considered insufficient (Chang et al., 2010). A Common Latent Factor (CLF) test was performed according to the method of Podsakoff et al. (2003) and the adaptation of Williams et al. (2003). Table 1 presents the fit indices of a 1-factor model (model 3a). These fit indices indicate that the model fits poorly to the data. Due to the poor model fit, the single factor cannot account for the majority of the variance and therefore the presence of CMV is unlikely. The CLF test, which is represented by model 3b, shows a better fit to the data than model 1b ($\Delta\chi^2(13, N = 176) = 39.28, p < .001$), which is not surprising because introducing the CLF expands the model with many more parameters thus creating a larger model (Ng & Feldman, 2013). The CLF test examines whether CMV is a problem by examining the factor loadings of the items on the assumed latent factor, with and without the inclusion of a CLF. When the CLF is included, the items should still load significantly and in the expected direction on their assumed factor (Ng & Feldman, 2013). In addition, the factor loadings on the assumed factor must be greater than .50, while the factor loadings on the CLF must either be insignificant or if they are significant, at least with a loading lower than the assumed factor loading (Brammer et al., 2015). The results of these analyses are presented in Table A in appendix 5.2 and show that the presence of severe CMV is unlikely in this study.

Analysis strategy

We tested the structural model (model 4a) and an alternative model, model 5 the reversed model. The alternative model (5) was a reversed model in which work ability was proposed as an independent predictor of absenteeism duration through the mediator emotional exhaustion and work ability as an independent predictor of absenteeism frequency through the mediator depersonalization. Also, in the alternative Model 5, work ability was proposed as an independent predictor of presenteeism through the mediators of emotional exhaustion and

depersonalization. According to Viotti et al. (2019), there is evidence that work ability “comes first” as an independent variable instead of emotional exhaustion and depersonalization, in contrast to our hypothesized model (model 4a). The aim of the study by Viotti et al. (2019) was to investigate the directionality of the relationship between burnout (emotional exhaustion, enthusiasm for work and cynicism) and work ability. In a longitudinal study among 349 early childhood educators, they found that work ability is a positive predictor of enthusiasm for work and a negative predictor of emotional exhaustion. Work ability was not found to be a predictor of cynicism. Since the contrast between the study by Viotti et al. (2019) with burnout as an outcome variable and the current study with burnout as a predictor is momentous, we used the reversed model (5) as an alternative structural model.

Utilizing the structural model (4a), hypotheses were tested in Amos, version 27.0 (Arbuckle, 2020). Because the three outcome variables in our study (absenteeism duration, absenteeism frequency and presenteeism) are categorical, it is recommended to use a Bayesian approach to the parameter estimates, which is possible in Amos (Byrne, 2010). Hypotheses 1 to 5 concern linear relationships between the independent, continuous variables (emotional exhaustion and depersonalization) and the dependent, categorical variables (absenteeism duration, absenteeism frequency and presenteeism), which are indicated by the total effects model in Amos. To test mediation hypotheses 8, 9, 12a,b and 13a,b, the path product approach is used (Alwin & Hauser, 1975). Since mediation tests differ significantly in type I error and statistical power, the recommended mediation test is the product of the coefficients method (Alwin & Hauser, 1975). To test the presence of mediation, the total effect of the relationship between X and Y must be significant. Second, the relationship between the independent variable (X) and the mediator (M), also called path a, and the relationship between the mediator and the outcome variable (Y) must be significant (path b). Next, the product (ab) of the a-path and the b-path, also referred to as the indirect effect in Amos, must be significant. If these conditions are met, there is evidence of mediation (Mathieu & Taylor, 2006). If there is no significant total effect between X and Y, but the other conditions are met, there is evidence of an indirect effect (Mathieu & Taylor, 2006). To test the significance of the mediated or indirect effect, Bayesian bootstrapping with 5000 sub-samples is used to produce 95% credibility intervals (Arbuckle, 2020), which is the counterpart of the frequentist non-parametric bootstrapping with 95% confidence intervals (Preacher & Hayes, 2008). The normality of the sampling distribution is an assumption required for many statistical procedures. Data is considered normally distributed if the skewness is between -2 and +2 and if the kurtosis is between -7 and +7 (Byrne, 2010; Hair

et al., 2010). In the current study, absenteeism data show signs of nonnormality. Table B (see Appendix 5.3) shows absenteeism data from the present study, which is not normal according to skewness (absenteeism frequency and duration) and kurtosis (absenteeism duration). Presenteeism however does not show signs of non-normality. Several procedures exist to transform non-normal data to approach normality, including square root transformation (Chou et al., 1998). Further analyses were performed using square root transformed absenteeism data, data for presenteeism were not transformed.

Results

The means, standard deviations, correlations, and scale reliabilities (Cronbach's α) among the study variables were assessed in SPSS and the results are presented in Table 2. Though Cronbach's alpha is generally considered good if $> .7$, a value of $.661$ (DP) is considered acceptable (DeVellis & Thorpe, 2021). The results of the hypothesis tests are included in Table 3. The hypotheses were tested in the structural model (4a). The fit of model 4a, which was good ($\chi^2/df = 1.51$; RMR = $.06$; SRMR = $.06$; RMSEA = $.05$; CFI = $.96$; TLI = $.95$; AIC = 252.67) was compared to the fit of the reversed model (5) which was also good ($\chi^2/df = 1.61$; RMR = $.07$; SRMR = $.06$; RMSEA = $.06$; CFI = $.96$; TLI = $.94$; AIC=263.29). To compare the models, we utilized the Chi-square difference test because the models are nested. Hence, because the chi-square difference test is significant ($\Delta\chi^2 (1, N = 176) = 12.62, p < .001$), the larger model, with more parameters but fewer degrees of freedom, that is the structural model (4a), has a better fit to the data.

Table 2

Mean, standard deviation, Pearson's correlation, and Cronbach's α (diagonally in boldface)

	Mean	Std. deviation	N	EE	DP	WA	DUR	FREQ	PRES
EE	2.81	.928	176	.899					
DP	2.11	.807	176	.417**	.661				
WA	5.30	.819	176	-.694**	-.265**	.730			
DUR	1.40	.849	176	.269**	.162*	-.338**	1		
FREQ	1.38	.697	176	.226**	.163*	-.281**	.832**	1	
PRES	1.88	.876	176	.535**	.271**	-.420**	.275**	.242**	1

Note, Abbreviations: EE = emotional exhaustion, DP = depersonalization, WA = work ability, DUR = absenteeism duration, FREQ = absenteeism frequency, PRES = presenteeism, **, correlation is significant at the $.001$ level and *, correlation is significant at the $.05$ level.

According to Hypothesis 1a, there is a positive relationship between emotional exhaustion and absenteeism duration and to a lesser extent between emotional exhaustion and absenteeism frequency (Hypothesis 1b). The results provide support for Hypothesis 1a, emotional exhaustion is significantly directly and positively related to absenteeism duration ($B = .092, 95\% \text{ CI } [.014, .172]$). Moreover, the results support Hypothesis 1b, emotional exhaustion is significantly related to absenteeism frequency ($B = .068, 95\% \text{ CI } [.000, .140]$).

According to Hypothesis 2a, there is a positive relationship between depersonalization and absenteeism frequency and to a lesser extent between depersonalization and absenteeism duration (hypothesis 2b). The results provide no support for Hypothesis 2a, depersonalization is not significantly related to absenteeism frequency ($B = .039$, 95%CI $[-.035, .120]$), also, the results provide no support for Hypothesis 2b, depersonalization is not significantly related to absenteeism duration ($B = .037$, 95% CI $[-.045, .126]$).

According to Hypothesis 3, emotional exhaustion is significantly positively related to presenteeism. The results provide support for Hypothesis 3, emotional exhaustion is significantly related to presenteeism ($B = .569$, 95% CI $[.367, .801]$).

According to Hypothesis 4, depersonalization is significantly negatively related to presenteeism. The results provide no support for Hypothesis 4, depersonalization is not significantly related to presenteeism ($B = .119$, 95% CI $[-.114, .351]$).

According to Hypothesis 5, workability is significantly negatively related to presenteeism. The results provide no support for this hypothesis, work ability is not significantly related to presenteeism ($B = -.051$, 95% CI $[-.270, .162]$).

According to Hypothesis 6, emotional exhaustion is significantly negatively related to work ability. The results support this hypothesis, ($B = -1.368$, 95% CI $[-1.802, -1.032]$).

According to Hypothesis 7, depersonalization is significantly negatively related to work ability. The results provide no support for this hypothesis, depersonalization is not significantly related to work ability ($B = .112$, 95% CI $[-.171, .414]$).

According to Hypothesis 8, work ability mediates the relationship between emotional exhaustion and presenteeism. The results provide no support for this hypothesis. The direct relationship between emotional exhaustion and presenteeism is significant ($B = .569$, 95% CI $[.367, .801]$). However, the indirect relationship between emotional exhaustion and presenteeism, through work ability, was not significant ($B = .070$, 95% CI $[-.230, .373]$). Hence, we conclude that work ability does not mediate the relationship between emotional exhaustion and presenteeism.

According to Hypothesis 9, work ability mediates the relationship between depersonalization and presenteeism. The results provide no support for this hypothesis. The direct relationship between depersonalization and presenteeism was not significant ($B = .110$, 95% CI $[-.114, .351]$). Moreover, the indirect relationship between depersonalization and presenteeism, through work ability, was also not significant ($B = -.005$, 95% CI $[-.060, .011]$). Hence, we conclude that work ability does not mediate the relationship between depersonalization and presenteeism.

According to Hypothesis 10, a significant negative relationship exists between work ability and absenteeism duration. The results provide support for this hypothesis ($B = -.087$, 95% CI $[-.173, -.003]$).

According to Hypothesis 11, a significant negative relationship exists between work ability and absenteeism frequency. The results provide no support for this hypothesis ($B = -.051$, 95% CI $[-.131, .019]$).

According to Hypothesis 12a, work ability mediates the relationship between emotional exhaustion and absenteeism duration. The results provide support for this hypothesis. The total effect of the model was significant, $B = .092$, 95% CI $[.014, .172]$. However, the direct relationship between emotional exhaustion and absenteeism duration was not significant ($B = -.028$, 95% CI $[-.173, .118]$). The total effect represents the overall relationship between the independent variable (IV) and the dependent variable (DV) regardless of intermediate steps. The direct effect represents the relationship between IV and DV after accounting for the influence of the mediating variable. A significant total effect and a non-significant direct effect suggest that the relationship between IV and DV is mediated by the mediating variable. Moreover, the indirect relationship between emotional exhaustion and absenteeism duration, through work ability, was also significant ($B = .119$, 95% CI $[.004, .248]$). Hence, we conclude that the relationship between emotional exhaustion and absenteeism duration is fully mediated by work ability.

According to Hypothesis 12b, work ability mediates the relationship between emotional exhaustion and absenteeism frequency, through work ability. The results provide no support for this hypothesis. The total effect between emotional exhaustion and absenteeism frequency was significant, $B = .068$, 95% CI $[.000, .140]$. However, the direct effect between emotional exhaustion and absenteeism frequency was not significant ($B = -.008$, 95% CI $[-.138, .118]$). A significant total effect and a non-significant indirect effect suggest that the relationship between IV and DV is mediated by the mediating variable. However, the indirect relationship between emotional exhaustion and absenteeism frequency, through work ability, was also not significant ($B = .076$, 95% CI $[-.025, .186]$). Hence, we conclude that the relationship between emotional exhaustion and absenteeism frequency is not mediated by work ability.

According to Hypothesis 13a, work ability mediates the relationship between depersonalization and absenteeism frequency. The results provide no support for this hypothesis. The direct relationship between depersonalization and absenteeism frequency was not significant ($B = .046$, 95% CI $[-.029, .128]$). Also, the indirect relationship between depersonalization and absenteeism frequency, through work ability, was not significant

($B = -.006$, 95%CI [$-.034$, $.011$]). Hence, we conclude that work ability does not mediate the relationship between depersonalization and absenteeism frequency.

According to Hypothesis 13b, work ability mediates the relationship between depersonalization and absence duration. The results provide no support for this hypothesis. The total effect of the relationship between depersonalization and absenteeism duration was not significant ($B = .037$, 95% CI [$-.045$, $.126$]). Moreover, the direct relationship between depersonalization and absenteeism duration was also not significant ($B = .047$, 95% CI [$-.036$, $.139$]). The indirect relationship between depersonalization and absenteeism duration, through work ability, was also not significant ($B = -.010$, 95% CI [$-.048$, $.016$]). Hence, we conclude that work ability does not mediate the relationship between depersonalization and absenteeism duration.

The above-mentioned hypotheses are summarized in Table 3.

Table 3*Mediation analysis summary*

H nr	Relationship	TOT.EFF	95% CI	DIR. EFF	95% CI	INDIR. EFF	95% CI
1a	EE → DURSQ	.092	.014, .172 *				
1b	EE → FREQSQ	.068	.000, .140 *				
2a	DP → FREQSQ	.039	-.035, .120				
2b	DP → DURSQ	.037	-.045, .126				
3	EE → PRES	.569	.367, .801 *				
4	DP → PRES	.119	-.114, .351				
5	WA → PRES	-.051	-.270, .162				
6	EE → WA	-1.368	-1.802, -1.032 *				
7	DP → WA	.112	-.171, .424				
8	EE → WA → PRES	.569	.367, .801 *	.499	.127, .898 *	.070	-.230, .373
9	DP → WA → PRES	.110	-.114, .351	.116	-.111, .359	-.005	-.060, .011
10	WA → DURSQ	-.087	-.173, -.003 *				
11	WA → FREQSQ	-.051	-.131, .019				
12a	EE → WA → DURSQ	.092	.014, .172 *	-.028	-.173, .118	.119	.004, .248 *
12b	EE → WA → FREQSQ	.068	.000, .140 *	-.008	-.138, .118	.076	-.025, .186
13a	DP → WA → FREQSQ	.039	-.035, .120	.046	-.029, .128	-.006	-.034, .011
13b	DP → WA → DURSQ	.037	-.045, .126	.047	-.036, .139	-.010	-.048, .016

(non-standardized effects) *Note: Abbreviations:* EEW = emotional exhaustion, DP = depersonalization, DUR = absenteeism duration, FREQ = absenteeism frequency, PRES = presenteeism, WA = work ability, H = hypothesis, all effects unstandardized, significant effects marked *: $p < .05$

Discussion

The present study aims to make two theoretical contributions to the corpus of scientific literature on burnout. These contributions concern the differential effects of burnout dimensions and a theoretical contribution to the work ability literature by positioning work ability in the health-limiting process including the outcome of absence duration. Our results lead to the conclusion that it is valuable to consider the separate effects of emotional exhaustion and depersonalization because in our study emotional exhaustion has a significant effect on absence duration, presenteeism and work ability (H1a, H3 and H5), while depersonalization has no significant effect on work ability nor absence duration, absence frequency and presenteeism. The current study contributes to a growing body of knowledge which examines separate effects of burnout dimensions (e.g. Demerouti et al., 2014, Jourdain & Chenevert, 2010), by extending the findings on differential effects to outcomes including work ability, absenteeism and presenteeism. From a theoretical point of view, this entails that scholars should be careful in examining burnout as a single construct, as some dimensions may be more important for the health-impairment process (i.e. emotional exhaustion) than others. Relatedly, the findings of this and other studies call for a more nuanced consideration of the mechanisms underlying the antecedents and effects of the different burnout dimensions.

Using existing literature and theories, the JD-R theory, the COR theory and the SOC theory, we have formulated several hypotheses. The total effect and the indirect effect of the relationship between emotional exhaustion and absenteeism duration, through work ability, were both significant (H12a). The added value of this theoretical implication is an insight into the mediating role of work ability in the relationship between emotional exhaustion and absenteeism duration. This addition to the body of work ability literature is valuable because it sheds some light on the theoretical underpinnings of the work ability concept. After all, the relationship between emotional exhaustion and work ability that is supported by H5 goes through the health-limiting process of the JD-R model. As a result, the relationship between emotional exhaustion and work ability can also be considered an extension of the JD-R model. The function of work ability as a mediator in the relationship between emotional exhaustion and absenteeism duration has, to our knowledge, not previously been described in the literature.

An unexpected finding was the high correlation between absenteeism duration and absenteeism frequency ($r = .832$) which may seriously threaten the conclusions drawn from the study's findings though the use of single-item variables for absenteeism duration and frequency

is not uncommon. When using single-item scales, there are typically three main concerns raised: they lack internal consistency (reliability), have fewer points of discrimination (sensitivity), and fail to adequately capture the construct (low content validity) (Clark & Watson, 2019). Content validity describes how effectively a questionnaire's items address the topic (DeVellis & Thorpe, 2021). It can be challenging to adequately address a construct when there is only one item that describes it. It is unlikely that a single item can fully represent a complex theoretical concept or any particular attribute for that matter (Spector & Brannick, 2011). Sensitivity: The ability of single items to offer sufficient points of discrimination is also constrained (Allen et al., 2022). Cronbach's alpha, a measure of internal consistency, is the most popular reliability metric.

