The role of self-efficacy on feelings of burnout among Flemish school principals during the COVID-19 pandemic

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Abstract

Purpose – Work-related stress is a significant occupational health issue. Stress cannot be viewed separately from the perceptual or interpretive act by the individual. Self-efficacy is a personal characteristic that explains a high proportion of variation in the performance of school principals.

Design/methodology/approach – The current study examines if the COVID-pandemic is related to burnout among school principals. Additionally, the study analyzes if the self-efficacy of school principals plays a mediating role in the impact that the COVID-19 crisis had on their burnout level. To explore this, the authors used survey data of 981 Flemish school principals.

Findings – The findings indicate that the COVID-19 pandemic is related to feelings of burnout among Flemish school principals. In addition, self-efficacy mediated the relationship between the COVID-19 scale and the four core subscales of burnout: exhaustion, mental distance, emotional impairment and cognitive impairment. No mediating effect of self-efficacy was found for the secondary symptoms of burnout, psychological distress and psychosomatic complaints.

Originality/value – This paper emphasizes the importance of school principal's self-efficacy experiences for crisis management. Implications for school leadership training and support are discussed.

Keywords School principals, COVID-19, Self-efficacy, Burnout, Mediation

Paper type Research paper

Introduction

In recent years, research has indicated that work pressure on school principals has increased significantly (ETUCE, 2012; Heffernan, 2018; Niesche *et al.*, 2021). As a result of this evolution, the well-being of school principals is strongly threatened (AGODI, 2016; Walker, 2019). On top of that, the COVID-19 pandemic has confronted school principals with a period of exceptional crisis (Beauchamp *et al.*, 2021). It is important to understand how school principals deal with such unexpected crises, given their central role for the quality of education (Barber *et al.*, 2013).

The JD-R model is recognized as one of the leading job stress models, along with Karasek's (1979) Job Demands Control (JD-C) and Siegrist's (1996) Effort Reward Imbalance (ERI-model) (Schaufeli and Taris, 2014). Despite their relevance, only a few scholars have studied these models in an educational context to study the well-being of school principals (Beausaert *et al.*, 2016). The well-established JD-R model (Demerouti *et al.*, 2001) assumes that work characteristics, such as job demands and job resources, have either positive or negative effects on employee well-being. Job resources refer to those physical, psychological, social or organizational aspects of the job that are functional in achieving work goals, reduce job demands and the associated physiological and

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psychological costs and stimulate personal growth, learning and development. They include autonomy, strong work relationships, opportunities for advancement, coaching and mentoring, and learning and development (Demerouti *et al.*, 2001). On the other hand, job demands are physical, psychological, social or organizational aspects of a job that require continuous physical and/or psychological (i.e. cognitive or emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs. These include time pressures, a heavy workload, a stressful working environment, role ambiguity, emotional labor and poor relationships (Demerouti *et al.*, 2001). Le Fevre *et al.* (2006) conclude in their review study that the extent to which job demands lead to stress cannot be viewed separately from the perceptual or interpretive act by the individual (Le Fevre *et al.*, 2006). In other words, job demands are not necessarily stressful, but stress is the result of an interaction between individual and environmental elements (Howard, 2008). This idea can also be found in the JD-R model. Individual differences have been drawn into the model in the form of personal resources (Schaufeli and Taris, 2013, 2014; Xanthopoulou *et al.*, 2007). By definition, personal resources are positive aspects of the self that are linked to resilience, and refer to an individual's sense of ability to successfully control his or her environment (Hobfoll *et al.*, 2003; Xanthopoulou *et al.*, 2007). Self-efficacy is considered to be one of the most important personal resources (Joseph *et al.*, 2015; Leithwood *et al.*, 2020; Parker *et al.*, 2006). In this study, the authors aim to analyze whether principals' perceptions of the impact of the COVID-19 pandemic on their work are related to burnout among school principals. Additionally, the authors aim to analyze if the self-efficacy of school principals plays a mediating role in the impact that the COVID-19 crisis had on their burnout level.

Theoretical framework

Burnout

Burnout is a syndrome first studied and reported in the mid-1970s by Freudenberger (1974) and Maslach (1976). According to Maslach and Goldberg (1998) and Maslach *et al.* (2001), the mechanism of burnout can be found in an imbalance at work: a high workload is combined with low adaptability to deal with the associated stress. It is a reaction to prolonged negative stress and is characterized by negative feelings toward the people with whom one works and toward the work itself (Betoret, 2006). Notably, although the concept of burnout has been in use for several decades, it has garnered the most attention since 2000.

It seems that the principals' work has become more and more stressful, as a result of which a growing number of individuals feel exhausted and drop out of work due to illness or disability (Schaufeli, 2018).

In addition, the COVID-19 pandemic led to a very unexpected radical change that created a tremendous amount of stress. For school principals, this crisis resulted in unclear school measures by the central government, the organization of preventive measures, online teaching, etc.

For many years The Maslach Burnout Inventory (MBI) was considered the gold standard to measure burnout (Boudreau *et al.*, 2015). The Maslach Burnout Inventory (Maslach and Jackson, 1981) is a self-assessment questionnaire that includes (1) emotional exhaustion, (2) depersonalization and (3) personal accomplishment. An inductive approach has been used by developing the MBI. Therefore, there is some arbitrariness about the number and nature of the dimensions of burnout in the MBI. For example, it has now been established that burnout is also characterized by reduced cognitive performance, meaning that cognitive functions such as attention, concentration and working memory are impaired (Deligkaris *et al.*, 2014; Jonsdottir *et al.*, 2017; van Dam *et al.*, 2012). Furthermore, serious doubts have

been risen as to whether reduced personal accomplishment is a constituting element of burnout (Schaufeli and Taris, 2005). This may be interpreted alternatively as a cause or consequence of burnout. In the former case exhaustion would occur when a personal resource such as personal accomplishment is lacking, whereas in the latter case feelings of reduced accomplishment or efficacy may result from poor performance that is caused by mental exhaustion. In addition to these conceptual problems, there are also several technical and practical problems with the MBI (Schaufeli *et al.*, 2020). The Burnout Assessment Tool (BAT) has been developed to avoid these conceptual, technical and practical problems with the MBI (Schaufeli *et al.*, 2020). The authors have used the BAT in their study to conceptualize burnout and to measure it.

