



University of Technology Chemnitz

The Mediating Role of Self-Control, Emotion Regulation, and Coping Strategies Between NFC and Burnout – A Replication With Healthcare Workers

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Abstract

Burnout has emerged as a global health concern, with its prevalence notably increasing during the COVID-19 pandemic. This especially occurs among individuals working within the field of healthcare. In order to contribute to the improvement of working conditions and mental health, this study replicates a mediation model previously tested by Grass et al. (2018) among teaching students and by Zerna, Engelmann et al. (2022) among teachers. For this purpose, multiple mediation models, using a sample of $N = 642$ healthcare workers were examined. The incorporated predictor was Need for Cognition (an intrinsic motivation to engage with cognitively demanding thoughts). Mediators were self-control, the emotion regulation strategies reappraisal and suppression, as well as adaptive and maladaptive coping strategies. The burnout subdimensions reduced personal efficacy, emotional exhaustion, and depersonalization each functioned individually as outcome variables. In addition to the mediation analyses, correlation analyses of these variables were also calculated. The results confirmed that adaptive coping strategies functioned preventively across all burnout dimensions. Furthermore, reappraisal and maladaptive coping mediated the relationship between NFC and some subdimensions of burnout. Healthcare workers who tended towards higher NFC appeared to be protected from burnout development due to various tested mediators. Regarding the daily work environment, initial evidence suggests that efforts should be made to particularly promote adaptive coping strategies. Future studies should further examine the link between NFC and burnout among healthcare professionals.

1. Introduction

Burnout is known as a psychological, work-related stress syndrome that has emerged as a global health concern (Maslach, 2003; Parandeh et al., 2022). In addition to its correlation with depression (Bianchi et al., 2015), burnout is associated with an increased rate of alcohol abuse (Oreskovich, 2012) and a heightened risk for suicidal thoughts (Shanafelt et al., 2011). Since burnout is a response to excessive stress at work (Maslach, 1998), its consequences occur not only in the individuals affected by burnout but also in their workforce (West et al., 2018). Thus, burnout can result in decreased job productivity (Dewa et al., 2017) and reduced job satisfaction, as well as the intent to leave one's current profession (Shanafelt et al., 2009).

Studies showed that occupational stress is a fast-growing problem, specifically among the group of healthcare workers (Hassan et al., 2020). Challenges like time constraints, a lack of control over work processes and scheduling, and competing demands are only some of healthcare's heavy job strains (Lyndon, 2015). Moreover, the additional burdens stemming from the COVID-19 pandemic have further increased burnout rates (Galanis et al., 2021; Prasad et al., 2021). Nurses and physicians worked in high-risk environments, often dealing with inadequate equipment and limited human resources. An increased workload, the perceived threat of COVID-19, and lower levels of specialized training regarding COVID-19 were strains healthcare workers had to deal with (Galanis et al., 2021). These job strains not only affected healthcare workers themselves but also the quality of care they provided to patients. Besides a decline in patient satisfaction, severe consequences like increased odds of medical errors threaten the well-being of the patient (West et al., 2018).

The negative consequences as well as the increasing number of burnout cases emphasize the syndrome's significance for today's society. Although there is extensive research on the occurrence of burnout, its concrete causes and antecedents are not fully understood yet. Therefore, the present work aims to investigate the relationship between burnout and potential underlying mechanisms as well as protecting factors. To this end, this study draws on a mediation model previously examined in the research of Grass et al. (2018) and Zerna, Engelmann et al. (2022), extending their sample from student teachers and teachers to professionals within the healthcare sector. In the following, all variables of this mediation model are explained, including the assumed relationship between them.

Theoretical Framework

Maslach and Jackson (1981) defined burnout as a state of emotional exhaustion, depersonalization (cynicism), and reduced personal efficacy (personal accomplishment).

Emotional exhaustion (EE) “describe[s] feelings of being emotionally overextended and exhausted by one’s work” (Maslach & Jackson, 1981, p. 101). *Depersonalization* (DE) includes negative attitudes towards clients, often manifesting as an unfeeling or detachment in interpersonal relationships. Finally, *reduced personal efficacy* (rPE) entails a loss of self-worth and self-esteem, stemming from a perceived decline of one’s abilities and achievements at work. Regarding these dimensions, EE and DE, in particular, have to be considered to determine an individual’s burnout stage (Büssing & Glaser, 1999, as cited in Schramm, 2016). According to Maslach et al. (2001), the syndrome occurs as a consequence of factors such as work overload, intensive employer controls, and inadequate gratification. Additionally, its development is facilitated through impairment of community and fairness within the workplace. Moreover, burnouts’ onset is further influenced by value systems that conflict with personal moral guidelines; a condition that is predominantly prevalent among healthcare professions (Soto-Rubio et al., 2020). These causes can lead to a persistent imbalance between work demands and an individual’s resources, which in turn serves as a risk factor in the development of burnout (Bridgeman et al., 2018; Claponea and Iorga, 2023; Lefrank & Gräf, 2021; Maslach et al., 2001). The symptoms of the described dimensions EE, DE, and rPE include, among others, a lack of energy, sleep disturbance, as well as memory and concentration problems (Burisch, 2006). The syndrome can also manifest as restlessness, despair, feelings of insufficiency, or relationship and family problems. Physical complaints such as back pain, weakness, a tight feeling in the chest, or breathing difficulties can also be indicative of burnout (Bridgeman et al., 2018; Burisch, 2006).