Cronbach's alpha, however, cannot be computed for single items because at least two items are required (Sijtsma, 2009). A high correlation may also mean that the respondents were unable to distinguish between duration and frequency of absenteeism., see e.g. Bakker, 2003 ($r = -.45$). An alternative explanation could therefore be that the distinction between absenteeism duration and frequency hardly occurs within the GP profession for the highly speculative reason that absenteeism hardly occurs within this profession. In any case, it is an unexpected finding that needs to be addressed in future research.

It would therefore be valuable and challenging in future research to design an absenteeism questionnaire that considers the problems mentioned: content validity, reliability, and attention to unambiguously stating the reason for absence, whether voluntary or involuntary (Mattke et al., 2007).

Limitations and Future Research

In the present study, we could not demonstrate a significant relationship between depersonalization and work ability, nor between depersonalization and absenteeism duration and absenteeism frequency. This finding can be explained both empirically and theoretically. Empirically, this finding can be related to the weak internal consistency of the construct depersonalization. In the current study, during CFA, one of the first four indicators of depersonalization had to be removed to obtain acceptable validity and reliability. However, the three remaining indicators had a limited internal consistency of $\alpha = .64$. Several authors have previously identified the depersonalization scale as the least reliable scale of the MBI (Schaufeli et al., 1994; Van Horn et al., 1999). In future research, the construct depersonalization can be used and the internal consistency of the measurement scale can be improved by adding items (e.g. Van Horn et al., 2001).

Theoretically, the finding of a non-significant relationship between depersonalization, work ability and absenteeism frequency can be explained by assuming that the health-limiting process of the JD-R model is stronger than the motivational process, for which there is strong evidence in the literature (Gould et al., 2008; Schaufeli & Enzmann, 1998, p. 91). As a result, since the health-limiting process is driven by emotional exhaustion and the motivational process by depersonalization, the relationship between depersonalization and absenteeism frequency will be either very weak or absent, i.e., not significant, as in the present study. Moreover, based on the results of the current study, it seems that work ability mainly plays a role in the health-limiting process and not in the motivational process. However, this conclusion requires more research in which depersonalization is measured not only with an adapted scale of which the internal consistency has been improved (Schaufeli et al., 1994) but also with another measuring instrument, such as the Burnout Assessment Tool (BAT) (Schaufeli et al., 2019; W. Schaufeli et al., 2020).

Several authors have previously identified the depersonalization scale as the least reliable scale of the MBI (Schaufeli et al., 1994; Van Horn et al., 1999). In future research on the influence of work motivation, the construct depersonalization can be used, and the internal consistency of the measurement scale can be improved by adding items (e.g. Van Horn et al., 2001). The second option in this regard could be to compare the different measurement scales of depersonalization, cynicism, work motivation and work engagement for similarities (internal consistency). The four concepts mentioned are very similar and an alternative explanation for the limited internal consistency of depersonalization could be that the concept of work motivation is better captured by work engagement than by depersonalization (Bakker et al., 2014). Furthermore, the BAT could be used instead because it has a separate measuring scale called mental distance, which would encompass motivation (Schaufeli et al., 2019; W. B. Schaufeli et al., 2020). Although the MBI is the most commonly used questionnaire to measure burnout, several critical comments have been made over the years (e.g. Brenninkmeijer & VanYperen, 2003; Kleijweg et al., 2013; Schaufeli & Taris, 2005). The BAT, which was developed to meet these objections, was published in 2019, while our data collection dates from 2017/to 2018.

GPs have a high risk of acquiring burnout (Bakker et al., 2000). They can practice in several different ways, as a soloist, in a duo practice or in a group practice. From my own experience of 40 years of solo practice as a GP, I know that it is practically impossible to be absent from work, not even due to illness, because of the high threshold. You don't want to

burden your colleagues, who often also work as soloists, with extra work in their already busy practice. In 40 years I have only been absent one day, due to illness and with great hesitation! Moreover, sharing each other's business joys and sorrows in a non-solo setting can reduce the pressure of job demands and thus the risk of burnout. Sharing each other's private joys and sorrows can also reduce the pressure of job demands through the mechanism of work-home interference and thus diminish the risk of burnout. It could therefore be valuable and, from an HRM perspective, interesting to relate practice to burnout and absenteeism in a follow-up study, because in the current study, we did not have sufficient data to perform additional analyses.

In addition, it is recommended in future research to further explore the role of job resources in the mediating process between emotional exhaustion, work ability and absenteeism duration. After all, an increase in job resources can positively predict work motivation through the motivational process of the JD-R model and thus job resources can also predict work ability because work ability also encompasses work motivation. A decrease in job resources is associated with an increase in depersonalization and thus with a decrease in work motivation and a decrease in work ability. Finally, job resources may have a moderating function in influencing emotional exhaustion by job demands (Kim & Wang, 2018). In the present study, the relationship between job resources and depersonalization was not investigated, but the relationship between depersonalization and work ability (H9) was investigated. However, this relationship turned out to be non-significant.

Practical implications

An important practical implication of the results of the present study relates to the application of mediating variables in intervention research. Once a mediation process has been established, efficient interventions can be developed because these interventions focus on variables of the mediation process (MacKinnon & Fairchild, 2009). Another important practical implication also relates to intervention strategies. Both the study by Jourdain and Chênevert (2010) and the present study demonstrate an essential advantage of differential effect research, namely confirming or excluding expected relationships that may have consequences for intervention strategies. For example, Jourdain and Chênevert (2010) argue for a decrease in job demands (antecedent of emotional exhaustion) coupled with an increase in job resources (antecedent of depersonalization), to keep nurses in the profession. Although the present study only showed a significant relationship between emotional exhaustion and absenteeism

duration, the focus of an intervention strategy aimed at the prevention of absenteeism asks to decrease job demands and also increase job resources. After all, job demands are positively related to emotional exhaustion (e.g. Schaufeli & Taris, 2014) and job resources can buffer the relationship between job demands and emotional exhaustion (Xanthopoulou et al., 2007).

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Appendix 5.1



Consequences of GP burnout 2017
N.C. Verhoef, GP

Burnout questionnaire

Do not think too long about a question, what comes to mind first is usually correct.

1. Feel mentally exhausted from my job.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

2. At the end of a working day I feel empty.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

Burnout questionnaire

Do not think too long about a question, what comes to mind first is usually correct.

3. I feel fatigued when I get up in the morning and have another workday ahead of me.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

4. I can easily empathize with patients' feelings.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

5. I feel that I treat some patients too impersonally.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

6. I feel that I treat some patients too impersonally.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

Burnout questionnaire

Do not think too long about a question, what comes to mind first is usually correct.

7. I know how to solve patients' problems well.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

8. I feel "burned out" by my work.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

9. I feel that I influence other people's lives in a positive way through my work.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

10. I feel that I have become more indifferent to other people since I have this job.
 - Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

Burnout questionnaire

Do not think too long about a question, what comes to mind first is usually correct.

11. I worry that my work will numb me emotionally.

- Never
- Sporadically
- Occasionally
- On a regular basis
- Often
- Very often
- Always

12. I feel frustrated with my job.

- Never
- Sporadically
- Occasionally
- On a regular basis
- Often
- Very often
- Always

13. I think I put too much effort into my work.

- Never
- Sporadically
- Occasionally
- On a regular basis
- Often
- Very often
- Always

14. Working with patients cheers me up.

- Never
- Sporadically
- Occasionally
- On a regular basis
- Often
- Very often
- Always

Burnout questionnaire

Do not think too long about a question, what comes to mind first is usually correct.

15. I have achieved many valuable things in this job.
- Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always
16. I feel at the end of my rope
- Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always
17. In my work I deal very calmly with emotional problems.
- Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always
18. I feel that my patients blame me for their problems.
- Never
 - Sporadically
 - Occasionally
 - On a regular basis
 - Often
 - Very often
 - Always

Questionnaire Work Ability Index

The following questions give an impression of your working ability. Work ability refers to the extent to which you are physically and mentally able to perform your current work. Do not think too long about a question, what comes to mind first is usually correct.

19. Is your job:
- Mainly psychologically stressful?
 - Mainly physically stressful?
 - Both physically and psychologically stressful?
20. If you rate your work ability 10 points in the best period of your life, how many points would you assign to your work ability at this time? ('0' means you are currently completely unable to work)
- 0 (totally unable to work)
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10 (work ability in your best period)
21. How do you currently rate your work ability in relation to the physical demands of your work ?
- Very good
 - Good
 - Mediocre
 - Bad
 - Very bad
22. How do you currently rate your work ability in relation to the psychological demands of your work ?
- Very good
 - Good
 - Mediocre
 - Bad
 - Very bad

Questionnaire Work Ability Index Current diseases

Please indicate in the following list (questions 23 to 36) which conditions or injuries you have. Please indicate how you experience that condition ('own opinion') as the extent to which disorders or injuries have been diagnosed by a physician or treated. You can therefore tick 'yes, own opinion', 'yes, diagnosed by a doctor', or the answer 'no' for each condition. These questions can lead to confusion because you are of course a doctor yourself and you should ignore that. Example: suppose you have high blood pressure and you are treating yourself, then at question 25 you tick yes, your own opinion. If you have been treated for this by your own general practitioner or an internist, tick 'yes, own opinion' and 'yes, established by doctor'. You then have two answers.

Do not think too long about a question, what comes to mind first is usually correct.

23. Injury due to accident, for example to back, arm, hand, * leg, foot etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
24. Disorders of the musculoskeletal system, for example on the back, shoulder, arms, hands, legs, feet, sciatica, joint rheumatism etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
25. Cardiovascular disorders e.g. high blood pressure, chest pain on exertion, heart attack, heart failure, etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
26. Respiratory disorders e.g. respiratory infections (strep throat, bronchitis), asthma, emphysema, lung tuberculosis, etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
27. Mental disorders e.g. severe depression, mental disorder, mild depression, tension, anxiety, insomnia, burnout, etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No

Questionnaire Work Ability Index Current diseases

Do not think too long about a question, what comes to mind first is usually correct.

28. Neurological and sensory disorders, for example hearing or eye disorders, stroke, nerve pain, migraine, epilepsy etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
29. Digestive system disorders e.g. gallstones, disorders liver, pancreas or stomach or intestines etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
30. Disorders of the urinary tract or genitals e.g. urinary tract or cystitis, kidney disease, fallopian tube inflammation, prostatitis, etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
31. Skin conditions e.g. allergic rashes, eczema etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
32. Tumors for example benign or malignant tumor or tumor etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
33. Metabolic disorders, for example significantly overweight, diabetes, thyroid disease etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No

Questionnaire Work Ability Index Current diseases

Do not think too long about a question, what comes to mind first is usually correct.

34. Blood disorders e.g. anemia etc.
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
35. Birth Defects or Diseases
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No
36. Other Conditions or Diseases
- Yes, own opinion
 - yes, diagnosed/treated by a doctor
 - No

Estimate limitation of work performance due to disorders

Do not think too long about a question, what comes to mind first is usually correct.

37. Do ailments, illnesses or injuries restrict the exercise of your work ?
- There is no limitation/I have no disorders, illnesses, complaints.
 - I can carry out my work, but experience some complaints.
 - I sometimes have to slow down or change the way I work.
 - I often have to slow down or change the way I work.
 - Due to my condition, illness or injury I am only able to work part-time .
 - In my opinion, I am completely unable to work.

Absenteeism during the past 12 months

Do not think too long about a question, what comes to mind first is usually correct.

38. How many days in total have you been unable to work in the past 12 months as a result of health problems (for example due to illness, admission or research)?
- 0 days (no sick leave)
 - 1–9 days
 - 10–24 days
 - 25–99 days
 - 100–365 days

Own work capacity prognosis over 2 years

Do not think too long about a question, what comes to mind first is usually correct.

39. Based on your current health, do you think you will still be able to be able to perform current work?
- Unlikely
 - Perhaps
 - Very likely

Vitality

Do not think too long about a question, what comes to mind first is usually correct.

40. Have you been enjoying your usual daily activities lately?

- Always
- On a regular basis
- Sometimes
- Rarely
- Never

41. Have you been active and fit lately?

- Always
- On a regular basis
- Sometimes
- Rarely
- Never

42. Have you been confident in the future lately?

- Always
- On a regular basis
- Sometimes
- Rarely
- Never

Absenteeism

Absenteeism means : sick and absent from work.

Do not think too long about a question, what comes to mind first is usually correct.

43. During the last 12 months, how often have you been absent from work because of a disease?
- Never
 - 1 time
 - 2–5 times
 - more than 5 times
44. During the last 12 months, how many whole days have you been absent from work due to illness?
- None
 - Max. 9 days
 - 10–24 days
 - 25–99 days
 - 100–365 days

Presenteeism

Presenteeism is defined as being sick and present at work.

Do not think too long about a question, what comes to mind first is usually correct.

45. In the past 12 months, has it happened to you that you went to work despite the feeling that you should have stayed home sick?
- Never
 - 1 time
 - 2–5 times
 - more than 5 times

Demographics

Finally, some questions about age, marital status, etc.

Do not think too long about a question, what comes to mind first is usually correct.

46. What is your gender ?

- Man
- Female

47. What is your year of birth? (xxyy)

48. What is your marital status?

- Cohabiting or engaged, no children living at home.
- Cohabiting or engaged, but children living at home.
- Single, no children living at home.
- Single, with children living at home.
- Live with my parents.
- Otherwise.

49. In what year did you start working in your current practice?

50. How many employees do you supervise?

- 0
- 1–2
- 3–5
- 6–10
- More than 10 people

51. Does your partner have a job?

- Yes
- No

52. Does your partner often spend more than 5 hours a week on his/her work outside the usual working hours?

- Yes
- No

Demographics

53. Do you have a flexible arrangement for childcare with friends, family or professionals, especially in case of sudden emergencies ?
- Yes
 - No
54. Do you have a non-flexible arrangement for childcare with friends, family or professionals, especially in case of sudden emergencies ?
- Yes
 - No
55. In what way do you practice?
- Solo practice
 - Duo practice o group practice
 - GP employed by a GP
 - Locum
56. How many hours do you spend on average per week on care (children, informal care, etc.)
-
57. How many hours do you work on average per week? (including time for refresher training, meetings, administration, etc.)
- < 30
 - 30–40
 - 41–50
 - 51–60
 - > 60

For my administration it is useful to have your name, place of residence and email address. Again, it goes without saying, but I would like to emphasize once again that this information will be treated as strictly confidential. If you do not want to answer these questions, simply enter any letter, e.g. X

58. What is your name?

59. What is the town of your practice address?

60. What is your email address ?

***Thank you very much for your willingness and your cooperation
in completing this questionnaire!***

Appendix 5.2

Table A

Common Method Variance Analysis

(Emotional exhaustion, Depersonalization and Work ability)

Construct	Indicator	(Standardized) Loading to proposed Latent Variable	(Standardized) Loading to CMLV
Emotional exhaustion (EE)	q0001	.831***	.537**
	q0002	.827***	.447*
	q0003	.692***	.402*
	q0006	.645***	-.040 ns
	q0008	.841***	.675***
	q0012	.688***	.311 ns
	q0013	.559***	.270 ns
	q0016	.791***	.558***
Depersonalization (DP)	q0010	.687***	-.071 ns
	q0011	.845***	.216 ns
	q0018	.358***	.083 ns
Work ability (WA)	q0020	.809***	-.505***
	q0021	.631***	-.342*
	q0022	.873***	-.455**
Average		.720	.149

Note: CMLV = Common method latent variable

* $p < .05$; ** $p < .01$; *** $p < .001$; ns not significant ($p > .05$)

Results: After inclusion of the CMLV, all items on the proposed latent variable load significantly and in the expected direction and all loadings are $> .50$, except item q0018. Of the 14 factor loadings on the CMLV, 6 are not significant and of the 8 remaining significant factor loadings, all are smaller than their corresponding factor loadings to the proposed latent variable

Conclusion: The results show that the presence of detrimental CMV in this model is unlikely.

Appendix 5.3

Table B

Non-normal data of absenteeism and presenteeism

		Statistics					
		DUR	FREQ	PRES	DURSQ	FREQSQ	PRESSQ
N	Valid	176	176	176	176	176	176
	Missing	0	0	0	0	0	0
Mean		1.3982	1.3771	1.8824	1.1470	1.1457	1.3352
Std. Deviation		.84771	.69576	.87688	.28822	.25450	.31648
Skewness		2.714	2.097	.537	2.189	1.698	.281
Kurtosis		7.592	4.346	-.780	4.532	2.212	-1.233



Chapter 6

Quality

Abstract

This chapter examines the quality of the quantitative studies in chapters 4 and 5. Due to the cross-sectional design of these field studies, especially the validity and reliability can be threatened. The quality can be examined by using a robustness test. Using a model variation test, which is a type of robustness test, an alternative measurement method was applied to the conceptual models from chapters 4 and 5. The alternative measurement method involves the application of different cut-off criteria to the two burnout dimensions emotional exhaustion and depersonalization in the same datasets from chapters 4 and 5. The results of this robustness test show that the different cut-off criteria do not influence the study results. This creates support for the robustness, that is the quality, of the study results.