Burnout is generally regarded as a multi-dimensional concept with exhaustion as central characteristic (Schaufeli, 2018). Exhaustion refers to the inability to perform and manifests itself in lack of energy. In the BAT mental distance is a second dimension, close to exhaustion. Mental distance refers to the unwillingness to perform and is manifested in increased resistance, reduced commitment and lack of interest. In addition, cognitive and emotional impairment are considered as particular aspects of exhaustion because one's energy is lacking for effectively regulating cognitive and emotional processes (Schaufeli *et al.*, 2020). Thus, in the BAT burnout is constituted by the following four dimensions: exhaustion, cognitive impairment, emotional impairment and mental distance. In addition to these four core symptoms, two secondary symptoms of burnout are included, namely psychological distress (non-physical symptoms that are the result of a psychological problem, such as sleep problems) and psychosomatic complaints (physical complaints that cannot be explained by a physical disorder but are exacerbated by or result from some psychological problem, for instance palpitations and chest pain) (Maslach *et al.*, 2001; Schaffner, 2016; Schaufeli *et al.*, 2020). In order to give the BAT a more practical use, Schaufeli and colleagues distinguished three categories to determine the zone of burnout by analogy with a traffic light: (1) green zone: employees have low to modest levels of burnout, and this is normal. They are at the lowest risk of becoming burnt-out. (2) orange zone, are categorized as being at high risk of burnout out, while (3) red zone represents the highest-scoring zone and those suffering severe burnout of high burnout risk. These three zones were clinically validated by comparing a healthy group with a group of workers with severe burnout symptoms (Notelaers *et al.*, 2005; Schaufeli *et al.*, 2020).

Burnout among school principals

The role of the school principal is developing rapidly, not only in Belgium (Flanders) but also in many other Western countries. For example, there is a development toward greater autonomy in school policy, on the one hand, and a growing emphasis on accountability on the other (Niesche *et al.*, 2021). Contemporary social changes such as globalization, migration and increasing diversity also have an important influence on school principals (Fisher, 2014; Mulford, 2010). As a result, the role of school principals has become much more complex and extensive (Tintoré *et al.*, 2022) and requires new competencies (ETUCE, 2012; Heffernan, 2018; Niesche *et al.*, 2021; OECD, 2019). Research confirms that accommodating these changes is no easy task, resulting in a high workload for school principals in recent years (ETUCE, 2012; Heffernan, 2018; Niesche *et al.*, 2021; OECD, 2019) and increasing levels of stress (Boyland, 2011; van der Merwe and Parsotam, 2012). As a result of this evolution, the well-being of school principals is strongly threatened (AGODI, 2016; Bourdeaud'hui and Vanderhaeghe, 2017; Walker, 2019). Although school principals' work is demanding, not all principals experience burnout (Combs *et al.*, 2009). As mentioned before burnout is related to individual factors in many ways (Friedman, 2002; Grayson and Alvarez, 2008;

Kokkinos, 2007; Pyhältö *et al.*, 2011; Skaalvik and Skaalvik, 2010; Törnroos *et al.*, 2012); in other words, not every school principal feels the same amount of burnout in the same working context. The perceptions of stress among Flemish school principals vary widely. However, many school principals experience long-term stress, often resulting in sleeping problems or worrying (Devos *et al.*, 2018).

Job demands and job resources among school principals

In order to study the impact of the COVID-19 pandemic on school principals' burnout it is important to relate the pandemic crises to school principals' work conditions. Therefore, the JD-R model is a relevant framework. Job demands refer to physical (e.g. unsafe or unfavorable work environments), psychological (e.g. work pressure), social (e.g. emotionally demanding interactions) or organizational (e.g. role ambiguity) aspects of the job, which usually require physical and/or psychological efforts from the workers and may generate certain physiological and/or psychological costs (Demerouti *et al.*, 2001). In a school principal's job, workload is a typical demand, which is characterized by completing multiple tasks, and requires extended effort. In addition, the following job demands are also important: role conflict, task and policy ambiguity (Devos *et al.*, 2018; Elomaa *et al.*, 2021; Upadyaya *et al.*, 2021). In this regard, it is interesting to analyze whether the COVID-19 pandemic is characterized by these job demands and to what degree this is related to school principals' feelings of burnout.

Also, job resources refer to physical, psychological, social or organizational aspects of the job that are functional in achieving work goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth, learning and development (Demerouti *et al.*, 2001). Research indicates that the following job resources are important for school principals: strong work relationships, autonomy and skill utilization (Devos *et al.*, 2018; Elomaa *et al.*, 2021; Upadyaya *et al.*, 2021). As for the job demands, it is useful to analyze if the pandemic influences school principals' job resources and consequently is related to burnout.

Self-efficacy and school leadership

Recent research on self-efficacy goes back to Bandura (1997) and his social cognitive theory of action, according to which an individual's beliefs control a wide range of mental processes and actions. Self-efficacy refers to individuals' perceptions of their ability to organize and execute the courses of action required to produce a given attainment (Bandura, 1997). In the context of research on school principals, Tschannen-Moran and Gareis (2004) define self-efficacy as follows: "Self-efficacy is a perceived judgement of one's ability to effect change, which may be viewed as a foundational characteristic of an effective school principal" (Tschannen-Moran and Gareis, 2004). This means that self-efficient school principals can be characterized as those who have the cognitive and behavioral capacity to lead schools according to their defined goals (McCormick, 2001).

Self-efficacy of principals and its importance is an under researched phenomenon. There is empirical evidence that a school principals self-efficacy impacts the effectiveness of teaching and learning in the school environment (Smith *et al.*, 2006). As in many other studies in the case of teachers, Federici and Skaalvik (2012) showed the positive effect of school principals self-efficacy on their own health aspects. Further, self-efficacy of principals is negatively correlated with burnout of principals and positively correlated with their job satisfaction (Evers *et al.*, 2002; Friedman, 1995, 2002; Skaalvik and Skaalvik, 2007, 2009). For example, school principals with a high self-efficacy experience a higher level of work engagement and job satisfaction, while reporting a lower level of burnout and work

alienation (Federici and Skaalvik, 2011, 2012; Tschannen-Moran and Gareis, 2004). Furthermore, school principals with a high self-efficacy dare to take on more difficult tasks or challenges, while principals with low self-efficacy regularly question their abilities and tend to see difficult tasks as threats (Bandura, 1997). Finally, several researchers found a higher self-efficacy with principals that are at their first years of leading the school compared to more experienced principals. After a few years, the level of self-efficacy drops significantly and starts to rise again later in the career (Fisher, 2014; Özer, 2013). According to Özer (2013), this self-efficacy starts to rise again after a period of twenty years of experience, while Fisher (2014) talks about a period of ten years. Özer (2013) assumes that the results are a reflection of the experiential basis of the profession of the school principal. More specifically, a school principal has to be a specialized instructor, and an effective leader and a successful manager at the same time. It seems difficult for a beginning principal to take up all these roles. However, with the initial passion and ambition, principals may naively feel themselves efficient enough to accomplish these roles and overcome the challenges ahead. Nevertheless, they can gradually meet the challenges of the profession. As the principal gets more experienced, they begin developing a more a realistic approach to the problems at school. The experiences the principals gain throughout their professional lives can help enhancing their sense of self-efficacy.

School leadership and self-efficacy during the COVID-19 pandemic

Grissom and Condon (2021) see crisis situations in schools as being caused predominantly by several external forces acting on the school system. According to a broader definition, crises in organizations consist of the five components of threat, uncertainty, urgency, the impact of many stakeholders and little to no warning (Reyes-Guerra *et al.*, 2021). The COVID-19 pandemic meets the requirements for a crisis according to the five components of Reyes-Guerra *et al.* (2021). The school crisis triggered by the COVID-19 pandemic began in March 2020, when the governments in many countries decided to close all or part of their schools at short notice. In an international comparison, openings occurred very differently. For example, in some countries, partial or even full openings began as early as mid-April 2020, while other countries did not start the opening process until June (Blum and Dobrotić, 2021).

In their literature review, Smith and Riley (2012) emphasized the crucial role of leadership for the management of crisis at schools, identifying nine key attributes of leadership: decisive decision making, creativity/lateral thinking, empathy and respect, intuition, flexibility, procedural intelligence, synthesizing skills and optimism/tenacity. Additionally, Mutch (2015) points to the relevance of school principals dispositional factors as values, beliefs, skills, expertise and conceptions of leadership for successful crisis management. Furthermore, emotional stability and intelligence seem to be necessary characteristics (Fernandez and Shaw, 2020).

Increasingly, empirical studies can be found that look at school principals in the wake of the COVID-19 pandemic, though it is notable that they are mostly small-scale qualitative studies (Beauchamp *et al.*, 2021; Longmuir, 2021; Thornton, 2021). During COVID-19, multiple unprecedented job demands emerged due to the rapid changes in the school environment. Some principals have found it difficult to detach from work while attempting to respond to the crises (Upadyaya *et al.*, 2021). Psychological detachment from work describes individuals' ability to disengage during off-work hours, which is an essential part of recovery. Inability to detach and "switch off" from work during leisure time can manifest as occupational stress (Sonnentag, 2012). The findings from an exploratory study in Germany, Austria and Switzerland conducted during the first school closures phase indicate also that the school principals felt more stress by the challenging situation than the teachers

(Huber and Helm, 2020). Furthermore, research outside the educational field indicates that the risks of burnout have increased during the pandemic (Torrès *et al.*, 2021).

Although there are already findings of the effects of school principal's self-efficacy on the functioning and effectiveness of schools in general, studies on the role of this characteristic in the management of school crisis situations are limited. Research by Ritchie *et al.* (2021) demonstrated a significant drop in self-efficacy beliefs from before to during the pandemic with a large effect based on whether people thought they could still achieve their goal under current conditions. Over two-thirds of the sample is unsure or does not believe they can still carry out their goal, and over a quarter either abandoned or are uncertain they can pursue the goal. Despite this, people continue to care about their goals (Ritchie *et al.*, 2021). Hemmer and Elliff (2020) also indicated in their research that the sensitivity and unfamiliarity faced in a crisis puts a huge test on the knowledge, skills and leadership of managers (Hemmer and Elliff, 2020).

Study goals, questions and hypotheses

Previous research shows that principals' self-efficacy is negatively correlated with burnout (Evers *et al.*, 2002; Friedman, 1995; Skaalvik and Skaalvik, 2007, 2009). Earlier research also confirms high workload among school principals in recent years (ETUCE, 2012; Heffernan, 2018; Niesche *et al.*, 2021; OECD, 2019) and increasing stress levels (Boyland, 2011; van der Merwe and Parsotam, 2012). In addition, numerous demands were imposed on school principals during the COVID-19 pandemic (McLeod and Dulsky, 2021). Yet, until now there is a lack of studies on: (1) the relationship between COVID-19 and burnout among school principals and (2) the role of self-efficacy in the relationship between COVID-19 and burnout.