Introduction

The main drawbacks of cross-sectional studies as in Chapters 4 and 5 are: limited causal inferences, limited generalizability, no temporal relationships (cause and effect) and bias and confounding (Rothman et al., 2008). Reliability and validity are important considerations for any research design, including cross-sectional studies (De Vaus & De Vaus, 2013). In a cross-sectional study, a robustness check can increase the value of the study by providing additional evidence that the results are robust and not dependent on specific methods or assumptions (Gerring, 2016).

Various methods exist for evaluating the quality of scientific research, and the most appropriate one depends on the type of research being conducted and the specific objectives of the assessment. Common methods include peer review, citation analyses, journal impact factors, replication studies, funding and grant awards, and expert opinion (Moher et al., 2014). It is crucial to note that no single method can provide a comprehensive assessment of research quality and multiple methods are often employed in combination to yield a more comprehensive evaluation (Shea et al., 2017). Peer review is typically regarded as the most widely used and common method for evaluating scientific research quality. In peer review, experts in the same field as the researcher evaluate the research manuscript or proposal to provide feedback on its quality, validity, and significance (Bornmann & Daniel, 2008). Peer review is often used as a quality control mechanism to ensure that research is rigorous, accurate, and up-to-date (Kovanis et al., 2016). Various systems are available for the critical assessment of scientific research quality. For example, the Appraisal Tool for cross-sectional studies (AXIS) (Rouleau et al., 2023) is utilized for the critical assessment of quantitative studies, whereas the Critical Appraisal Skills Program (CASP) (Casp, 2021), for instance, can be applied to assess the quality of qualitative studies. Almost all critical appraisal tools implicitly or explicitly assess studies for their validity and reliability. Such tools commonly evaluate different critical parameters, including study design, sample size, bias and confounding, reliability, and validity (Greenhalgh, 2019). Reliability pertains to the consistency and stability of study results (Polit & Beck, 2008). A study is deemed reliable if it produces consistent results when repeated under comparable conditions. To assess the reliability of a study, it is imperative to consider factors such as sample size, study design, and data collection and analysis techniques (Gadermann et al., 2019).

In contrast, validity refers to the accuracy and truthfulness of study results (Trochim & Donnelly, 2006). A study is considered valid if it measures what it is intended to measure

and if the results can be generalized to the target population (Trochim & Donnelly, 2006). To evaluate the validity of a study, it is also essential to consider factors such as the study design, data collection and analysis methods, and the potential for bias and confounding (Higgins & Green, 2008). Research studies typically evaluate several types of validity. Based on Bryman (2016), these types of validity are defined next and include internal validity, external validity, construct validity, face validity, and ecological validity. Internal validity refers to the extent to which a study is free from bias and confounding factors, whereas external validity pertains to the extent to which study results can be generalized to other populations or settings. Construct validity measures the extent to which a study measures the intended concept or construct. Face validity measures the extent to which a study appears to measure what it is intended to measure. Finally, ecological validity measures the extent to which research findings can be generally applied to real-world settings. It is a measure of how well an experiment or study reflects the complexity of the natural environment in which the phenomenon is being studied (Bryman, 2016).

Robustness checks are a research methodology tool used to test the sensitivity of research findings to alternative specifications or assumptions (Angrist & Pischke, 2014). They involve varying one or more aspects of the analysis, such as the inclusion or exclusion of controls, the handling of outliers, or the use of alternative measures of key variables, and examining whether the results change substantially (Gelman & Carlin, 2014). Controls refer to variables included in the model to account for other factors that may affect the relationship between the independent and dependent variables (Gelman & Hill, 2006). In a robustness check, the researcher may test the results with different sets of controls to see if they are consistent across specifications (Angrist & Pischke, 2014). Alternative measuring methods refer to different ways of measuring the same construct. In a robustness check, the researcher may test the results using different measures of the same variable to see if the findings hold up across different measurement approaches (Neumayer & Plümper, 2017). In the present study, a robustness check was used by measuring the same conceptual models from Chapters 4 and 5, with an alternative method. The alternative method involves applying different cut-off points for the two burnout dimensions emotional exhaustion and depersonalization to the same dataset in Chapter 4 and 5. Robustness checks are important in research methodology because they help to ensure that the findings of a study are not reliant on a specific model specification or data choice (Gelman & Hill, 2006). By testing the results of a study under different scenarios, such as varying the inclusion or exclusion of certain variables, outliers, or alternative measurement

approaches, researchers can increase the rigour and reliability of their findings and provide greater confidence in the validity of their results (Gelman & Hill, 2006). Moreover, robustness checks can help identify potential limitations of the study and areas for future research. In fields such as economics, finance, and social sciences, where complex models and large datasets are used to analyze relationships between variables, robustness checks are particularly important to test for the stability of results across different datasets, model specifications, and estimation techniques (Angrist & Pischke, 2014).

For instance, suppose a researcher is examining the connection between mental illness and mental health using information from a national survey. The author used a screening tool for psychiatric disorders to measure mental illness and a multidimensional scale of psychological well-being to measure mental health. The author performed a sensitivity analysis using various thresholds for defining mental illness to assess how robust the findings were. To define mental illness in the original analysis, the author used a cutoff of two or more symptoms of a psychiatric disorder. The author used various thresholds (one, three, or four or more symptoms) to define mental illness in the robustness test. The findings demonstrated that the key conclusions held up well to changes in the cutoff point for defining mental illness. In light of the findings, the author concluded that mental health and illness are two separate dimensions of psychological well-being rather than the two extremes of a single continuum. Furthermore, by demonstrating that the results were not sensitive to changes in the threshold for defining mental illness, the robustness test increased confidence in the findings (example adapted from Keyes (2005)).

Overall, robustness checks play a critical role in ensuring the validity and reliability of research findings and are an essential aspect of the research process. They help to ensure that the results of a study are not driven by a particular modelling choice or data subset and increase confidence in the robustness of the findings (Neumayer & Pluemper, 2020).

Methods

From the framework developed by Neumayer and Pluemper (2020), it was derived that robustness testing can be described in four phases, phase 1, establish the base model, phase 2, identify the assumptions in the model, phase 3, establish a robustness model that changes one baseline assumption at a time, e.g. the independent variable and phase 4, compare the results of the base model with the results of the robustness test model and calculate the degree of robustness (Neumayer & Pluemper, 2020). A distinction is made between five different types of robustness tests (Neumayer & Pluemper, 2020).

The model variation test is characterized by usually changing one model specification assumption and replacing it with an alternative assumption (Loshchilov & Hutter, 2017). An example of the application of the model variation test is the change of a set of independent variables. The randomized permutation test is characterized by repeatedly changing model specification assumptions, for example with multiple imputations (Neumayer & Plümpfer, 2017). The structured permutation tests systematically change model specification assumptions, in contrast to the random changes in permutation tests. The robustness limit test provides a way to analyze structured permutation tests, for example for measurement errors. Finally, the placebo test analyzes whether a placebo treatment (which should have no effect) correlates with the outcomes of the base model, for example in clinical experiments (Neumayer & Plümpfer, 2017).

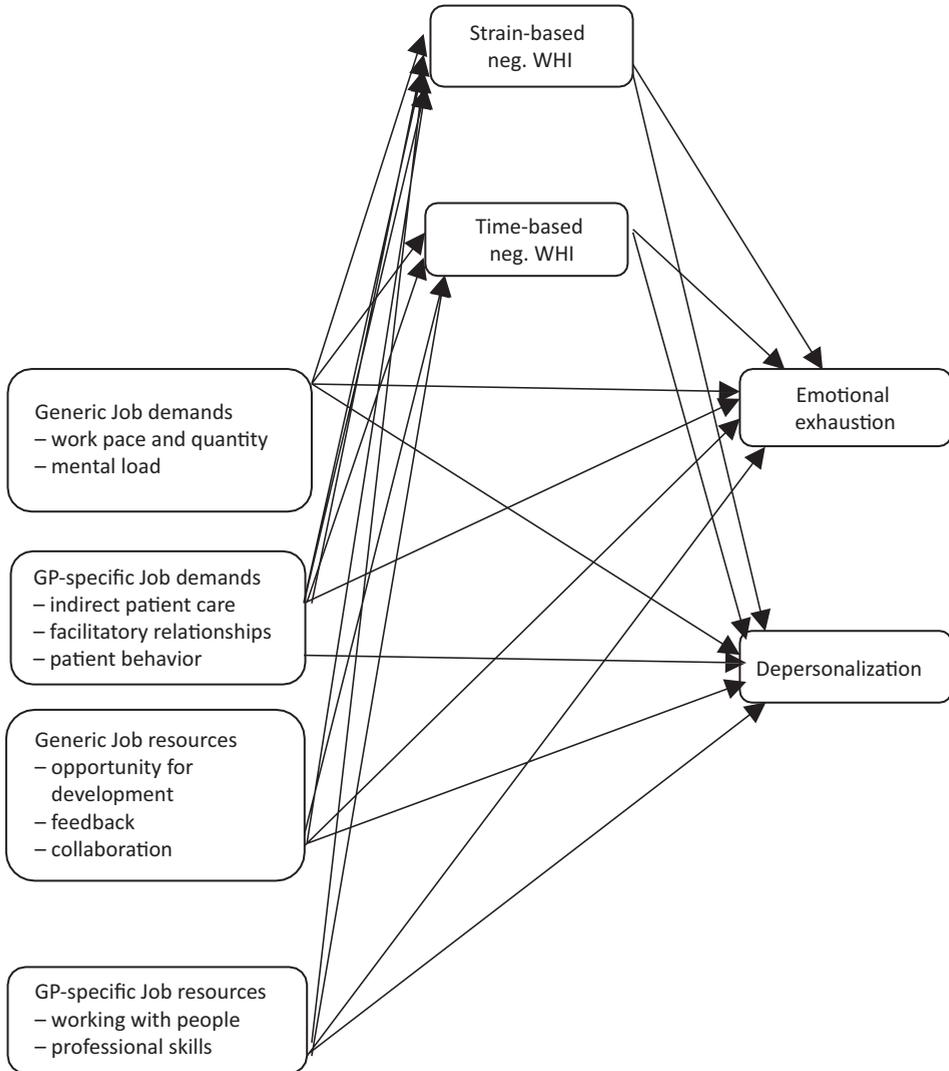
In the social sciences, causes tend to be probabilistic. Robustness testing therefore analyses the uncertainty of models and tests whether estimated effects of interest are sensitive to changes in model specifications (Neumayer & Plümpfer, 2017).

In a robustness check, one or more parameters in the baseline model are varied. In the current study, the conceptual models from Chapters 4 and 5 (after CFA confirmation) were chosen as baseline models, see Figure 1. and Figure 2.

In the current study, for convenience reasons, the model variation test was chosen in which the cut-off points of the burnout dimensions of emotional exhaustion and depersonalization were varied. A robustness test was applied to the conceptual models of the quantitative studies in Chapters 4 and 5. In Chapter 4, the burnout dimensions of emotional exhaustion and depersonalization were dependent variables (see Figure 1) and in Chapter 5 independent variables (see Figure 2). Applying different cut-off criteria on the burnout dimensions of emotional exhaustion and depersonalization, the same mediation analyses were performed on the separate baseline models and only the number of significant relationships was recorded.

Figure 1

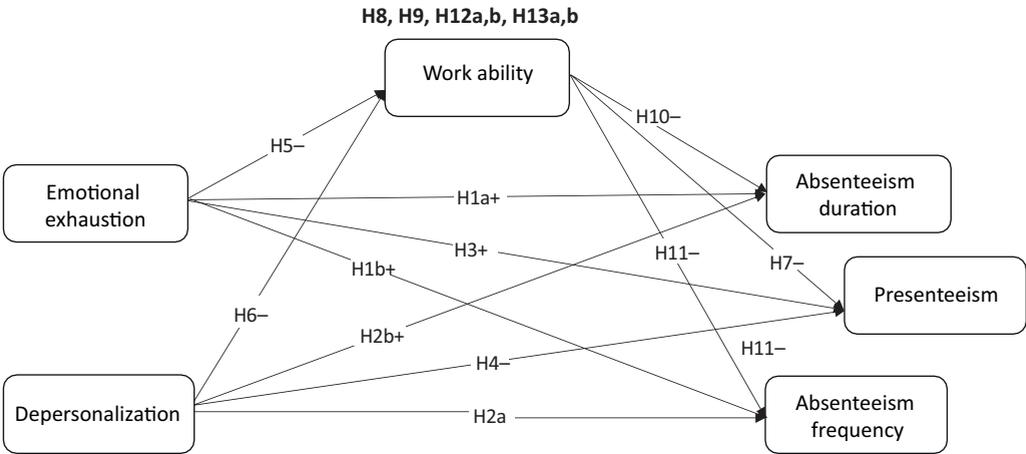
Conceptual model Chapter 4



Note: In Figure 1, the occupation-specific job demands and job resources that are examined in this study are indicated. These variables have not specifically been introduced in the theoretical framework, as the identification of these variables was part of the results of a pre-study in which interviews with GPs were conducted.

Figure 2

Conceptual model Chapter 5



Analysis strategy

There are different ways to perform a robustness check, depending on the nature of the research and the research question. For example, a researcher can run the analysis using different statistical methods or models to see if the results remain consistent (Gelman & Loken, 2016). Another option is to run the analysis on different datasets to see if the results depend on the specific dataset used (Guiso et al., 2011). The different cut-off criteria of the burnout dimensions of emotional exhaustion and depersonalization originate from the literature review discussed in Chapter 3. In this literature review on the determinants of burnout among GPs, 60 publications were identified for the final analyses. This selection of 60 publications formed the starting point for the robustness checks, as it extracted the publications with a useful description of the different burnout dimensions and the cut-off criteria (see Table 1). This resulted in 9 groups with different cut-off criteria (see Table 3 in the appendix). Both in the Chapter 4-model and in the Chapter 5-model, mediation analyses were conducted using Process (Hayes, 2012), in Chapter 4 with nine different groups of outcomes and in Chapter 5 with nine different groups of predictors. The results of these mediation analyses were compared with the results of the mediation analyses in Chapter 4 and Chapter 5.

A chi-square goodness of fit test is a statistical test used to determine whether an observed set of categorical data differs significantly from a theoretical or expected distribution. The test involves comparing the observed frequencies of the categories to the frequencies

that would be expected if the data followed a specific distribution. The null hypothesis of the chi-square goodness of fit test is that the observed data follows the expected distribution. A significant result (i.e., $p \leq .05$) indicates that there is evidence to reject the null hypothesis and conclude that the observed data differ significantly from the expected distribution. Likewise, a non-significant result (i.e. $p > .05$) indicates that the observed data do not differ from the expected distribution, signifying that the outcomes of the analyses of the conceptual models in Chapters 4 and 5 are robust against variations. (Agresti, 2018).

In all 9 study groups, emotional exhaustion is a 9-item construct but in the study in Chapter 4 an 8-item and Chapter 5 also an 8-item construct. Similarly, depersonalization is a 5-item construct in all 9 study groups, but in the study in Chapter 4 a 4-item construct and Chapter 5 a 3-item construct. To be able to compare the studies with different numbers of construct items, the cut-off points must be transformed. To transform the cut-off points, a Rasch model should be used, which is a type of item response model (Rasch, 1993). However, these transformations require the datasets from the 9 study groups which are not available, thus, a simple technique is used in which the cut-off points for emotional exhaustion are multiplied by $8/9$ and the cut-off points for depersonalization by $4/5$ and $3/5$ respectively. The resulting inaccuracy would be acceptable according to Kolen and Brennan (2013).

Details of the analyses are available from the author.

Results

Table 1

Analysis groups by number of included publications

Cutoff Group nr.	Number of included studies	Number of Construct items Emotional exhaustion	Number of Construct items Depersonalization	Number of points on Likert scale
1	9	9	5	7
2	1	9	5	7
3	1	9	5	7
4	1	9	5	7
5	1	9	5	7
6	5	9	5	7
7	2	9	5	7
8	5	9	5	7
9	1	9	5	7
Study Chapter 4	na	8	4	7
Study Chapter 5	na	8	3	7

Note: Na = not applicable

The results of the mediation analyses are summarized in Tables 2a and 2b. For detailed results of the mediation analysis per group, please refer to the tables in the appendix. Following Table 3 in the appendix, there were 9 groups with different cut-off criteria for burnout. In each group, after applying the cut-off criterion for that group, a mediation analysis was performed. The different significant outcomes of total effects, direct effects and indirect effects, per group, are summarized in Tables 2a and 2b. A Goodness of fit test was performed on the last columns of Tables 2a and 2b, that is the summed total of significant effects within each cut-off group and the original studies in Chapters 4 and 5. A non-significant test result means that the null hypothesis (no mutual differences) is not rejected. In other words, the outcomes in the 9 robustness groups did not differ from the outcomes in the baseline model (Studies chapters 4 and 5). The test results in the study in Chapter 4 (Table 2a) were: $X^2(9, N = 176) = 8.2, p = .51$ and in the study in Chapter 5 (Table 2b): $X^2(9, N = 178) = 7.8, p = .55$. This means that the outcomes of the analyses of the conceptual models in Chapters 4 and 5 are robust against variations.