In this study, the authors aim to analyze whether principals' perceptions of the impact of the COVID-19 pandemic on their work are related to burnout. Additionally, the authors aim to analyze if the self-efficacy of school principals plays a mediating role in the relationship between perceptions of principals on the impact of COVID-19 pandemic on their work and burnout (Figure 1).

Based on research showing that burnout among school principals is generally high (Bourdeaud'hui and Vanderhaeghe, 2017; Boyland, 2011; van der Merwe and Parsotam, 2012; Walker, 2019), the authors hypothesized that:

(1) on average, Flemish school principals score high on burnout.

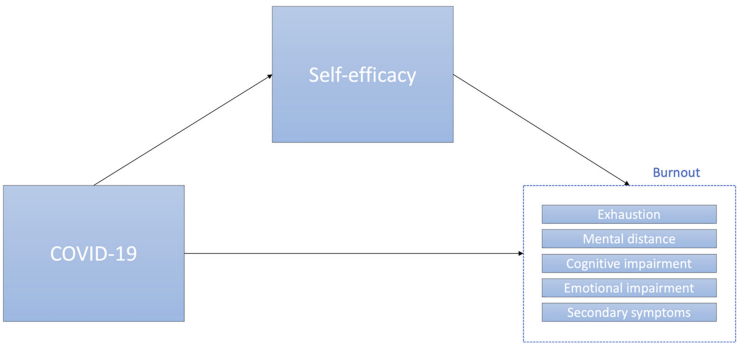

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Figure 1.
Schematic presentation of the research model

In addition, the following exploratory hypotheses are examined:

(1) the perceptions of principals on the impact of COVID-19 pandemic on their work is directly related to the sub-dimensions of burnout: exhaustion, mental distance, cognitive impairment, emotional impairment and secondary symptoms.

(2) the relation between perceptions of principals on the impact of COVID-19 pandemic on their work and sub-dimensions of burnout is mediated by self-efficacy.

Research design

Sample and data collection

All primary school principals in the region of Flanders (Belgium) were invited to participate in a large-scale study in the fall of 2020. The school principals received a link to an online questionnaire about their self-efficacy, burnout complaints and about their perceptions of the impact of the COVID-19 pandemic on their work. The online platform LimeSurvey was used. The research was conducted according to the ethical rules presented in the General Ethical Protocol of the Faculty of Psychology and Educational Sciences of Ghent University. According to the rules of the General Ethical Protocol an active informed consent was asked of all participants in our study. This informed consent consisted of a confirmation of all participants that they received and understood all necessary information regarding the research and voluntary agreed to participate. A total of 981 school principals completed the questionnaire. That is a response rate of 40% of all school principals in Flemish primary education. The sample included 69.1% female and 30.9% male school principals (these results are representative of the population of 33% male school principals and 63% female school principals in Flanders).

The average age was 50 years, ranging from 30 to 65 years 14.3% of the school principals are between the ages of 30 and 40; 37.5% of the school principals are between the ages of 40 and 50; 43.5% of the school principals are between the ages of 50 and 60 and 4.7% of the school principals are over 60 years old. The average length in service as school principals was 8.4 years, varying from 0 to 37 years 66.6% have between 0 and 10 years in service as school principals; 26.1% have between 10 and 20 years in service as school principals, 6.8% have between 30 and 40 years in service as school principals and 0.5% have more than 30 years in service as school principals.

Research instruments

The impact of COVID-19. The authors aimed at designing a new instrument measuring the impact of the COVID-19 pandemic on Flemish school principals, the COVID-19 scale. Therefore, the authors formulated 8 items. The items cover the impact of the COVID-19 crisis on performing the job as a school principal. The scale was designed by relating the corona crisis to important job demands and job resources in the performance of the job of school principals (see theoretical framework). Respondents were asked to rate the items on a five-point Likert-scale (1 = totally disagree, 2 = do not agree with, 3 = neither agree or disagree, 4 = agree, 5 = totally agree). An example item is "Due to the COVID-19 crisis, I am confronted with conflicting expectations while performing my job".

Self-efficacy. To assess self-efficacy, the authors used the General Self-Efficacy scale of Chen *et al.* (2001). This self-report scale consists of 8 items about a person's general self-efficacy. An example item is I will be able to achieve most of the goals that I have set for myself (Chen *et al.*, 2001).

Burn-out. The authors used the Burnout Assessment Tool (BAT) by Schaufeli *et al.* (2020) to assess burnout complaints. The BAT includes 5 subscales, four core symptoms tapped by four scales each: 1. Exhaustion (e.g. "Everything I do requires a great deal of effort"), 2. Mental

distance (e.g. "I feel indifferent about my job"), 3. Cognitive impairment (e.g. "I struggle to think clearly") and 4. Emotional impairment (e.g. "I feel unable to control my emotions") that can be interpreted separately or together as a composite score. The fifth subscale refers to secondary symptoms consisting of two components, psychological distress (e.g. "I have trouble falling or staying asleep") and psychosomatic complaints (e.g. "I suffer from palpitations or chest pain"), that are added together and interpreted as a whole (secondary distress symptoms) (Schaufeli *et al.*, 2020). Based on clinical cut-off values, three categories are distinguished, by using the so-called traffic light model: (1) a green, "safe" group, (2) an orange, "group at risk" and (3) a red, "group at very high risk" (Notelaers *et al.*, 2005).