Table 2a*Robustness Test Outcomes Chapter 4*

Grp Nr.	Nr of Sign.unst.tot.eff.	Nr of Sign.unst.dir.eff.	Nr of Sign.inst.indir.eff.	Total number of Significant effects
1	16	11	10	37
2	12	7	10	29
3	10	7	10	27
4	7	6	9	22
5	11	11	8	30
6	13	7	12	32
7	11	10	11	32
8	8	7	8	23
9	12	7	11	30
Study Chapter 4	9	7	5	21

Table 2b*Robustness test Outcomes Chapter 5*

Grp Nr.	Nr of Sign.unst.tot.eff.	Nr of Sign.unst.dir.eff.	Nr of Sign.inst.indir.eff.	Total number of Significant effects
1	1	0	3	4
2	1	0	2	3
3	1	0	4	5
4	3	0	1	4
5	2	0	5	7
6	4	0	0	4
7	5	1	2	8
8	1	0	4	5
9	0	0	2	2
Study Chapter 5	1	0	1	2

Conclusion

The outcomes of the two Goodness of fit tests were not significant which means that the null hypotheses were not rejected. The results of the application of different cut-off criteria did not differ from the study results.

The robustness of the two conceptual models contributes to the validity and reliability of the results of the studies in chapters 4 and 5 and therefore robustness also contributes to the quality of both studies.

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Appendix

Table 3

Summary of overall burnout definitions

nr	category	ΣEE	ΣDP	ΣPA
1	high	≥ 27	≥ 10	≤ 33
	moderate	14–26	6–9	34–39
	low	≤ 13	≤ 5	≥ 40
references (Adarkwah et al., 2018; Adžić et al., 2013; Arigoni et al., 2009; Bugaj et al., 2020; Dreher et al., 2019; Györfy et al., 2014; Hirsch & Adarkwah, 2018; Marcelino et al., 2012; Soler et al., 2008)				
2	high	$\Sigma EE \geq 28$	$\Sigma DP \geq 13$	$\Sigma PA \leq 23$
	moderate	21–27	9–12	24–27
	low	≤ 20	≤ 8	≥ 28
references (Akova et al., 2021)				
3	high	$\Sigma EE \geq 67^{\text{th}}$ perc	$\Sigma DP \geq 67^{\text{th}}$ perc.	$\Sigma PA \leq 33^{\text{rd}}$ perc.
	moderate	33–67	33–67	33–67
	low	$\leq 33^{\text{rd}}$ perc	$\leq 33^{\text{rd}}$ perc	$\geq 33^{\text{rd}}$ perc
references (Anagnostopoulos et al., 2012)				
4	high	$\Sigma EE \geq 30$	$\Sigma DP \geq 23$	$\Sigma PA 8–18$
	moderate	19–29	15–22	19–29
	low	8–18	6–14	≥ 30
references (Aygun & Mevsim, 2019)				
5	high	$\Sigma EE \geq 27$	$\Sigma DP \geq 10$	$\Sigma PA \leq 33$
	moderate low	19–26 ≤ 18	6–9 ≤ 5	34–39 ≥ 40
references (Brown et al., 2019)				
6	high	$\Sigma EE \geq 31$	$\Sigma DP \geq 13$	$\Sigma PA \leq 30$
	moderate low	22–31 ≤ 21	7–13 ≤ 7	30–35 ≥ 35
references (Lamothe et al., 2014; Nørøxe et al., 2018; O’dea et al., 2017; Yuguero et al., 2017a; Yuguero et al., 2017b)				

Table 3 *Continued*

7	high	$\Sigma EE \geq 30$	$\Sigma DP \geq 12$	$\Sigma PA \leq 33$
	moderate low	18–29 ≤ 17	6–11 ≤ 5	34–39 ≥ 40

references

(Stanetić & Tesanović, 2013)

8	high low	$\Sigma EE \geq 26$ ≤ 26	$\Sigma DP \geq 9$ ≤ 9	$\Sigma PA \leq 34$ ≥ 34
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high burnout = (high EE) and (high DP) and (low PA) low burnout = 1- (high burnout)

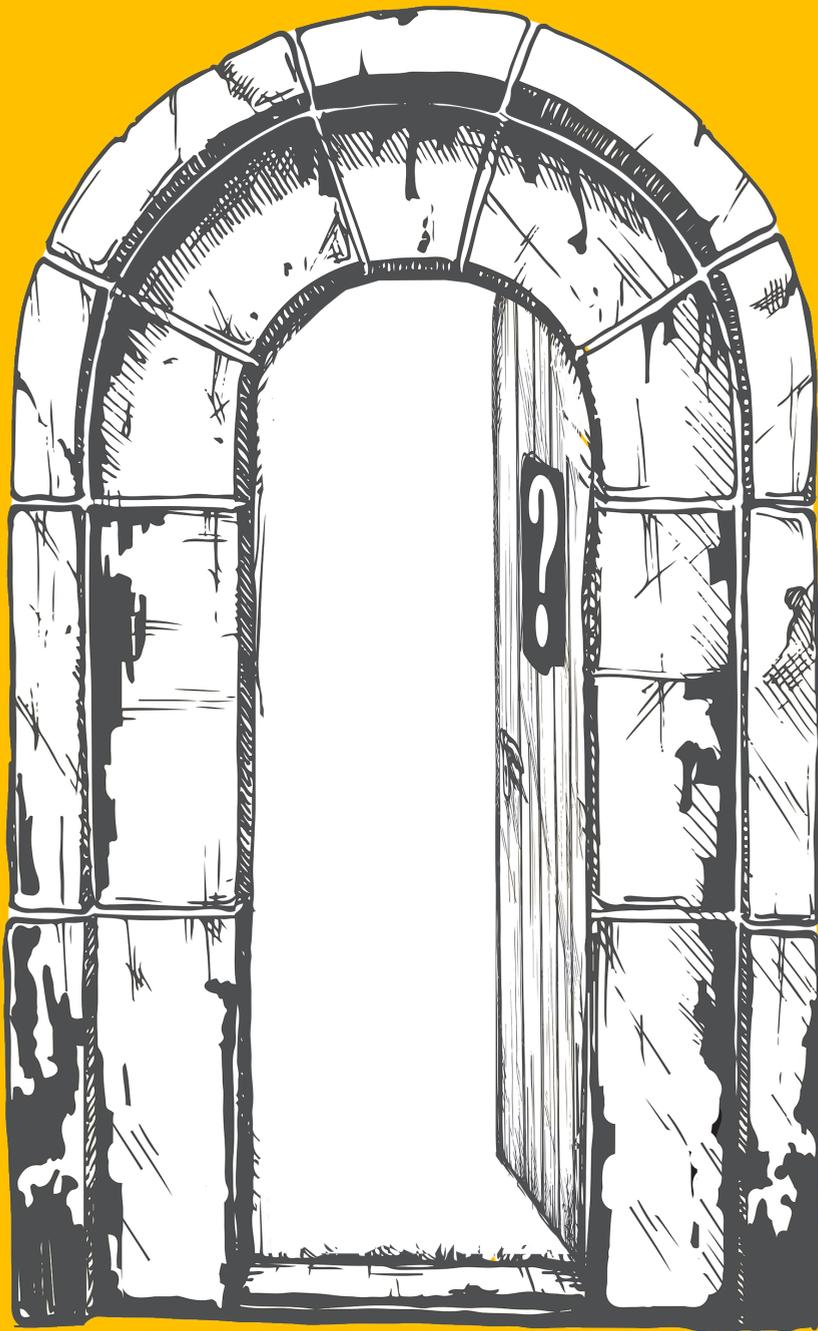
references

(Pedersen et al., 2013; Pedersen et al., 2018; Pedersen & Vedsted, 2014; Pedersen et al., 2020; Vedsted et al., 2013)

9	very low	$\leq .50$	$\leq .20(\text{♂})$ $\leq .20(\text{♀})$	≤ 3.14
	low	.51–1.24	.21–.79(♂) .21–.59(♀)	3.15–3.70
	average	1.25–2.74	.80–2.19(♂) .60–1.59(♀)	3.71–.70
	high	2.75–3.73	2.20–2.98(♂) 1.60–2.58(♀)	4.71–5.41
	very high	≥ 3.74	$\geq 2.99(\text{♂})$ $\geq 2.59(\text{♀})$	≥ 5.42

references

(Putnik & Houkes, 2011)



Chapter 7

General Discussion and Conclusion

7.1 Introduction

The primary two purposes of this thesis are to (a) examine how and to what extent characteristics of the work domain (e.g. job demands and resources) and the interplay between the work and home domains are related to burnout among Dutch general practitioners (GPs), and (b) to investigate how specific burnout dimensions are differentially related to absenteeism duration, absenteeism frequency and presenteeism. Three research questions were formulated in accordance with these goals.

The first research question, which is: **“Which profession-specific and generic job demands and job resources are important for Dutch general practitioners, and to what extent are these related to burnout?”**, concerns generic and occupation-specific job demands and resources important for Dutch GPs and how these demands are associated with burnout.

The second research question, which is: **“To what extent do strain-based negative work-home interference and time-based negative work-home interference mediate the relationships between generic and occupation-specific job demands and generic and occupation-specific job resources and emotional exhaustion and depersonalization in Dutch general practitioners?”**, concerns how strain-based and time-based negative work-home interference mediate the relationships between generic and occupation-specific job demands and resources and emotional exhaustion and depersonalization among Dutch GPs.

The third and final research question, which is: **“To what extent are there relationships between burnout absenteeism and presenteeism among Dutch general practitioners?”**, relates to the extent to which a relationship exists between emotional exhaustion, depersonalization and absenteeism and presentism among Dutch GPs.

This final chapter answers the three research questions, which are summarized and discussed in the sections 7.3, 7.4 and 7.5. In addition, in these sections, the theoretical contributions and practical implications of the thesis are presented. Moreover, personal reflections are included in designated reflection boxes as representations of personal interests and reasons for the PhD project and accompanying research questions before the thesis is evaluated, the limitations of the thesis as a whole are discussed and recommendations for future research are provided. This evaluation (section 7.6) requires a critical awareness of how scientific knowledge is created, including its extension through theoretical contributions. Therefore, this final chapter first considers how theories are formed and extended in the next section.

7.2 Background

Modern theorizing has its roots in classical antiquity (Dillon, 2013; Landrum, 2016). To illustrate this concept, the comment box below describes the working methods of the ancient Greek city ambassadors, which closely resemble the contemporary scientific researcher.

Θεωρια

In ancient Greece, a city-state (Πολις) that was about to organize a Panhellenic tournament or a religious festival sent one or more ambassadors to neighboring Greek city-states (Πολεις) a few months before, with an invitation to the games or festival and also to clarify and to discuss the conditions for a truce for the duration of the festival.

*These ambassadors were called theoroi (Θεωροι) and were received in the cities visited, by theorodokoi (Θεωροδοκοι) who acted as hosts and assistants and lavishly provided the theoroi with gifts, food, shelter and travel expenses in exchange for favorable coverage. The city-state mainly appointed prestigious people as theorodokoi, who were wealthy and could afford such expenses. One or more theoroi formed a theoria (Θεωρια), which proceeded according to a three-step process, consisting of a trip outside the city limits, insider observations, and the return home with reporting of the findings. The theoroi were regarded as astute and independent observers who, having had formative experiences as a resource, returned home as changed persons. In ancient times philosophers transformed theoria into a metaphysical journey to the land of pure thought and a report of speculative findings, e.g., Plato's *The Republic* (c. 360 BCE). Here the analogy with contemporary science forces itself. Modern scientific views have appropriated the above picture, suggesting that theoroi, as astute and independent observers, with the help of acquired knowledge, were better able to explain how reality is composed. (Dillon, 2013)*

The primary objective of this thesis is to make a substantive contribution to the existing body of knowledge regarding burnout among GPs. Consequently, this section provides an initial description of the process involved in theory development, along with the associated contributions and implications that contribute to this process. Subsequently, the theory formation process itself is examined, followed by an exploration of the ensuing contributions and implications.

A theory serves to elucidate concepts and their interrelationships, offering insights into the mechanisms and causes underlying a particular phenomenon (Sutton & Staw, 1995). Consequently, a theoretical contribution represents a distinct entity that enhances our understanding of these concepts (Corley & Gioia, 2011). It is essential, however, that theoretical contributions possess both uniqueness and utility to be deemed meaningful (Corley & Gioia,

2011). Therefore, the expansion of existing knowledge must demonstrate added value and relevance (Ladik & Stewart, 2008).

Moreover, empirical contributions are characterized by the reporting of previously undisclosed phenomena and their associated details (Ågerfalk, 2014). While such descriptions provide valuable insights into these phenomena, they need not be constrained by preconceived conceptual frameworks. Furthermore, originality and practical applicability are highly valued. For instance, medical reports documenting patient responses to burnout treatments can yield patterns that contribute to the development of new theories (Ågerfalk, 2014).

Theoretical and empirical contributions can be classified into three distinct domains of contribution: the conceptual domain, encompassing theoretical components; the methodological domain, encompassing methodological components; and the content domain, encompassing contextual components (Brinberg & McGrath, 1985). The expansion of knowledge within these domains offers both theoretical and practical implications.

Theoretical implications involve speculation about the potential impact of findings on scientific research (Ågerfalk, 2014). For example, if it is discovered that the depersonalization scale of a burnout assessment exhibits weak internal consistency, it may be theorized that the removal or addition of certain questions would lead to a significantly improved scale. Naturally, this new theoretical proposition, such as an adjusted measurement scale, must undergo empirical testing to assess its internal consistency, construct validity, and predictive validity (Hair et al., 2018). Theoretical contributions are discussed in relation to existing theories, while theoretical implications serve as the necessary substantiation for the proposed theoretical contributions (Ågerfalk, 2014). Practical implications, on the other hand, pertain to findings that have the potential to impact real-world issues, prompting changes in policies and treatments (Ågerfalk, 2014).

7.2.1 Theory Formation

Cornelissen et al. (2021) distinguished how a theory comes about (i.e., the process of theorizing) into seven types, which are common in the social sciences. The propositional form of theorizing is characterized by elaborating on propositions explaining a particular subject. The process of theorizing involves multiple activities, such as synthesizing and hypothesizing (Cornelissen et al., 2021; Weick, 1995). Conceptualization is an activity at the heart of all theorizing types, which is the act of naming and framing the subject in terms of specific theoretical concepts as resources (Garfinkel, 1960).

The process of conceptualization has five building blocks (Cornelissen et al., 2021; Lange & Pfarrer, 2017). It starts with defining the phenomenon (i.e., describing the problem statement) and continues with the first building block, determining the common ground by answering the question of what the current theory says about the phenomenon (e.g. a gap in the literature or knowledge). Herein lies the importance of an accurate definition of the problem statement because the quality of the outcome of theory construction, a new theory, largely depends on the problem statement's accuracy and detail (Weick, 1989).

The process continues with the second building block: the question of the complication that the current theory does not tell us (Cornelissen et al., 2021). A logical continuation of the above is the third building block: the concern question (i.e., Why is the complication a concern or important?). Answering this question can lead to the formulation of a research question. However, simply identifying a gap in the literature alone is insufficient and requires an explanation of why the gap matters (Alvesson & Sandberg, 2011).

The fourth building block is the working method to approach the complication or solve the problem from the definition. The fifth building block describes how and why the current research outcomes contribute to the existing knowledge, the theoretical implication of solving the problem and the practical implication (Lange & Pfarrer, 2017). The quality of the outcome of the process of conceptualization, the theory, must be evaluated because if unsatisfactory, the circular process of conceptualization must be repeated.

Various systems are available to assess the theory's quality. However, whether the theory is good is mainly determined by its plausibility (i.e. is it valid?) along with the ontological and epistemological status. For example, Schaufeli and Taris (2014) described the epistemological status of the JD-R theory. The basis for new knowledge is formed by the research design and methods, which are partly decisive for the quality of the new theory (Bergman et al., 2012). Finally, any theory, whether good or bad, holds for a period if it is not falsified (Popper, 1961).

7.3 Occupation-Specific Job Demands and Resources and Their Relationship with Burnout Dimensions

Drawing from my experiences as a practising GP, I heard from a patient several times that the work, for example, as a teacher, certainly contributed strongly to the development of burnout, but that a completely different event, for example, the discovery of bowel cancer in the partner, was the straw that broke the camel's back – it was just too much. These observations prompted reflection on the diverse facets of one's work as a GP – one moment in the role of pastor and the next in the role of a surgeon. Could it be that one or more aspects of the GP profession or private life contribute to the development of burnout (e.g. work and personal demands) or prevent it (e.g. work and personal resources) and if so, what are they and how do they relate to burnout?

Knowledge of the determinants of burnout among GPs was investigated by conducting a systematic quantitative literature review described in Chapter 2. In addition, a qualitative interview study was conducted with eight Dutch GPs to elucidate the nature of the determinants of burnout among them, as described in Chapter 3. Finally, based on the results of this study (i.e. occupation-specific job demands and resources with generic job demands and resources), a quantitative cross-sectional study was conducted to answer the question of how they are related to burnout, as described in Chapter 4. The main findings of these three studies are summarized in the next section.

7.3.1 Main Findings

This section presents and summarizes the key findings regarding job demands and resources of Dutch GPs and their relationship to burnout dimensions by addressing generic and occupation-specific job demands and generic and occupation-specific job resources. Generic job demands are positively related to burnout dimensions, as several sections of this PhD project demonstrated. For instance, the literature review (Chapter 2) identified that work pressure, a generic job demand, yields a frequency effect size (FES) of 13.33, comparatively higher than the mean FES of 7.33 for all generic job demands combined. Subsequently, work pressure was related to burnout in the interviews (Chapter 3) and the field study (Chapter 4).

In the interview study, work pressure was identified with a score of 12 against a total score of 97 for all job demands combined, ranging from 1 to 66. In the field study, work pressure was significantly and positively related to emotional exhaustion and depersonalization through the mediator of strain-based negative work-home interference. Additionally, the generic job

demand of mental load was significantly positively related to emotional exhaustion via the mediator of strain-based negative work-home interference. Although several generic job demands were identified, work pressure uniquely emerged in all three studies, as supported by hypothesis testing in the field study. As a result, based on the combined results, work pressure plays the most significant role in GP burnout within the category of generic job demands.

Similarly, several sections of this PhD project revealed that occupation-specific job demands are significantly related to burnout dimensions. The literature review (Chapter 2) identified medical administration (FES 8.33), demanding patients (FES 11.67) and indirect patient care (FES 6.670) as notable occupation-specific job demands, higher than the average FES of 5.27. The interview study (Chapter 3) further identified management tasks and direct patient care as occupation-specific job demands, with scores of 66 and 10, respectively, as opposed to the total score of 97 for all occupation-specific job demands combined.

The field study (Chapter 4) found that the occupation-specific job demands of indirect patient care and patient behaviour were significantly positively related to emotional exhaustion and depersonalization. In addition, the indirect relationship between indirect patient care and emotional exhaustion and depersonalization, mediated by strain-based negative work-home interference, was significant. Among all occupation-specific job demands, patient care and demanding patients occupied the most significant roles, as supported across two studies – the systematic literature review (Chapter 2) and the field study (Chapter 4) – demonstrating a significant relationship between emotional exhaustion and depersonalization. Therefore, they occupied the most important position in the category of occupation-specific job demands regarding GP burnout.

In addition, several sections of this PhD project revealed that generic job resources are significantly related to burnout. For instance, in the literature review (Chapter 2), the generic job resources of autonomy and resilience emerged with FESs of 13.33 and 10, respectively, compared to an average FES of 11.90 for the entire category. In the interview study (Chapter 3), the generic job resource of autonomy emerged with a score of 2 versus a total score of 71 for all combined job resources. However, only the generic job resource of collaboration exhibited a significant negative relationship with emotional exhaustion in the field study (Chapter 4). Thus, based on the combined results of different research methods, autonomy is important for doctors, while it is unclear which generic job resources are particularly important for GPs (Manifest, 2007). Therefore, more research is needed to better understand the role of job

resources. They may be less relevant in the direct relationship with burnout while critical as buffers in the relationship between demands and burnout.

Furthermore, occupation-specific job resources also are significantly related to burnout dimensions. In the literature review (Chapter 2), occupation-specific job resources had an average FES of 5.38. In contrast, the occupation-specific job resources of patient care and social support from colleagues had FESs of 48.33 and 18.33, respectively. However, they only appear in this study. Moreover, the interview study (Chapter 3) found that occupation-specific job resources scored from 2–32, while the occupation-specific job resources of craftsmanship and professional side activities scored 32 and 13, respectively, which were unique to this study. The field study (Chapter 4) found that only the occupation-specific job resource of working with people was significantly negatively related to emotional exhaustion and depersonalization.

Therefore, based on the three studies in Chapters 2, 3 and 4, the category of occupation-specific job resources provided a limited contribution to understanding the factors relating to GP burnout, so it was impossible to draw an unambiguous conclusion based on these three studies. Therefore, more research is needed into the role of occupation-specific job resources since a combination of occupation-specific job resources may exert a stronger influence on burnout. Moreover, these resources could be considered buffers in the relationship between demands and burnout (Bakker et al., 2005; Bunjak et al., 2021; Jimenez & Dunkl, 2017).

All three studies identified the generic job demand of work pressure and the occupation-specific job demand of indirect patient care as significantly related to burnout dimensions (Chapters 2, 3 and 4). However, it was impossible to draw a clear conclusion about the role of generic and job-specific job resources relating to burnout, requiring further research. Several scientific publications have emphasized the importance of occupation-specific resources in influencing burnout, so scientific researchers and policymakers should heed this information. The importance of occupation-specific job demands affecting burnout has been sparsely documented, in contrast to the importance of maintaining GPs' mental health; therefore, it is time to seriously focus on possible solutions.

7.3.2 Theoretical Contributions and Implications

This section (7.3) discusses the main findings of the thesis regarding GP job demands and resources and their relation to burnout dimensions. The current subsection deals with the thesis's overall theoretical contributions and implications since the theoretical contributions of the relevant studies were synthesized according to the method of Turner (1991) for the

literature study (Chapter 2), interview study (Chapter 3) and field study (Chapter 4). The synthesis method consisted of three phases: phase 1) the synthesis preparation summarizing the relevant theoretical contributions, phase 2) the synthesis comparing the theoretical contributions for points of convergence or divergence while bringing the convergence points together, and Phase 3) the synthesis refinement. Although Turner initially called the method meta-theorizing, it became known as theory synthesis (Pound & Campbell, 2015; Turner, 1991).

The theoretical contribution of the literature review (Chapter 2) extends the JD-R theory with occupation-specific job demands and resources. The theoretical contribution of the interview study (Chapter 3) extends the JD-R theory with occupation-specific job demands and resources with personal demands and resources. The theoretical contribution of the field study (Chapter 4) extends the JD-R theory with occupation-specific job demands and resources. Therefore, the point of convergence lies in extending the JD-R theory with occupation-specific job demands and resources, and the overall synthesized theoretical contribution of the thesis extends the JD-R theory with occupation-specific job demands and resources specifically in the context of the GP profession.

The theoretical contribution of the thesis has two theoretical implications. Firstly, when applying occupation-specific job demands and resources in the JD-R model, the study's focus on the occupation-specific work environment contributes to its ecological validity (Brough & Biggs, 2015).

Secondly, the simultaneous application of generic and job-specific job demands and resources in the JD-R model leads to additionally explained variance in job-specific job demands and resources. High explained variance means the model fits the data well and can be predicted more accurately.

7.3.3 Practical Implications

Practical implications are conclusions from the study results that may influence real-world problems, and two practical implications were derived from the described theoretical contribution. Firstly, by combining occupation-specific job demands and resources with generic job demands and resources in the JD-R model, attention can focus on GPs' occupation-specific work environment. Moreover, intervention studies can be refined by applying mediators in prevention research. Therefore, the application of occupation-specific job demands and resources (e.g. indirect patient care) combined with generic job demands and resources (e.g. work pressure) while applying the mediator of strain-based negative work-home interference in

the JD-R model offers insights to design more targeted intervention studies on burnout among GPs. These improved intervention strategies can improve the occupational prevention and treatment of burnout for GPs.

A second practical implication is that the generic job demand of work pressure and the occupation-specific job demand of indirect patient care mediated by strain-based negative work-home interference significantly relate to GPs' burnout. Professional GP organizations can use this insight to make a political statement to alleviate the work pressure and indirect patient care (e.g. management tasks such as medical administration). However, bridging the gap between policymakers, GPs and researchers is challenging. In a recent study, Erismann et al. (2021) investigated and developed three strategies to address this challenge.

7.4 The Role of the Interaction Between the Work and Home Domains and their relationship with Burnout Dimensions

In a long, hectic career as a practising GP, I personally experienced the importance of a stable home situation, which should not be underestimated. Moreover, the children clearly experienced that their father was a GP, and that experience was not entirely pleasant. How many holidays have not fallen into the water because Dad had due pregnant patients on the agenda? These private reflections certainly contributed to the second research question of this thesis.

Although the literature review in Chapter 2 aimed to examine the current state of knowledge on generic and occupation-specific determinants of burnout among GPs, the scope of the study was slightly broadened to include the interaction between the work and home domains. A qualitative interview study described in Chapter 3 explored the nature of factors in the GPs' work and home domains that demand and generate energy. It is no coincidence that an image of the JD-R theory appears here, describing the relationship between job demands, job resources, and burnout.

The results of this qualitative study formed the starting point of the quantitative field study described in Chapter 4. This study investigated the role of two types of work-home interference (strain-based and time-based negative work-home interference) in the relationship between generic and occupation-specific job demands and resources and emotional exhaustion and depersonalization. The main findings of these three studies are summarized in the next section.

7.4.1 Main Findings

The current section addresses the interaction between the work and home domains: the concept of work-home interference. In the literature study (Chapter 2), the category miscellaneous, with an FES average of 3.34, delivered the following relevant outcomes: strain-based negative work-home interference with an FES of 3.33 and work-home interference with an FES of 13.33. Thus, the literature review makes a modest contribution to the current section.

According to the interview study (Chapter 3) and based on the scores (number of quotes) of the relevant category, the non-work domain seems to occupy a subordinate position compared to the work domain. The representatives of the work domain of job demands and resources scored 168, while the non-work domain of personal life demands and resources

scored 32. Surprisingly, during the analysis of the interviews, the emergent theme of Work-Home Interference (WHI) came forward with 25 scores. The significance of WHI is highlighted when compared with the scores of the work domain (168) and the non-work domain (32).

In the field study (Chapter 4), the relationships between generic and occupation-specific job demands and resources and emotional exhaustion and depersonalization were assessed through the intervening variables of time-based and strain-based negative work-home interference. The general term intervening effect was used in contrast to the more specific terms of mediation and indirect effect (for a discussion about the distinction between the different types of intervening effects, see, e.g. Mathieu and Taylor, 2006).

All relationships with the intervening variable time-based negative work-home interference were not significant. However, the relationships between the generic job demand work pressure and the occupation-specific job demand of indirect patient care and emotional exhaustion and depersonalization through the intervening variable of strain-based negative work-home interference were significant. Hence, strain-based negative work-home interference plays a prominent role as a mediator in the relationships between generic and occupation-specific job demands and the burnout components of emotional exhaustion and depersonalization.

There are several potential reasons for the unexpected finding that time-based negative work-home interference does not act as an intervening variable in the relationship between the job demands (generic and occupation-specific) and the two burnout dimensions (emotional exhaustion and depersonalization). Firstly, the results in Chapter 4 indicate the importance of the relational aspects of GPs' work. It is conceivable that relational aspects are not related to time but predominantly to stress. Secondly, non-significant results may result from the combination of predictors (Hargis et al., 2011).

Therefore, the proposal on the nature of job demands and resources and the combination of predictors should be further explored in future research.

The three studies investigating the role of generic and occupation-specific job demands and negative work-home interference affecting burnout among GPs revealed that mainly strain-based negative work-home interference mediates the relationship between generic and occupation-specific job demands and emotional exhaustion and depersonalization. The implications of these findings are discussed in the next section.

7.4.2 Theoretical Contributions and Implications

This section discusses the main findings of this thesis regarding the role of the interaction between the work and home domains of GPs: negative work-home interference. Particularly, a distinction is made between strain-based and time-based negative work-home interference. Research question 2, central to the current section, is, “To what extent do strain-based and time-based negative work-home interference mediate the relationships between generic and occupation-specific job demands and resources and emotional exhaustion and depersonalization among Dutch GPs?”

The current subsection addresses the theoretical contributions and implications of the thesis regarding both types of negative work-home interference. It is necessary to synthesize the theoretical contributions and implications of the constituent studies in Chapters 2, 3 and 4, following Turner’s (1991) method of presenting the theoretical contributions and implications of the thesis. Starting with basic theories regarding theory building from authorities in this field (e.g. Cornelissen et al., 2021; Weick, 1995) and using the practical approach with building blocks (e.g. Lange & Pfarrer, 2017; Whetten, 1989), it was also tested whether a supposed theoretical contribution or implication merits this qualification.

The literature study (Chapter 2) provided no theoretical contribution according to the aforementioned guidelines by Lange and Pfarrer (2017). Nevertheless, the study delivered one theoretical implication. Work-home interference was identified as an important concept associated with burnout, which qualifies for a theoretical implication because work-home interference bears the potential of extending the JD-R theory. However, a quantitative study should confirm the theoretical implications in future research.

Next, the interview study (Chapter 3) provided no theoretical contribution regarding work-home interference, yet the study provided one theoretical implication by identifying work-home interference as a significant concept influencing the emergence of burnout among GPs. Work-home interference qualifies as a theoretical implication because it can potentially extend the JD-R theory. However, this proposition should be confirmed in a future quantitative study. Finally, the field study (Chapter 4) explored the roles of strain-based and time-based negative work-home interference to increase the understanding of how generic and occupation-specific job demands and resources are related to burnout. Thus, an extension of the JD-R theory was proposed as qualifying for a theoretical contribution, according to the criteria by Whetten (1989) and Lange and Pfarrer (2017).

All three studies significantly contributed to understanding the influence of the interaction between the work and home domains on the burnout dimensions of emotional exhaustion and depersonalization. In particular, the underlying mechanism – the intervening effect of strain-based negative work-home interference on the relationship between occupation-specific job demands and resources – and the burnout dimensions of emotional exhaustion and depersonalization were highlighted, crucially strengthening insights into the influences on the development of burnout among GPs. The resulting practical implication is discussed in the subsection on practical implications below. Moreover, the minor role of time-based negative work-home interference compared to strain-based negative work-home interference indicates a direction for future research discussed in the subsequent avenues for future research (section 7.6).

7.4.3 Practical Implications

The current study demonstrates the central role of work pressure or Work Pace and Quantity (WPQ) in the emergence of burnout symptoms, both within the workplace (i.e. WPQ, indirect patient care and patient behaviour) and within the interaction between the workplace and the home environment (i.e. strain-based negative WHI). This finding points to the direction of intervention strategies that reduce work pressure and improve the harmony between work and personal life, possibly lessening the administrative burden from the perspective of occupation-specific demands. Intervention measures are not directly dependent on national politics because most GPs do not work under an employment contract but as independent professionals. Thus, doctors can take these actions on their own.

The mediator framework, a relatively new application in prevention and therapy research, is another approach for intervention measures. Interventions in mediator frameworks aim at manipulating a mediating variable assumed to have a causal relationship with the outcome variable. In the current study, reducing burnout implies manipulating the mediator WHI, for example, by implementing childcare facilities.

An additional remark about the significance of mediation analyses in the absence of a significant total effect seems appropriate here. The idea is that intervening (mediation) effects can occur even without a significant independent variable effect on an outcome that may seem contradictory to the core model principles (O'Rourke & MacKinnon, 2018). However, examining intervening effects when the overall effect of the independent variable on the outcome is not significant can reveal critical issues and demonstrate the value of the analysis (Fairchild, 2017).

Furthermore, practical implications are the consequences and conclusions of a particular action, decision or situation. They describe what is likely to happen if specific actions are taken. Practical implications can be used to make decisions, formulate policies and anticipate possible outcomes. Therefore, this study's practical implications regarding burnout among GPs can be approached as follows.

In this thesis, practical implications are insights into relationships between job demands and resources, work-home interference and burnout. They can be practically applied in intervention studies for new or improved burnout prevention among GPs by starting from the mediation framework of job demands and resources of → work-home interference → burnout. Thus, a potential intervention can focus on reducing work-home interference by strengthening the work-home balance among GPs. In this case, the intervention can provide GPs with more resources and support to better manage their work and personal lives with the help of flexible work schedules, childcare access, counselling services, and measures to manage stress better and develop coping strategies. The possibility of teleworking with a computer is also a possible option today (Prins et al., 2007).

Another option focuses on improving GP job resources, such as the working environment and opportunities for professional development and training (i.e., counselling, coaching, and mentoring). Improving job resources such as opportunities for professional development (e.g. training and continuing education) are also realistic options. As a result, GPs can be better equipped to deal with job demands while experiencing less stress (Terluin, 2015).

Finally, interventions can address GPs' job demands, such as implementing workload strategies, reducing administrative burdens and experiencing support with complex patients. In the latter case, participation in a Balint group can offer a solution. Due to reduced job demands, GPs can experience less stress while their mental and physical well-being improves, ultimately functioning better (Prins et al., 2007).