Data analysis

First, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and reliability analysis were used to study the construct validity of the research instruments. These exploratory factor analyses were conducted in SPSS 27.0. We used maximum-likelihood extraction with promax rotation. The confirmatory factor analyses were analyzed using R version 4.1.1 with the lavaan package (Rosseel, 2012). Second, the authors performed a mediation analysis based on the theoretical framework using structural equation modeling (SEM). The mediation analysis by an SEM analysis was analyzed using R version 4.1.1 with the lavaan package (Rosseel, 2012). Bootstrapping was used to calculate whether the mediating effect is significant (Hayes and Preacher, 2008).

Results

Descriptive results

The descriptive statistics of all variables in the theoretical model are listed in Table 1. Correlations and Cronbach's alpha are presented in Table 2, reporting the overall scores for all variables.

Table 3 presents the clinical cut-off values for burnout established in previous research for Flemish employees (Schaufeli *et al.*, 2020). Based on these clinical cut-off values, three categories are distinguished to determine the zone of burnout by analogy with a traffic light: green (no burnout risk), orange (at risk for burnout) or red (very high burnout risk).

The first hypothesis states that, on average, Flemish school principals score high on burnout. When comparing means of the different burnout subscales among Flemish school principals in this study (Table 1) with the cut-off values for Flemish employees (Table 3), the means of all variables are in the green zone. The means of different subscales indicate that the general situation among school principals is not yet alarming for the subscales of exhaustion ($M = 2.66$) and mental distance ($M = 1.79$). This outcome contrasts with the results for the subscales of emotional impairment ($M = 2.03$), cognitive impairment ($M = 2.46$) and

Table 1.
Descriptive statistics of the variables in the theoretical model

Variable	Min	Max	*M* (SD)
Burnout core	1.00	4.25	2.23 (0.50)
Exhaustion	1.00	5.00	2.66 (0.67)
Mental distance	1.00	4.00	1.79 (0.60)
Cognitive impairment	1.00	4.80	2.46 (0.61)
Emotional impairment	1.00	4.60	2.03 (0.60)
Secondary symptoms	1.00	4.70	2.63 (0.66)
COVID-19-scale	1.00	5.00	3.64 (0.63)
Self-efficacy	1.63	5.00	3.71 (0.46)

Source(s): Table created by authors

	α	1	2	3	4	5	6	7	8
1. Total core (BO)	0.94	1							
2. Secondary symptoms (BO)	0.86	0.65**	1						
3. Emotional impairment (BO)	0.85	0.80**	0.50**	1					
4. Mental distance (BO)	0.81	0.82**	0.43**	0.58**	1				
5. Exhaustion (BO)	0.92	0.86**	0.67**	0.56**	0.60**	1			
6. Cognitive impairment (BO)	0.88	0.80**	0.51**	0.50**	0.52**	0.60**	1		
7. Self-efficacy	0.84	−0.38**	−0.19**	−0.30**	−0.32**	−0.32**	−0.32**	1	
8. COVID-19	0.78	0.32**	0.23**	0.34**	0.31**	0.34**	0.30**	−0.29**	1

Note(s): **$p < 0.001$
α = Cronbach's alpha of the overall scores for all variables of the final scales (after removing two items by factor analysis of the COVID-19 scale)
1 = Total core (BO), 2 = Secondary symptoms (BO), 3 = Emotional impairment (BO), 4 = Mental distance (BO)
5 = Exhaustion (BO), 6 = Cognitive impairment (BO), 7 = Self-efficacy, 8 = COVID-19
Source(s): Table created by authors

Table 2.
Reliability and correlations of study variables

	Total-core	Exhaustion	Mental distance	Emotional impairment	Cognitive impairment	Secondary symptoms
Green	1.00–2.58	1.00–3.05	1.00–2.49	1.00–2.09	1.00–2.69	1.00–2.84
Orange	2.59–3.01	3.06–3.30	2.50–3.09	2.10–2.89	2.70–3.09	2.85–3.34
Red	3.02–5.00	3.31–5.00	3.10–5.00	2.90–5.00	3.10–5.00	3.35–5.00

Source(s): Schaufeli *et al.* (2020)

Table 3.
Cut-off values for Flemish employees

secondary symptoms ($M = 2.63$). For these subscales, the results are situated just below the cut-off values of the green zone for Flemish employees.

Figure 2 presents the percentage of Flemish school principals in the green, orange and red zones per subscale based on the cut-off scores in Table 3. For the subscales of cognitive impairment, secondary symptoms and exhaustion, 11.9%, 12.8% and 15.9%, respectively, of the Flemish school principals are in the very high burnout risk (red zone). When the percentages of the orange and red zones are added, for all subscales except the mental distance subscale, more than 25% of Flemish school principals are in an at-risk zone. Thus, almost one in four Flemish school principals is at risk for burnout. For the subscale of emotional impairment, 42% of all school principals in Flanders are at risk for burnout.

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA)

First, the authors carried out an EFA to validate the COVID-19 scale they developed for this study. The EFA indicated that all items load on one factor. Items were removed when their factor loadings were lower than 0.30, as these are considered poor loadings (Fidell and Tabachnick, 2007). Hence two items were removed (Item 6 with a factor loading of 0.02 and item 7 with a factor loading of 0.21) because their factor loadings were lower than 0.30. The results of this factor analysis can be found in Table 4. The authors conducted reliability analyses for the final scale (consisting of 6 items), with a Cronbach's alpha value of 0.78.

Second, EFAs were also performed for the existing self-efficacy and the burnout scale and confirmed the construct validity of the scales. The authors also conducted CFA using R

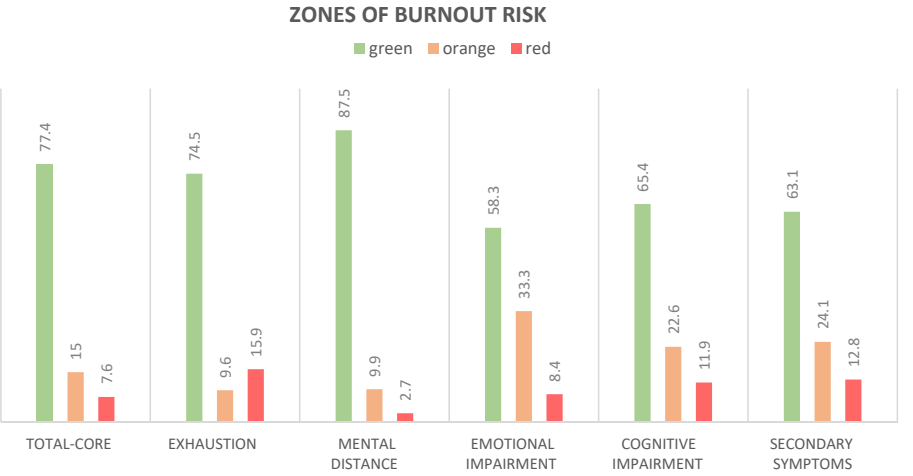


Figure 2.
Zones of burnout (percentages in %)

Source(s): Figure created by authors

Item number	Item description	Factor 1
Item 1	Due to the corona crisis I had to work extra hard	0.85
Item 2	Due to the COVID-19 crisis, I am confronted with conflicting expectations while performing my job	0.86
Item 3	My job as a school leader is unclear because of the COVID-19 crisis	0.59
Item 4	The imposed corona measures of the government are clearly formulated	0.71
Item 5	I am sufficiently supported in my job during the corona crisis	0.63
Item 6	I learned new skills through the corona crisis	0.02
Item 7	I receive sufficient autonomy from the various actors (e.g. school board) to perform my job during the corona crisis	0.21
Item 8	There is timely communication about the imposed COVID-19 measures	0.54

Source(s): Table created by authors

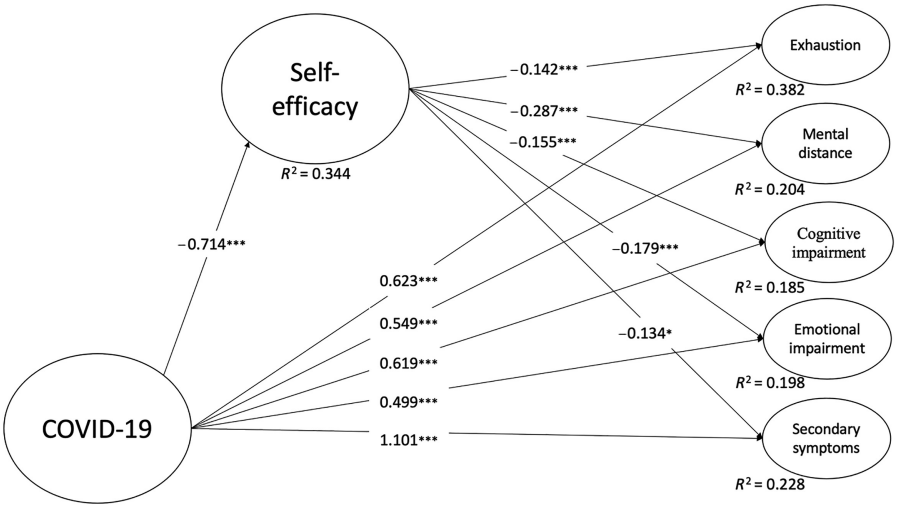
Table 4.
Results of the exploratory factor analysis (EFA) of the COVID-19 scale

version 4.1.1 with the lavaan package (Rosseel, 2012). The authors used five fit indicators: the χ^2 test, the comparative fit index (CFI), the Tucker–Lewis index (TLI), the standardized root mean residual (SRMR) and the root mean square error of approximation (RMSEA). The χ^2/df ratio should be as small as possible: ≤ 2 indicates a good fit and ≤ 3 an acceptable fit (Schermelleh-Engel *et al.*, 2003). For the CFI and the TLI, the authors put a critical value of 0.90 forward as a reasonable fit, a fit larger than 0.95 is good. As for the SRMR and the RMSEA, a fit between 0.06 and 0.08 is reasonable and a fit below 0.06 is good (Hu and Bentler, 1999). The results of the CFA of the self-efficacy scale suggest an acceptable to good fit of the model ($\chi^2/df = 1.89$, CFI = 0.95, TLI = 0.94, RMSEA = 0.06, SRMR = 0.04). In addition, also the results of the CFA of the burnout scale suggest an acceptable to good fit of the model ($\chi^2/df = 2.24$, CFI = 0.92, TLI = 0.92, RMSEA = 0.05, SRMR = 0.05). The results of these analyses are in line with previous research regarding the validity and reliability two scales (Chen *et al.*, 2001; Schaufeli *et al.*, 2020). The reliability analyses of these scales can be found in Table 2.