Generally, multiple valuable intervention strategies are available. Firstly, mindfulness training applies techniques such as meditation, breathing exercises and body awareness exercises (Creswell, 2017). Secondly, colleague support programs can help reduce feelings of isolation and enhance a sense of community via mentorship, group meetings, online support and Balint intervention groups supervised by psychotherapists (a method developed by Hungarian psychoanalyst Michael Balint) (Kjeldmand, 2008; West et al., 2016). Moreover, workload strategies can reduce the demands projected on GPs to prevent burnout, including delegating tasks to administrative assistants and other healthcare professionals (e.g. diabetes

nurses) with workload redistribution while implementing strategies to reduce the administrative burden (Shanafelt et al., 2012). Furthermore, health and wellness programs can promote GPs' physical and mental well-being (Kjeldmand & Holmström, 2008; Nielsen & Tulinius, 2009). Nevertheless, measuring and evaluating the effects of an intervention can be challenging. For example, one approach is the standardized Maslach Burnout Inventory before and after the intervention. A significant difference in measurements before and after the intervention can lead to success. Other data (e.g. patient satisfaction, work involvement and job satisfaction) can also be collected before and after the intervention to assess whether it had a significant positive impact on essential factors such as patient satisfaction, the overall well-being of GPs and the quality of care they provide.

Another qualitative approach uses focus groups or interviews to collect feedback on how GPs experienced the intervention and whether their specific needs and concerns were addressed (Rich et al., 2020). Limiting factors to reducing burnout among GPs are scarce resources (e.g. funds and personnel), which can be challenging, especially for smaller organizations such as one- person practices (Jonckheer et al., 2011). People, including GPs and other practice employees, naturally resist change and are often satisfied with the status quo (Jonckheer et al., 2011). It often takes effort to break through the resistance and convince them to develop other habits. In addition, the issue of lacking time due to an overloaded work program is relevant. Finally, organizational culture can be a powerful tool to shape attitudes and behaviours among professionals so that a counterculture becomes one that supports intervention to prevent burnout (Dyrbye et al., 2017). Healthcare organizations and independent GPs everywhere face a series of challenges in implementing interventions to reduce burnout (Jonckheer et al., 2011; van den Brekel-Dijkstra et al., 2020).

7.5 The Relationship Between Burnout, Absenteeism and Presenteeism

Although the literature addresses diverse consequences of burnout, this thesis focuses on the consequences of absenteeism and presenteeism and their severity due to timeliness. These concepts are forms of presence behaviour: absenteeism means sick and absent from work, while presenteeism means sick and present at work (Halbesleben & Buckley, 2004; Johns, 2010). The research question central to this section is, “To what extent is there a relationship between burnout dimensions and absenteeism and between burnout dimensions and presenteeism among Dutch GPs?”

This question was investigated in the field study described in Chapter 5. It had a limited design, titled “The Mediating Role of Work Ability in the Relationship Between Emotional Exhaustion, Depersonalization and Absence Duration and Absence Frequency”, at the 12th Biennial International Conference of the Dutch HRM Network (9–11 November 2022) at the University of Twente (see Chapter 5, Appendix 5.4). In this study, the conceptual model was extended with the dependent variable of presenteeism.

7.5.1 Main Findings

The results of the quantitative field study in Chapter 5 show that emotional exhaustion significantly relates to absenteeism duration and work ability. In contrast, depersonalization does not significantly relate to work ability or absenteeism duration. Therefore, separately considering these effects is critical.

The direct relationship between emotional exhaustion and presenteeism is significant. Moreover, the direct relationship between emotional exhaustion and absenteeism duration is also significant. Hence, emotional exhaustion appears to be a common determinant of absenteeism duration and presenteeism. Moreover, the indirect relationship between emotional exhaustion and absenteeism duration via work ability appears significant, while the indirect relationship between emotional exhaustion and presenteeism via work ability is not. Thus, the common determinant of emotional exhaustion of absenteeism duration and presenteeism are not entirely effective through work ability. Additionally, the results in Chapter 5 show that depersonalization is also not related to presenteeism.

An unexpected finding was the high correlation between absenteeism duration and absenteeism frequency. Although previous research has identified that the correlation between absenteeism duration and absenteeism frequency can be considerable (e.g. 0.45 in Bakker et

al., 2003, while varying between – 0.05 and 0.60 in Farrell & Stamm, 1988), an unexpectedly high correlation was found in the current study at 0.83 probably due to the use of single-item measurement scales for absenteeism duration and frequency. Therefore, the respondents may have been unable to distinguish between absenteeism duration and frequency.

Using single-item measurement scales can lead to reduced reliability (Cronbach's α), fewer points of discrimination (sensitivity) and reduced content validity. However, a high correlation may also mean that the respondents cannot properly distinguish between absenteeism duration and absenteeism frequency because one or both types of absenteeism do not occur in the GP profession. Therefore, future research should design and test a more extensive measuring instrument for GPs to distinguish between absenteeism duration and absenteeism frequency. This questionnaire could also pay attention to the reasons for absence, following the distinction between duration and frequency of absenteeism.

7.5.2 Theoretical Contributions and Implications

The current subsection deals with theoretical contributions and the implications of the thesis regarding the relationship between burnout and both types of presence behaviour. The quantitative field study described in Chapter 5 makes two theoretical contributions. Firstly, it contributes to the long-standing debate about the dimensionality of burnout: whether burnout is better approached as a one-dimensional or multidimensional concept. In the aforementioned study in Chapter 5, burnout is argued to be best approached as a multidimensional concept. The burnout dimension of emotional exhaustion is related to the duration of absenteeism through the process of health damage, and the burnout dimension of depersonalization is related to the absenteeism rate through the motivational process. This correlation illuminates the various underlying processes involved in the emergence of the two forms of absenteeism. Secondly, a contribution is made to the knowledge of the concept of work ability. Positioning work ability as a mediating mechanism in health-impairment and motivational processes highlights strengthening the theoretical underpinnings of the work ability concept.

7.5.3 Theoretical Implications

Two theoretical implications follow the quantitative study in Chapter 5. The first is considering two predictors, emotional exhaustion and depersonalization, of three outcomes, absenteeism duration and absenteeism frequency and presenteeism, through the health-impairment and motivational processes. Second is the theoretical implication of considering

work ability as a mediating mechanism in the health-impairment process. Hence, the motivational process provides a better understanding of the theoretical underpinnings of work ability.

7.5.4 Practical Implications

The practical implications of a possible improvement of targeted preventive intervention on absenteeism include positioning work ability as a priori known mediator while introducing variations in this mediator so that the outcomes of absenteeism duration and absenteeism frequency can be better studied for the predictors of emotional exhaustion and depersonalization. In the previous section on the role of the interaction between the work and the home domains influencing the burnout dimensions, the value and use of mediation models in intervention research were discussed extensively. In the current section, work ability is considered a mediator. Nonetheless, the practical considerations concerning the use of mediation models in intervention research are fully applicable to the current topic.

7.6 Thesis Evaluation

The previous sections discussed the main findings related to the three research questions in this thesis and how they contributed to the literature. This section evaluates the entire thesis for its contributions to the literature. It also includes the implications, limitations and recommendations for future research.

When a scientific researcher evaluates a thesis as a test of competence, a significant element is the extent to which the dissertation contributes to expanding existing scientific knowledge (Korsten, n.d.-a, n.d.-b). This thesis focuses on expanding scientific knowledge about burnout among Dutch GPs. Thus, evaluating this thesis requires understanding how theory is formed and the importance of causal thinking. Therefore, this section is devoted to normative causal decision theories.

A normative theory has a value-related view of reality. It expresses how reality ought to be (Rawls, 1971), unlike a positive theory that describes reality without values (Friedman, 1953). Philosopher John Rawls offered a normative theory of justice based on a set of values he claimed are necessary for a just society. According to Rawls' theory, justice necessitates that all people's fundamental rights and liberties are upheld and that social and economic inequalities are established to benefit society's most disadvantaged members. Thus, Rawls' theory is concerned with how society should be structured to be just and is explicitly normative. In Rawls' view, a just society is one in which all members are treated equally with access to the same opportunities while their basic needs are met. This idea of a just society is based on a specific set of ideals and rules, so Rawls' theory can be seen as an effort to define a framework for putting these ideals into action.

Moreover, economist Friedman makes the case that economics should focus more on creating constructive theories to explain how the world operates than on creating normative theories dictating how the world should be. Friedman emphasizes a value-free analysis with empirical data to test and improve economic theories. His essay has received numerous citations, significantly impacting modern economics methodology.

Normative theories can be divided into three categories: deontology, consequentialism and virtue ethics (Leftwich, 2015). Consequentialism is vital for this argument because it states that the answer to whether an action is good or bad depends on its outcome. Causal knowledge and reasoning play a crucial role in human thinking, explaining an event, such as "How did I burn out?" (Gopnik et al., 2007; Sloman, 2005).

The literature describes various decision-making strategies (e.g. Koehler & Harvey, 2008). Some are influenced by causal knowledge and reasoning, while other strategies are not. Strategies influenced by causal knowledge and reasoning often focus on expected outcomes and are based on expected utility theory (Savage, 1972). Perhaps one of the most important functions of causal knowledge and reasoning is supporting decision-making because people usually focus on desired outcomes. Therefore, normative causal decision theories argue that people should use causal knowledge to make decisions that potentially improve decision-making (Hagmayer & Witteman, 2017). The causal-explanation-based decision-making process is a framework that describes how causal knowledge and reasoning can be used to improve choices (Hagmayer & Witteman, 2017). This thesis' central focus is on GP burnout, regarded as an unwanted mental condition. According to the principles of causal thinking and reasoning, it is logical that an individual or an organization, when confronted with burnout, wonders about the causes and consequences. Hence, here is the logical and holistic coherence of the different topics in this thesis: the causes and consequences of burnout, with burnout as the central focus.

The main theoretical contribution of this thesis concerns the factors influencing burnout among GPs, specifically their occupation-specific job demands and resources. Chapters 2, 3 and 4 argue that extending the JD-R theory with occupation-specific job demands and resources for GPs makes an essential contribution to knowledge about factors relating to burnout among Dutch GPs. Moreover, this extension contributes to the ecological validity of the JD-R model. Furthermore, Chapters 3 and 4 provide the theoretical implication that strain-based negative work-home interference is a crucial predictor of burnout.

Two modest contributions are made concerning two critical consequences of burnout: absenteeism and presenteeism. Firstly, Chapter 5 posits the theoretical implication of indications for an association between burnout and absenteeism. By positioning work ability as a mediator in the relationships between emotional exhaustion and depersonalization and absenteeism duration and frequency, the health-impairment and motivational processes have important distinguishable functions in developing absenteeism duration from burnout. The theoretical presumption is the first step in developing a hypothesis, while empirical support is the evidence supporting the hypothesis that increases its scientific credibility but does not prove it (Babbie, 2017).

Secondly, Chapter 5 posits the theoretical implication that there are indications of an associative relationship between burnout and presenteeism. The relationship between emotional exhaustion and presenteeism was demonstrated as significant and positive. Overall,

this thesis advances the burnout theory among Dutch GPs. Although the intention was to demonstrate cause-effect relationships in the work process of GPs, the lack here does not mean that the results are not valuable and useless. On the contrary, the results of the studies support causation empirically yet cannot prove them while increasing the scientific credibility of the different hypotheses.

7.6.1 Limitations

Although the limitations of the separate studies were discussed in the relevant chapters, limitations apply to the overall thesis concerning data collection methods and generalizability, as discussed in this section.

Causality

Because the studies had a cross-sectional design, it was impossible to investigate causality. A longitudinal study of experimental design is necessary to investigate a relationship's direction (Maxwell et al., 2011). This investigation was initially also part of the research agenda of this thesis but became too ambitious due to the unacceptably low response of the participants in the separate studies. Therefore, this thesis cautiously discusses "factors influencing burnout".

Validity and Reliability

According to Rothman et al. (2008), the main drawbacks of cross-sectional studies, such as those in Chapters 4 and 5, are limited ability to draw causal conclusions; limited generalizability; lack of temporal relationships (cause and effect); and bias and confounding. Any research design, including cross-sectional studies, must take reliability and validity into account (De Vaus & De Vaus, 2013). A robustness check can boost the value of a cross-sectional study by adding more proof that the findings are valid and independent of particular techniques or presumptions (Gerring, 2016). Therefore, Chapter 6 is devoted to how robustness testing can increase the validity and reliability of a study and thereby increase the quality of the study.

Common Method Variance

Common method bias, also referred to as common method variance, occurs in the results of a study due to the measurement method, not from the constructs represented by the measurement results (Podsakoff et al., 2003). In general, two types of harmful effects of common method variance (CMV) are distinguished: the bias in parameter estimates of

construct reliability and construct validity (Williams et al., 2010) and the bias in parameter estimates of the relationships between two different constructs (Baumgartner & Steenkamp, 2001). The literature describes various methods to counteract CMV a priori and several post hoc statistical methods (Podsakoff et al., 2012). The quantitative studies described in this thesis used different methods to investigate whether CMV could be problematic. All results showed that no meaningful CMV was present in the results.

Data Collection Methods

Most data from the different quantitative studies in this thesis were collected through questionnaires. Although most questionnaires had been validated, it was still necessary to develop two questionnaires for measuring occupation-specific job demands and occupation-specific job resources. The primary source for these two questionnaires was the results of the qualitative interview study described in Chapter 3. The quantitative study in Chapter 4 described selecting the questions and assessing the psychometric properties of the measurement scales. Although the reliability and validity of both scales were satisfactory, future research with both scales is necessary because several items were removed from them.

Generalizability

This thesis describes significant results on job demands and job resources for Dutch GPs. Therefore, it is crucial to investigate the generalizability of the results, defined as the extent to which the study results apply to a larger population. In this thesis, the question concerns the extent the results that originated from a random sample from the total population of GPs apply to that total population. The research on generalizability is described in the quantitative studies in Chapters 4 and 5 of this thesis, concluding that the composition of the two samples of GPs generally corresponds well with the general population of GPs in most aspects. However, some generalizability improvement is desirable in future research employing a stratified sample, creating the possibility of investigating the highly interesting relationship between GP practice type (i.e. solo, duo and group) and burnout.

7.6.2 Avenues for Future Research

This dissertation discusses several important issues related to burnout among GPs, including limitations, revised measurement scales for occupation-specific job demands and resources, improving generalizability and further researching practice and GP characteristics. These topics are discussed below.

Measurement Scales for Occupation-Specific Job Demands and Resources for GPs

Two measurement scales were developed in Chapter 3 based on the qualitative interview study results: occupation-specific job demands and occupation-specific job resources for GPs. The interviews were analyzed using template analysis, and the themes with the highest number of quotes were considered to represent what GPs consider important in their work. Questionnaires were constructed from this series of representations. Explorative factor analysis (EFA) yielded three dimensions for the occupation-specific job demands: indirect patient care (six questions), facilitating relationships (two questions) and patient behaviour (two questions). For occupation-specific job resources, EFA yielded two underlying dimensions: working with people (five questions) and professional skills (three questions). However, three of 13 questions on occupation-specific job demands were removed during EFA, while two of ten questions on occupation-specific job resources were removed. As seen in Table 1 in Chapter 4, the questions contained detailed information about GP job demands and resources, which remained obscure in the more abstract (de Leeuw et al., 2008) constructs.

Therefore, obtaining more detailed constructs is desirable. Thus, a revision of the two questionnaires is desirable so that more detailed results can be expected as an advantage for targeted preventive and therapeutic interventions (de Leeuw et al., 2008)

Generalizability

Generalizability is important for extrapolating the results of a sample study to the larger or entire population. In the three quantitative studies in Chapters 4, 5 and 6, generalizability was investigated by comparing the distribution of five demographic characteristics: three practice types (i.e. solo, duo and group), gender and age, with the distribution of these characteristics across the entire population of GPs. The database where this distribution occurs is managed by the Netherlands Institute for Primary Health Care (NIVEL) for all Dutch GPs and is accessible to scientific researchers. Of the differences in distribution, only one of five characteristics was significant (so the null hypothesis of no difference was rejected). Therefore, comparing the distribution of the five demographic characteristics can be improved by a more extensive, stratified sample with additional characteristics.

Practice Characteristics

It seems plausible that a GP working in a solo practice, responsible for all management tasks (indirect patient care), has a greater risk of burnout (Dreher et al., 2019; Werdecker &

Esch, 2021). Hence, future research should investigate the relationship between practice characteristics (i.e. solo, duo, and group) and burnout. In the quantitative studies described in Chapters 4, 5 and 6, it was impossible to conduct this research because the practice characteristics in the GP sample were too heterogeneously distributed. A stratified sample is also recommended for the research envisaged here.

7.6.3 Concluding Remarks

Although the interaction between the work and home domains was demonstrated to be eminently important in this thesis, given the results of the quantitative study in Chapter 4, the topic remains underexposed and exceeds the scope of this thesis. Investigating this topic further could be interesting because a stable and good home situation is vital, especially for GPs (Barnett & Hyde, 2001). It can also play an important role in preventing burnout, described in Chapter 4 under practical implications.

One would not wish burnout on one's worst enemy because it is disastrous for individual GPs and their patients. Moreover, it often takes months or more than a year to resume work fully recovered. Therefore, prevention is better than cure. In other words, the emphasis should be on preventing burnout rather than curing it. Hence, this thesis provides concrete topics as tools for targeted burnout prevention: work pressure, management tasks (indirect patient care), working with people, professional skills and work-home interference.