SEM analysis

The authors tested their theoretical model (Figure 1) by means of SEM using R with the lavaan package (Rosseel, 2012). In order to assess model fit several indicators were used: the χ^2 test, the comparative fit index (CFI), the Tucker–Lewis index (TLI), the standardized root mean residual (SRMR) and the root mean square error of approximation (RMSEA). When the χ^2 test is non-significant ($p > 0.05$) the model fit is good (Hu and Bentler, 1999). However, the χ^2 test is a sensitive test and usually significant when having a large sample (Muthén and Muthén, 2015). Therefore, the authors also checked the χ^2/df ratio, which should be as small as possible: ≤2 indicates a good fit and ≤3 an acceptable fit (Schermelleh-Engel *et al.*, 2003). For the CFI and the TLI, the authors consider a critical value of 0.90 a reasonable fit, while a fit larger than 0.95 is good. As for the SRMR and the RMSEA, a fit between 0.06 and 0.08 is reasonable and a fit below 0.06 is good (Hu and Bentler, 1999). The results show a good fit based on the following fit indices: SRMR = 0.050 and RMSEA = 0.051 and an adequate fit based on the $\chi^2 = 2282.74$, df = 1,081, $\chi^2/\text{df} = 2.11$, $p < 0.001$ and the CFI and TLI: CFI = 0.912 and TLI = 0.905. The regression weights, significance levels and explained variance of the model are depicted in Figure 3. Considering clarity, we omitted the observed variables (i.e. survey items) from the figure. Table 5 represents the indirect and total effects of self-efficacy in the relationship between COVID-19 and the different subscales of burnout.

According to the results, the formulated research hypotheses b and c can be addressed in the following matter. Evidence was found for hypothesis b that the perceptions of principals on the impact of COVID-19 pandemic on their work are directly related to the sub-dimensions of burnout: exhaustion, mental distance, cognitive impairment, emotional impairment and secondary symptoms. As illustrated in Figure 3, the results show that COVID-19 directly affects the sub-dimensions of burnout: exhaustion ($B = 0.623$, $p < 0.001$), mental distance ($B = 0.549$, $p < 0.001$), cognitive impairment ($B = 0.619$, $p < 0.001$), emotional impairment ($B = 0.499$, $p < 0.001$) and secondary symptoms ($B = 1.101$, $p < 0.001$). Moreover, the direct effect between COVID-19 and self-efficacy is also significant ($B = -0.714$, $p < 0.001$).



Note(s): Unstandardized regression coefficients are reported as all scales used in this study were based on the same Likert-scale (*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$)

Source(s): Figure created by authors

Figure 3.
SEM model of the direct effects of self-efficacy in the relationship between COVID-19 and the different subscales of burnout

Effect	B	SE	Z	*P* value	95% CI
Indirect effects					
Indirect effect 1 (COVID-19 on exhaustion via self-efficacy)	0.101	0.043	2.098	0.002	[0.030; 0.267]
Indirect effect 2 (COVID-19 on mental distance via self-efficacy)	0.205	0.052	3.912	0.000	[0.102; 0.307]
Indirect effect 3 (COVID-19 on cognitive impairment via self-efficacy)	0.111	0.049	2.277	0.023	[0.015; 0.206]
Indirect effect 4 (COVID-19 on emotional impairment via self-efficacy)	0.128	0.042	3.036	0.002	[0.045; 0.210]
Indirect effect 5 (COVID-19 on secondary symptoms via self-efficacy)	−0.095	0.062	−1.529	0.126	[−0.218; 0.027]
Total effects					
Total effect 1	0.724	0.083	8.639	0.000	[0.544; 0.903]
Total effect 2	0.754	0.087	8.629	0.000	[0.583; 0.925]
Total effect 3	0.730	0.084	8.701	0.000	[0.566; 0.895]
Total effect 4	0.626	0.073	8.533	0.000	[0.483; 0.770]
Total effect 5	1.005	0.110	9.106	0.000	[0.789; 1.221]

Note(s): Unstandardized regression coefficients are reported as all scales used in this study were based on the same Likert-scale. Bootstrapped 95% confidence intervals
Source(s): Table created by authors

Table 5.
Indirect and total effects of self-efficacy in the relationship between COVID-19 and the different subscales of burnout

Hypothesis c stated that the relation between the COVID-19 pandemic and sub-dimensions of burnout is mediated by self-efficacy. The indirect effects of the SEM results (Table 5) revealed that self-efficacy mediates the relationship between COVID-19 and the four core burnout symptoms (exhaustion, mental distance, emotional impairment and cognitive impairment). In other words, self-efficacy indirectly affects the relation between COVID-19 scale and the four core burnout symptoms. No mediating effect of self-efficacy on the relationship between COVID-19 and the secondary burnout symptoms was found. The total effects are equal to the sum of the direct and the indirect effects. The results indicate that all total effects in this study are significant.

The explained variance of self-efficacy was 34.4%, which is considerable. Of the burnout sub-dimensions, exhaustion has the highest explained variance (38.2%), emotional impairment has the lowest (19.8%).

Discussion and conclusion

The current study aimed to examine whether the COVID-19 pandemic is related to burnout among school principals. Additionally, the study analyzes whether the self-efficacy of school principals plays a mediating role in the relationship between the COVID-19 crisis and their burnout levels. For this purpose, the authors collected data from 981 Flemish school principals. The analyses indicated the following key findings.

Burnout by Flemish school principals

First, for the sub-dimensions emotional impairment, cognitive impairment and secondary symptoms principals in our study show high average means based on the burnout assessment tool. For these subscales, the results are situated just below the cut-off values of the green zone for Flemish employees (Schaufeli *et al.*, 2020). Second, high percentages of principals in our study are situated in the very high burnout risk zone (red zone) for the subscales of exhaustion, cognitive impairment and secondary symptoms. Moreover, for all

subscales except the mental distance subscale, more than 25% of Flemish school principals are in an at-risk zone (orange or red burnout zone). Thus, almost one in four Flemish school principals are at risk for burnout. A large-scale burnout study in the autumn of 2021 among all employees in Flanders revealed that 22.5% are at risk for burnout (Securex, 2022). Comparing these results with the study results, Flemish principals score high on burnout.