Firstly, people tend to look beyond themselves for the causes of a negative event like burnout because self-reflection is experienced as threatening (Lazarus & Folkman, 1984; Leiter & Maslach, 2009). Work pressure is the perceived workload per time unit. It may be that a stable, positively experienced home situation, resulting in a better balance between work and private life, creates the mental peace to experience the workload more positively with lower work pressure (Barck-Holst et al., 2022). Secondly, it appears more satisfying to delegate the burden of a major medical and financial administration (indirect patient care) to a practice assistant than to complain that the national government has no eye for the administrative burden (van den Berg, 2010).

This thesis demonstrated that working with people is an essential occupation-specific job resource for GPs. A job resource, by definition, works to reduce the harmful effects of high job demands. If we, as GPs, are intrinsically motivated to do people's work, we must reinforce extrinsic motivation by cultivating working with people. Indeed, we can call this working on servant leadership: leadership over the self (Van Dierendonck & Patterson, 2015).

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Summary

Introduction

In the post-war 1950s, dissatisfaction among general practitioners about their position in healthcare resulted in the establishment of the Dutch General Practitioners' Society (NHG)+, announced in 1956 by a celebrity of that time, general practitioner and later professor of general medicine FJA Huijgen. The now mythical Woudschoten conference in 1959 delivered the three core values of general practitioner care after a reconsideration of the function of the NHG. These were (and still are): 1. Person-centered care, that is, a holistic view of the person, not just the patient's illness; 2. Medical generalist care, which implies that general practitioners have broad medical knowledge and skills to assess, treat or refer health complaints; 3. Continuous care, which, among other things, appeals to general practitioners' pursuit of long-term doctor-patient relationships. In 2019, a fourth core value was added: 4. Collaborative care, that is, general practitioners provide appropriate care in consultation with their patients, their team and in consultation with other healthcare and care providers outside that team.

In this way, the GP can be positioned as the first point of contact for people with health complaints and as a gatekeeper for access to the hospital. Acting as a gatekeeper means that most healthcare institutions are only accessible with formal permission (prescription or prescription) from a general practitioner (Groenewegen, 2016). Various policy documents further emphasize this central position. Strengthening general practice is seen as an important instrument to improve the efficiency and quality of healthcare (Boot & Knapen, 2013; Hutten, 1998). A strong gatekeeper position implies that general practitioners must be able to provide optimal care to their patients. However, this important social position faces several threats, of which burnout is one. This dissertation aims to investigate how burnout occurs among general practitioners and what the consequences of burnout can be for them.

Problem definition, objective and main research question

Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization or cynicism and reduced personal effectiveness. It is a condition that causes great suffering, including for those close to you, and which also has a long-lasting and serious undermining of mental well-being.

Important consequences of burnout are absenteeism, which is being ill and not present at work, and presenteeism, which is being ill but being present at work. Both consequences of burnout are considered two types of absenteeism behavior that can lead to loss of productivity.

Moreover, presentism not only leads to reduced **quantity** of work but also to reduced **quality** of work. Reduced quality of work means reduced quality of care and an increased risk of medical errors in healthcare, and therefore also for general practitioners. Recent data from Statistics Netherlands and the LHV show that absenteeism in primary health care is becoming a problem. In 2010, absenteeism among general practitioners was 3.2% and in 2020, 5.6%, exceeding the average absenteeism of 4.9% for all economic sectors combined.

Although traditionally stressors or job demands of general practitioners are related to the emotionally taxing doctor-patient relationship, with a few exceptions, little is known about the determinants of burnout among general practitioners. These exceptions are the dissertations of Van Ham (2006) and Hutten (1998). The topics of both theses have a direct relationship with burnout and provide important insight into the working methods of general practitioners and the resulting tensions. The study by Van Ham (2006) discusses the factors that influence the job satisfaction of general practitioners and the study by Hutten (1998) discusses the workload and care provision of general practitioners. Job satisfaction, workload and burnout are interrelated within work psychology. Low job satisfaction will cause more work stress, as will a high workload. Chronic stress is an important cause of burnout.

Furthermore, little is known about the interaction between the work domain and the home domain. Both domains influence each other mutually: stress or lack of time within the work domain can negatively influence the home domain. For example, a general practitioner who usually finishes work late and, due to lack of time, only comes home when the children are already in bed, can easily fail in the role of educator, which in turn can cause stress within the home domain. Conversely, a GP with a stable and supportive home environment will have more reserves to cope with stress at work.

Given not only the great social importance of well-functioning primary healthcare but also the high risk of burnout for general practitioners and the relatively little-known influencing factors in the development of burnout, it is urgently necessary to conduct further research. Therefore, the **main aim** of this thesis is **to investigate how burnout occurs among general practitioners and to investigate some important consequences of burnout.**

The following research questions were formulated for this purpose:

Research question 1:

Which profession-specific and generic job demands and job resources are important for Dutch general practitioners, and to what extent are these related to burnout?

Research question 2:

To what extent do strain-based negative work-home interference and time-based negative work-home interference mediate the relationships between generic and occupation-specific job demands and generic and occupation-specific job resources and emotional exhaustion and depersonalization in Dutch general practitioners?

Research question 3:

To what extent are there relationships between burnout absenteeism and presenteeism among Dutch general practitioners?

Methods

The dissertation includes five different studies.

Study 1 is described in Chapter 2 and includes a systematic quantitative literature review. The purpose of a literature review in a dissertation is to present a thorough and comprehensive analysis of the existing literature and studies in the relevant research area. It is mainly important for the current research to identify gaps in existing knowledge. The study examines the scientific literature to date to determine which generic and profession-specific determinants of burnout among general practitioners are known.

Generic job requirements refer to general skills, knowledge and attributes that apply to a wide range of occupations and positions, such as communication skills, problem-solving skills, organizational skills and collaboration. Generic job demands are relevant regardless of the specific nature of the profession and are important for successful functioning in different work environments. They can be considered as the basic skills and traits that are useful regardless of the field.

Occupational job demands refer to the specific skills, knowledge and attributes required for a specific occupation or position. These requirements focus on the specific tasks, responsibilities and technical aspects of a particular profession. For example, technical skills such as programming for a software developer, and physical examination skills for a general practitioner. Occupational job demands are directly related to the unique requirements of a specific occupation. In general, generic job demands can be regarded as overarching and applicable to different occupations, while occupational job demands are specific to a particular occupation. Both types of job demands are important for successful functioning in a particular profession.

Study 2, described in Chapter 3, is a qualitative interview study among Dutch general practitioners. This study aimed to investigate which current occupation-specific determinants of burnout (job demands and job resources) can be identified. This was done by conducting semi-structured interviews among eight general practitioners. These interviews were audiotaped and transcribed at a later date.

Sample size in qualitative research is determined by several factors, but the guiding principle should be the concept of saturation because saturation determines the majority of the sample size. Saturation is the situation where new data does not shed more light on the topic under investigation. Four types of saturation are identified in the literature: 1. Theoretical saturation related to the development of theoretical categories and with a focus on the sample, 2. Inductive thematic saturation related to the emergence of new themes, 3. A priori saturation is related to the extent to which the identified themes are represented in the data and 4. Data saturation is related to the extent to which new data repeats previous data. The current study among general practitioners used the Data Saturation method, in which saturation was reached in eight interviews and interviews were stopped.

The transcripts were then analyzed using the template analysis method. Analysis of the transcripts identified several occupation-specific job demands and job resources. Two notable findings were the identification of the occupation-specific work requirement management tasks (including medical administration) and the occupation-specific job resource craftsmanship. Furthermore, the determinant of work-home interference was identified during the analysis. The results of this qualitative study were used in study 3, a quantitative field study.

Study 3, described in Chapter 4, is a quantitative field study, conducted using 178 completed questionnaires, to investigate which generic and profession-specific job demands and job resources influence the development of burnout among general practitioners. This study also examines the influence of the interaction between the work domain and the home domain on burnout. Various generic job demands (work pressure and mental load), profession-specific job demands (indirect patient care, facility relationships and patient behavior), generic job resources (opportunities for development, feedback and collaboration) and profession-specific job resources (working with people and professional skills) were examined. The quantitative analyzes were conducted in a modification of the job demands-resources model in which two types of negative work-home interference were positioned as mediators between job demands and job resources on the one hand, as independent variables, and on the other hand, the dependent variables emotional exhaustion and depersonalization, the most important two of the three burnout dimensions.

Study 4, described in Chapter 5, is also a quantitative field study conducted with 176 completed questionnaires. This study aimed to investigate the relationship between the two most important burnout dimensions, emotional exhaustion and depersonalization, and two types of absenteeism, absenteeism duration and absenteeism frequency and presenteeism. Furthermore, the mediating role of work ability in this relationship is examined.

Finally, Study 5, described in Chapter 6, is again quantitative. The main aim of this study was to investigate the quality of the two quantitative cross-sectional studies in Chapters 4 and 5. This was done by using robustness tests applying different cut-off criteria to the burnout dimensions of emotional exhaustion and depersonalization. These analyzes were done using mediation studies. Quantitative studies 3, 4 and 5 used Structural Equation Modeling in Amos, regression analysis in Process (Hayes, 2012) and mediation analysis in Mediate.

The most important outcomes of the above five studies are:

1. Of the generic job demands, it is mainly work pressure that influences the development of burnout.
2. Of the profession-specific job demands, they are mainly management tasks (administration, etc.) that cause burnout influences.
3. The generic work resource “collaboration” and the profession-specific work resource “working with people” have a decreasing effect on the development of burnout.
4. Of the two types of work-home interference examined, it is mainly strain-related work-home interference that influences the development of burnout. The second type, time-based work-home interference does not play a significant role in the development of burnout.
5. Emotional exhaustion, the most important burnout dimension, is Positively related to absenteeism duration and presenteeism.
6. Applying different cut-off criteria to the two burnout dimensions of emotional exhaustion and depersonalization did not appear to influence the study outcomes. This finding supports the quality of the two quantitative field studies.

Limitations

The main limitation of a cross-sectional study is that no statements can be made about causality because a longitudinal study is necessary for this. Attempts to conduct a longitudinal study were made but were stopped if the response rate was too low.

It is also concluded that several characteristics of general practitioners in the sample correspond well with the characteristics of general practitioners in the entire population. However, generalization of the study results to the entire population of general practitioners could be improved in future research by using a stratified sample. A stratified sample is a sampling method in which the population is divided into different subgroups, also called strata, and then a random sample is drawn from each subgroup. The purpose of stratification is to ensure that the sample is representative of the entire population and that certain subgroups are not under-represented or over-represented. The current sample of 900 general practitioners was drawn from the NIVEI database, where all general practitioners practicing in the Netherlands are registered, making it possible to draw a stratified sample. This also enables improved generalization to the entire population of general practitioners.

Future research

Because it is likely that solo-working general practitioners, who are also responsible for all management tasks, have a higher risk of burnout, it is interesting to investigate the relationship between practice characteristics (solo, duo, group practice) and burnout in future research. It is also desirable to use a stratified sample with a focus on practice characteristics.

Conclusion

The most important results of this study are that crucial determinants of burnout among general practitioners are workload and indirect patient care (management tasks). The relationship between these generic and occupation-specific job demands and burnout is mediated by strain-based work-home interference. Furthermore, the generic work resource Collaboration and the profession-specific work resource Working with people appear to have a reducing effect on burnout.

For preventive and curative intervention studies, attention can therefore mainly be paid to the mediator strain-based work-home interference. In addition, some important contributions and practical implications are provided.

Two important consequences of burnout among general practitioners are absenteeism and presenteeism. Absenteeism is considered an emerging problem in primary care. Presenteeism is related to reduced quality of care and associated disciplinary procedures.

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Samenvatting

Inleiding

In de naoorlogse jaren vijftig mondde de onvrede onder huisartsen over hun positie in de gezondheidszorg uit in de oprichting van het Nederlands Huisartsen Genootschap (NHG), in 1956 aangekondigd door een coryfee uit die tijd, huisarts en latere hoogleraar huisartsgeneeskunde F.J.A. Huijgen. De inmiddels mythische Woudschoten-conferentie in 1959 leverde na een herbezinning op de functie van het NHG de drie kernwaarden van de huisartsenzorg. Dat waren (en zijn nog steeds): 1. Persoonsgerichte zorg, dat wil zeggen, een holistische mensvisie, niet alleen de ziekte van de patiënt, 2. Medisch-generalistische zorg, wat impliceert dat huisartsen een brede medische kennis en vaardigheden hebben om gezondheidsklachten te beoordelen, te behandelen of te verwijzen, 3. Continue zorg, wat onder meer appelleert aan het nastreven van huisartsen van langdurige arts-patiëntrelaties. In 2019 werd hieraan een vierde kernwaarde toegevoegd: 4. Gezamenlijke zorg, dat wil zeggen, huisartsen leveren passende zorg in samenspraak met hun patiënten, hun team en in samenspraak met andere zorg- en hulpverleners buiten dat team.

Aldus kan de huisarts gepositioneerd worden als eerste aanspreekpunt voor mensen met gezondheidsklachten en als poortwachter voor toegang tot het ziekenhuis. Het optreden als poortwachter betekent dat de meeste gezondheidszorginstellingen alleen toegankelijk zijn met formele toestemming (recept of voorschrift) van een huisarts (Groenewegen, 2016). Diverse beleidsdocumenten benadrukken deze centrale positie verder. Het versterken van de huisartspraktijk wordt gezien als een belangrijk instrument om de efficiëntie en kwaliteit van de gezondheidszorg te verbeteren (Boot & Knapen, 2013; Hutten, 1998). Een sterke poortwachterspositie impliceert dat huisartsen optimale zorg aan hun patiënten moeten kunnen bieden. Deze belangrijke maatschappelijke positie kent echter een aantal bedreigingen, waarvan burn-out er één is. Het doel van dit proefschrift is om te onderzoeken hoe burn-out onder huisartsen tot stand komt en wat de gevolgen van burn-out voor hen kunnen zijn.

Probleemstelling, doelstelling en belangrijkste onderzoeksvraag

Burn-out is een psychologisch syndroom dat gekenmerkt wordt door emotionele uitputting, depersonalisatie of cynisme en verminderde persoonlijke effectiviteit. Het is een aandoening met een hoge lijdensdruk, ook voor de directe naasten en die bovendien het geestelijk welbevinden langdurig en ernstig ondermijnt.

Belangrijke gevolgen van burn-out zijn absenteïsme, dat is ziek zijn en niet aanwezig op het werk, en presenteïsme, dat is ziek zijn en wel aanwezig op het werk. Beide gevolgen van burn-out worden beschouwd als twee typen van aanwezigheidsgedrag die kunnen leiden tot verlies van productiviteit. Bovendien leidt presenteïsme niet alleen tot verminderde **kwantiteit** van het werk, maar ook tot verminderde **kwaliteit** van het werk. Verminderde kwaliteit van het werk betekent in de gezondheidszorg, en dus ook voor huisartsen, verminderde kwaliteit van zorg en een verhoogd risico op medische fouten. Dat absenteïsme in de eerstelijnsgezondheidszorg problematisch wordt, blijkt uit recente data van het CBS en van de LHV. In 2010 was het absenteïsme onder huisartsen 3.2% en in 2020, 5.6%, waarmee het gemiddelde absenteïsme van 4.9% voor alle economische sectoren samen werd overschreden.

Hoewel traditioneel stressors of werkeisen van huisartsen gerelateerd worden aan de emotioneel belastende arts-patiëntrelatie is op een enkele uitzondering na weinig bekend over de determinanten van burn-out onder huisartsen. Die uitzonderingen worden gevormd door de proefschriften van Van Ham (2006) en Hutten (1998). De onderwerpen van beide proefschriften hebben een directe relatie met burn-out en geven een belangrijk inzicht in de werkwijze van huisartsen en de daaruit voortvloeiende spanningen. De studie van Van Ham (2006) behandelt de factoren die de arbeidssatisfactie van huisartsen beïnvloeden en de studie van Hutten (1998) behandelt de werklust en het zorgaanbod van huisartsen. Arbeidssatisfactie, werklust en burn-out zijn onderling gerelateerd binnen de arbeidspsychologie. Een lage arbeidssatisfactie zal meer werkstress geven evenals een hoge werklust. Chronische stress is een belangrijke oorzaak van burn-out.

Voorts is weinig bekend over de interactie tussen het werkdomein en het thuisdomein. Beide domeinen beïnvloeden elkaar wederzijds: stress of tijdgebrek binnen het werkdomein kan het thuisdomein in negatieve zin beïnvloeden. Een huisarts bijvoorbeeld die gewoonlijk pas laat klaar is met het werk en door tijdgebrek pas thuiskomt als de kinderen al op bed liggen, kan gemakkelijk tekortschieten in de rol als opvoeder, wat weer stress binnen het thuisdomein kan veroorzaken. Omgekeerd zal een huisarts met een stabiel en ondersteunend thuisdomein meer reserves hebben om de stress op het werk op te kunnen vangen.