Relation between COVID-19 and burnout and the role of self-efficacy

The results of this study reveal that COVID-19 directly affects the sub-dimensions of burnout (i.e. exhaustion, mental distance, cognitive impairment, emotional impairment and secondary symptoms). This suggests that the COVID-19 pandemic can be seen as a crisis situation for schools. Because our study was carried out in the beginning of the pandemic it is not possible to draw far-reaching conclusions about the relationship between the various sub-dimensions of burnout. More longitudinal research is needed to understand the relationship between COVID-19 and the different sub-dimensions of burnout.

This research also indicates that the COVID-19 scale and self-efficacy are negatively related. Moreover, this study confirms the results of previous research that principals' self-efficacy is negatively correlated with their burnout (Evers *et al.*, 2002; Friedman, 1995, 2002; Skaalvik and Skaalvik, 2007, 2009). In addition, self-efficacy mediates the relationship between the COVID-19 scale and four subscales of burnout: exhaustion, mental distance, emotional impairment and cognitive impairment. These results suggest that self-efficacy could potentially be an important factor in the relation between unexpected crises and feelings of burnout. These results are in line with previous research by Özer (2013) and Hemmer and Elliff (2020).

Earlier research has stated that stress and burnout are related to individual factors in many ways (Friedman, 2002; Grayson and Alvarez, 2008; Kokkinos, 2007; Pyhältö *et al.*, 2011; Skaalvik and Skaalvik, 2010; Törnroos *et al.*, 2012). Previous research by Federici and Skaalvik (2012) revealed the positive effects of school principals' self-efficacy on their health. Self-efficacy is the individual's belief about what she or he can achieve in a given context, influencing how environmental opportunities and impediments are perceived (Bandura, 1997). According to Federici and Skaalvik (2012), school principals with low self-efficacy may experience more uncertainty and doubt that they can conduct important tasks to a greater extent than principals with higher self-efficacy. The combination of high responsibility and repeated feelings of uncertainty and doubt is a stressful and worrying situation that may lead to emotional exhaustion and burnout in the long run. In this study the authors found that also during the pandemic COVID crisis the self-efficacy of principals plays a role in their feelings of burnout.

Remarkably, no mediating effect of self-efficacy was found on secondary burnout symptoms (psychological distress and psychosomatic complaints). This outcome is possibly due to the difference between the core (exhaustion, mental distance, emotional impairment and cognitive impairment) and secondary burnout symptoms (psychological distress and psychosomatic complaints). In contrast to the core symptoms, secondary symptoms are atypical. They are not unique to burnout because they also occur in several other mental health conditions. The researchers included these items because these symptoms are often the reason for contacting a counselor. In addition, the items regarding secondary burnout symptoms are context-free and do not refer to work (Schaufeli *et al.*, 2020). Nevertheless, more research is necessary to investigate the role of self-efficacy on secondary burnout symptoms. The authors believe it is important, for example, that further research focuses on the relationship between self-efficacy and secondary burnout symptoms by conducting qualitative research (e.g. interviews and focus groups).

Limitations and suggestions for further research

Although the authors believe the results are important and contribute to a better understanding of how self-efficacy is related to burnout, the following limitations and considerations for future research should be mentioned.

First, all measures in this study are self-report questionnaires in a cross-sectional design, implying that we must be cautious when interpreting the findings of this more subjective method of measuring, as school principals might have answered the survey items in a socially desirable way.

Moreover, the answers could be biased by how school principals felt when they filled out the survey. School principals who just had a difficult conversation with a teacher might have answered more negatively than they normally would on the scales. Therefore, more research is necessary to confirm these findings with a longitudinal design in which the variables are measured on different occasions. Moreover, it is recommended that future research combines self-report questionnaires with other forms of data collection to attain a more detailed and objective overview. For instance, an additional interview with the school principals or team members and observations of school principals' behavior in the school could be considered in this respect.

Second, the current construction of the COVID-19 instrument results from just one data collection event in primary schools. Repeated scale-testing with a new data set, potentially in various educational contexts (e.g. secondary education), is needed and important, as we believe that the items of the COVID-19 scale can probably be used in these contexts without adaptations. The items are not specifically tailored to primary education. Despite these limitations, this study contributes to the understanding of the influence of self-efficacy on burnout feelings.

Third, self-efficacy and burnout were only measured during the COVID-19 pandemic. The authors were not able to compare the variables before and during the pandemic. It would be interesting to study how both self-efficacy and burnout evolve after the pandemic, when schools are again in a standard operating procedure. Future research can focus on the degree to which the pandemic crisis has a lasting effect on both variables.

Implications

The authors can deduce several implications from this study. First, the unclear communication of the central government on mandatory school measures (online lessons, school closure, social distancing, use of face mask, etc.), lack of consultation of principals by the central government, and lack of a clear and consistent policy created important job demands that led to a high stress level. Governments cannot be ready for all unexpected crises, but they should have a plan to support principals in dealing with unforeseen events, such as the COVID-19 pandemic. In addition, self-efficacy can play a mediating role in the way principals experience such crises. Coping with drastic changes partly depends on principals' personal characteristics, such as self-efficacy. Thus, self-efficacy should be an important point of focus in selecting, developing and training principals. School boards and districts should include self-efficacy in their hiring and administrator support policies. Also, crisis management should be an important issue in the training of school principals. It can help them prepare for unforeseen events. In addition, attention should be paid to increase school principals self-efficacy. Mastery experiences are an important source of self-efficacy. Professional development initiatives should pay attention to these experiences by providing positive feedback to school principals who attain assignments successfully and by stressing accomplishments and skills of school principals. Also, shared leadership can be a rich environment for positive peer feedback. Districts and school boards should be aware of the importance of these HR practices and their leadership implications.

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