Gegeven, niet alleen het grote maatschappelijke belang van een goed functionerende eerstelijnsgezondheidszorg, maar gegeven ook het hoge risico op burn-out voor huisartsen en de relatief weinig bekende beïnvloedende factoren bij het ontstaan van burn-out is het dringend noodzakelijk nader onderzoek te doen. Daarom is het **hoofddoel** van dit proefschrift **te onderzoeken hoe burn-out onder huisartsen ontstaat en om enkele belangrijke gevolgen van burn-out te onderzoeken.**

Daarvoor werden de volgende onderzoeksvragen geformuleerd:

Onderzoeksvraag 1:

Welke beroepsspecifieke en generieke werkeisen en werkhulpbronnen zijn belangrijk voor Nederlandse huisartsen, en in hoeverre zijn deze gerelateerd aan burn-out?

Onderzoeksvraag 2:

In hoeverre mediëren spanning-gerelateerde negatieve werk-thuis interferentie en tijd-gerelateerde negatieve werk-thuis interferentie de relaties tussen generieke en beroepsspecifieke werkeisen en generieke en beroepsspecifieke werkhulpbronnen en emotionele uitputting en depersonalisatie bij Nederlandse huisartsen?

Onderzoeksvraag 3:

In hoeverre bestaan er relaties tussen burn-out en ziekteverzuim en presenteïsme onder Nederlandse huisartsen?

Methoden

Het proefschrift omvat vijf verschillende studies.

Studie 1 wordt beschreven in hoofdstuk 2 en omvat een systematisch kwantitatief literatuuronderzoek. Het doel van een literatuuronderzoek in een dissertatie is om een grondige en uitgebreide analyse van de bestaande literatuur en onderzoeken op het betreffende onderzoeksgebied te presenteren. Voor het huidige onderzoek is voornamelijk van belang om hiaten in de bestaande kennis te identificeren. De studie onderzoekt in de wetenschappelijke literatuur tot heden welke generieke en beroeps-specifieke determinanten van burn-out onder huisartsen bekend zijn.

Generieke werkeisen verwijzen naar algemene vaardigheden, kennis en eigenschappen die van toepassing zijn op een breed scala van beroepen en functies, zoals communicatieve vaardigheden probleemoplossend vermogen, organisatievaardigheden en samenwerking. Generieke werkeisen zijn relevant, ongeacht de specifieke aard van het beroep en zijn belangrijk voor het succesvol functioneren in verschillende werkomgevingen. Ze kunnen beschouwd worden als de basisvaardigheden en eigenschappen die nuttig zijn ongeacht het vakgebied.

Beroepsgebonden werkeisen verwijzen naar de specifieke vaardigheden, kennis en eigenschappen die vereist zijn voor een specifiek beroep of functie. Deze eisen zijn gericht op

de specifieke taken, verantwoordelijkheden en technische aspecten van een bepaald beroep. Bijvoorbeeld, technische vaardigheden zoals programmeren voor een softwareontwikkelaar, vaardigheid in lichamelijk onderzoek voor een huisarts. Beroepsgebonden werkeisen zijn direct gerelateerd aan de unieke vereisten van een specifiek beroep. In het algemeen kunnen generieke werkeisen beschouwd worden als overkoepelend en van toepassing op verschillende beroepen, terwijl beroepsgebonden werkeisen specifiek zijn voor een bepaald beroep. Beide soorten werkeisen zijn belangrijk voor het succesvol functioneren in een bepaald beroep.

Studie 2, beschreven in hoofdstuk 3, is een kwalitatieve interviewstudie onder Nederlandse huisartsen. Het doel van deze studie was te onderzoeken welke actuele beroepsspecifieke determinanten van burn-out (werkeisen en werkhulpbronnen) geïdentificeerd kunnen worden. Dit werd gedaan door semigestructureerde interviews af te nemen onder acht huisartsen. Deze interviews werden opgenomen op audioband en op een later tijdstip getranscribeerd.

De steekproefomvang bij kwalitatief onderzoek wordt bepaald door verschillende factoren, maar het leidende principe zou het concept van verzadiging moeten zijn, omdat verzadiging in meerderheid van de steekproefomvang bepaalt. Verzadiging is de situatie waarin nieuwe gegevens geen meer licht werpen op het onderzochte onderwerp. In de literatuur worden vier typen verzadiging benoemd: 1. Theoretische verzadiging gerelateerd aan de ontwikkeling van theoretische categorieën en met een focus op de steekproef, 2. Inductieve thematische verzadiging gerelateerd aan het verschijnen van nieuwe thema's, 3. A priori verzadiging houdt verband met de mate waarin de geïdentificeerde thema's in de data zijn vertegenwoordigd en 4. Dataverzadiging houdt verband met de mate waarin nieuwe data eerdere data herhalen. In het huidige onderzoek onder huisartsen is gebruik gemaakt van de Data Saturatie-methode, waarbij in acht interviews saturatie werd bereikt en het afnemen van interviews werd gestaakt.

De transcripten werden vervolgens geanalyseerd volgens de methode van template analysis. Bij analyse van de transcripten werden verschillende beroepsspecifieke werkeisen en werkhulpbronnen geïdentificeerd. Twee opmerkelijke bevindingen waren de identificatie van de beroepsspecifieke werkeis managementtaken (inclusief medische administratie) en de beroepsspecifieke werkhulpbron vakmanschap. Bovendien werd gedurende de analyse de determinant werk-thuis interferentie geïdentificeerd. De uitkomsten van deze kwalitatieve studie werden gebruikt in studie 3, een kwantitatieve veldstudie.

Studie 3, beschreven in hoofdstuk 4, is een kwantitatieve veldstudie, uitgevoerd met gebruikmaking van 178 ingevulde vragenlijsten, met als doel te onderzoeken welke generieke en beroepsspecifieke werkeisen en werkhulpbronnen het ontstaan van burn-out onder huisartsen

beïnvloeden. Tevens wordt in deze studie onderzocht welke invloed de interactie tussen het werkdomein en het thuisdomein heeft op burn-out. Onderzocht werden verschillende generieke werkeisen (werkdruk en mentale belasting), beroepsspecifieke werkeisen (indirecte patiëntenzorg, facilitaire relaties en patientengedrag), generieke werkhulpbronnen (mogelijkheden voor ontwikkeling, feedback en samenwerking) en beroepsspecifieke werkhulpbronnen (werken met mensen en professionele vaardigheden). De kwantitatieve analyses werden uitgevoerd in een modificatie van het job demands-resources model waarin twee typen van negatieve werk-thuis interferentie gepositioneerd werden als mediators tussen de werkeisen en werkhulpbronnen enerzijds, als onafhankelijke variabelen en anderzijds de afhankelijke variabelen emotionele uitputting en depersonalisatie, de belangrijkste twee van de drie burn-outdimensies.

Studie 4, beschreven in hoofdstuk 5, is eveneens een kwantitatieve veldstudie uitgevoerd met 176 ingevulde vragenlijsten. Het doel van deze studie was te onderzoeken welke relatie bestaat tussen de twee belangrijkste burn-outdimensies, emotionele uitputting en depersonalisatie, en twee typen absentisme, absentisme duur en absentisme-frequentie en presentisme. Bovendien wordt de mediërende rol van werkvermogen in deze relatie onderzocht.

Studie 5 tenslotte, beschreven in hoofdstuk 6, is wederom een kwantitatieve studie. Het belangrijkste doel van deze studie was de kwaliteit te onderzoeken van de twee kwantitatieve dwarsdoorsnedestudies in de hoofdstukken 4 en 5. Dit is gedaan door gebruik te maken van robuustheidstesten met toepassing van verschillende afkapcriteria op de burn-outdimensies emotionele uitputting en depersonalisatie. Deze analyses zijn gedaan met behulp van mediatieonderzoeken. In de kwantitatieve studies 3, 4 en 5 werd gebruik gemaakt van Structural Equation Modeling in Amos (Arbuckle, 2020), regressieanalyse in Process (Hayes, 2012) en mediatieanalyse in Mediate (Hayes & Preacher, 2013) .

De belangrijkste uitkomsten van bovengenoemde vijf studies zijn:

1. Van de generieke werkeisen is het voornamelijk werkdruk dat het ontstaan van burn-out beïnvloedt.
2. Van de beroepsspecifieke werkeisen zijn het voornamelijk managementtaken (administratie etc.) die het ontstaan van burn-out beïnvloedt.
3. De generieke werkhulpbron "samenwerking" en de beroepsspecifieke werkhulpbron "werken met mensen" hebben een verminderend effect op het ontstaan van burn-out.

4. Van de twee onderzochte typen werk-thuisinterferentie is het voornamelijk stress-gerelateerde werk-thuisinterferentie die het ontstaan van burn-out beïnvloedt. Het tweede type, tijdgerelateerde werk-thuisinterferentie, speelt geen rol van betekenis bij het ontstaan van burn-out.
5. Emotionele uitputting, de belangrijkste burn-outdimensie, is positief gerelateerd aan absenteïsmeduur en presenteïsme.
6. Het toepassen van verschillende afkapcriteria op de twee burn-outdimensies emotionele uitputting en depersonalisatie bleek niet van invloed op de studieuitkomsten. Deze bevinding ondersteunt de kwaliteit van de twee kwantitatieve veldstudies.

Beperkingen

De belangrijkste beperking van een dwarsdoorsnedeonderzoek is dat geen uitspraken gedaan kunnen worden over causaliteit, omdat daarvoor een longitudinale studie noodzakelijk is. Pogingen om een longitudinale studie uit te voeren werden wel ondernomen maar gestaakt bij te lage response.

Voorts wordt geconcludeerd dat een aantal kenmerken van huisartsen in de steekproef goed overeenkomen met kenmerken van huisartsen in de gehele populatie. Generalisatie van de studieuitkomsten naar de gehele populatie huisartsen zou in toekomstig onderzoek echter kunnen worden verbeterd door gebruik te maken van een gestratificeerde steekproef. Een gestratificeerde steekproef is een steekproefmethode waarbij de populatie wordt onderverdeeld in verschillende subgroepen, ook wel strata genoemd, en vervolgens wordt er een willekeurige steekproef getrokken uit elke subgroep. Het doel van stratificatie is om ervoor te zorgen dat de steekproef representatief is voor de hele populatie en dat bepaalde subgroepen niet onder- of oververtegenwoordigd zijn. De huidige steekproef van 900 huisartsen werd getrokken uit het gegevensbestand van het NIVel, waar alle in Nederland praktiserende huisartsen staan geregistreerd zodat het trekken van een gestratificeerde steekproef goed mogelijk is. Hierdoor is ook een verbeterde generalisatie mogelijk naar de gehele populatie van huisartsen.

Toekomstig onderzoek

Omdat het aannemelijk is dat solo-werkende huisartsen, die dus ook verantwoordelijk zijn voor alle managementtaken, een hoger risico hebben op burn-out, is het interessant in toekomstig onderzoek de relatie te onderzoeken tussen praktijkkenmerken (solo,

duo, groepspraktijk) en burn-out. Tevens is het dan wenselijk gebruik te maken van een gestratificeerde steekproef met een focus op de praktijkkenmerken.

Conclusie

De belangrijkste uitkomsten van deze studie zijn dat cruciale determinanten van burn-out onder huisartsen werkdruk en indirecte patiëntenzorg (managementtaken) zijn. De relatie tussen deze generieke en beroepsspecifieke werk-eisen en burn-out wordt gemedieerd door stress-gerelateerde werk-thuis interferentie. Voorts blijken de generieke werkhulpbron Samenwerking en de beroepsspecifieke werkhulpbron Werken met mensen, een verminderend effect te hebben op burn-out.

Voor preventieve en curatieve interventiestudies kan daardoor vooral aandacht worden besteed aan de mediator stress-gerelateerde werk-thuis-interferentie. Daarnaast worden enkele belangrijke contributies en praktische implicaties geleverd.

Twee belangrijke gevolgen van burn-out onder huisartsen zijn absentisme en presentisme. Absentisme wordt beschouwd als een opkomend probleem binnen de eerstelijnsgezondheidszorg. Presentisme is gerelateerd aan een verminderde kwaliteit van zorg en de daarmee gepaard gaande tuchtrechtelijke procedures.

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Dankwoord

Dankwoord

Wie had ooit kunnen bedenken dat een vijftienjarige jongeman, die als lichtmatroos op een Groninger kustvaarder de Europese zeeën bevoer, na een arbeidzaam leven van meer dan een halve eeuw, als gepensioneerd huisarts zijn proefschrift zou verdedigen? In de tussenliggende periode moet wel iets gebeurd zijn dat om uitleg vraagt.

Na een leer- en vaarperiode van 6 ½ jaar werd de nautische carrière definitief afgesloten. In de hieropvolgende vijf jaren als administratief medewerker overdag, werd in de avonden het vwo-diploma behaald. De wereld ging toen echt open en er moest een studiekeuze gemaakt worden.

In de eerste plaats was de keuze voor de studie geneeskunde een compromis. Enerzijds was er de voorliefde voor de bètavakken natuurkunde, scheikunde, en wiskunde. Anderzijds was er de wens om vanuit een Christelijke levensovertuiging een dienstbaar leven te leiden. Het compromis leek te voldoen. In de tweede plaats wist en weet ik niet goed wat lichamelijk lijden impliceert, maar wel wat geestelijk lijden inhoudt. Dat de aanvankelijke keuze om psychiater te worden werd gepasseerd door de keuze voor huisartsgeneeskunde was louter uit pragmatische overwegingen. In de derde plaats was de ontloken academische belangstelling gearpeneerd als niet relevant op dat moment. In de vierde plaats tenslotte ontdekte ik geleidelijk een zeer sterke intrinsieke motivatie of levensdrift om mijn talenten te exploiteren, die eveneens werd gearpeneerd. Van deze keuzes heb ik nooit spijt gehad in die bijna veertig jaren als huisarts.

Het vakgebied is in die periode enorm geëvolueerd. In mijn beginjaren als huisarts was ik een echte generalist, van niets wist ik alles maar van alles wist ik wel iets en praktiseerde ik als huisarts, verloskundige, apotheker, consultatiebureauarts en forensisch arts. Bij de beëindiging van mijn loopbaan als huisarts heb ik in verwondering omgezien, het was onvoorstelbaar wat ik had meegemaakt en zeer de moeite waard. In dankbaarheid heb ik die periode achter me gelaten, het was goed. Maar dit was niet het einde. Uiteindelijk heeft mijn onpeilbare levensdrift, mijn lang geleden gearpeneerde academische belangstelling en mijn voorliefde voor geestelijk lijden boven lichamelijk lijden geleid tot het besluit om een proefschrift te schrijven. Als een afscheid van het beroep waar ik zoveel van heb gehouden, koos ik het onderwerp van burnout onder huisartsen.

Bijna een decennium heeft dit onderzoek in beslag genomen. Dat vraagt heel veel, motivatie, doorzettingsvermogen en geduld. Geduld, niet alleen van mezelf, maar vooral ook van de mensen die direct betrokken waren bij dit project. Daarom wil ik als eersten mijn promotor,

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De zomeravonden op het terras van het Tulip-Inn hotel in Heerlen waren onvergetelijk. Na een dag hard werken aan bijvoorbeeld Multivariate analyses, waren de kelen behoorlijk uitgedroogd en na een drinkpauze werden de debatten voortgezet op een ander niveau. Hoewel ik de enige overlevende was van mijn jaargroep vond ik gemakkelijk aansluiting bij een andere jaargroep. De studiesessies in Heerlen, en de eet-en drinksessies elders, hebben veel voor me betekend. Op het juiste moment gaven ze me opnieuw een boost om de flow weer op te pakken. Pauline van Dorssen, Peter Oeij, Jan Willem Tromp, Albert Ponsteen en Panthea Pedram, heel erg bedankt voor jullie openheid, ruimhartigheid en kameraadschap.

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Tenslotte, draag ik dit proefschrift postuum op aan mijn vader, Piet, in de hoop dat deze boetedoening voldoende zal zijn.

About the author

About the author

Nico Verhoef started his nautical career in 1965 as an ordinary sailor on the Groningen coaster Prinses Wilhelmina. In 1968 he was trained as a third mate for large commercial shipping. In 1969 he spent a year in Caribbean waters as second mate on the merchant ship Atlantic Comet. After that, the nautical career was finally ended. During the period 1970–1975, he worked during the day as an administrator at the shipping company Hudig en Veder and the Joint Administrative Office (GAK). Secondary education was followed in the evenings. The study of medicine at Erasmus University Rotterdam began



in 1975 and was completed in 1982 with a specialization in general practice. From 1982 to 2019 he was based and practicing as a solo GP in Numansdorp. A working life of more than half a century (1965–2019) ended with retirement. In 2014, Nico started his PhD program at the Open University, the PhD school, then under the inspiring leadership of Professor Ron Tuninga. The subject of burnout met the conditions of scientific and social relevance and can now be completed. That does not mean that all ambitions have come to an end. On the contrary, service, study and work can be functional for a lifetime. The path has not yet been completed.

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