To reduce the negative impact of burnout not only on those affected but also on their work performance, employing institutions, and clients, researchers have investigated various influencing factors (West et al., 2018). For instance, von Känel et al. (2017) found maladaptive narcissism to be positively related to burnout. Others revealed that self-esteem, internal locus of control, and hardiness are small to large negatively associated with the syndrome (Alarcon et al., 2009). A large correlation in the context of the present study refers to any association that is $r \geq .30$, whereby the conventions of Gignac and Szodorai (2016) are applied to interpret the size of correlation coefficients. Therefore, an $r \geq .10$ corresponds to a small effect, and an $r \geq .20$ to a medium effect. Another study that examined variables that have an influence on burnout is a meta-analysis by Shin et al. (2014). They referred to 36 studies in which coping appeared to influence one’s risk of developing the syndrome. Further authors revealed emotion regulation as well as self-control as significant contributors to burnout prevention (Alarcon et al., 2009; Bing et al., 2022; Duru et al., 2014; Leiter et al.,

1992; Smeds et al., 2020; Sun et al., 2017). Another variable that was recently considered in this context is the Need for Cognition (NFC). Fleischhauer et al. (2019) identified NFC as possibly important when it comes to resilience against the syndrome. Two different samples, one of which included $N = 4.134$ participants of a population-wide sample, showed medium to large negative associations with burnout symptoms. Negative correlations between NFC and burnout were also found in Hoff et al. (2022), Grass et al. (2022), and Strobel et al. (2021). Moreover, in 2018, Grass et al. examined a mediation model in a sample of teacher students ($N = 167$) with several of the mentioned burnouts affecting variables combined. Here, NFC functioned as a predictor, while self-control, emotion regulation strategies, and coping were considered as mediators. The burnout dimensions EE, DE, and rPE were outcome variables. Again, this research revealed a negative relation between NFC and burnout. However, the influence of NFC on burnout was fully mediated through emotion regulation and coping – hence, verifying the contributing role of these variables in explaining the occurrence of the syndrome. In 2022, Zerna, Engelmann et al. replicated the approach of Grass et al. (2018), extending their sample to teachers who were already working ($N = 180$). Due to a technical error, this study did not assess coping strategies, only drawing conclusions between the variables NFC, self-control, emotion regulation, and burnout. Zerna, Engelmann et al. (2022) revealed no mediating effect of emotion regulation strategies between NFC and burnout, but a mediating effect of self-control between the predictor and outcome variable. Furthermore, both Grass et al. (2018) and Zerna, Engelmann et al. (2022) only found notable associations specifically between rPE and its investigated mediator and predictor variables. However, given the importance of EE and DE in determining an individual's risk of developing burnout, the present study strives to reevaluate the role of each burnout dimension. Moreover, to further explore the mechanisms behind the development of the syndrome among healthcare workers, the present study intends to replicate the findings of Grass et al. (2018) and Zerna, Engelmann et al. (2022) using a respective sample. Consequently, the following variables are examined: Need for Cognition functions as the predictor variable. Mediators include self-control, emotion regulation strategies, and coping strategies. Finally, each burnout dimension operates as a separate outcome variable (as depicted in Figure 1). In the following, the variables NFC, self-control, emotion regulation strategies, and coping strategies are detailed. Further, hypotheses between NFC as well as rPE and the mediators are specified. Since Grass et al. (2018) and Zerna, Engelmann et al. (2022) found only negligible relationships between the variables with EE and DE, these relations are exploratorily examined.

The first specified variable is the *Need for Cognition* (NFC). NFC is recognized as the inclination to engage in and enjoy effortful cognitive endeavors. Concerning this variable, people differ in their intrinsic cognitive motivation, with each person exhibiting a certain degree of NFC (Cacioppo & Petty, 1982). Furthermore, NFC is acknowledged as a general tendency, constituting a context-independent trait (Fleischhauer et al. 2010). Cacioppo et al. (1996) described those with low NFC as “cognitive misers” (p. 197). These individuals tend to employ heuristics or rely on the judgment of others rather than invest in effortful thinking themselves. Contrary, individuals with high NFC are referred as “cognizers” (Cacioppo et al., 1996, p. 197). Those are more motivated and derive enjoyment from reflecting on and understanding situations, relationships, and problems, which can enhance coping with challenging circumstances (Cacioppo et al., 1996; Strobel et al., 2017). According to Cacioppo et al. (1996), cognizers were associated with more intrinsic motivation, openness to ideas, curiosity, and objectivism. Moreover, those with high NFC were not only linked to better study performance (Grass et al., 2018) but also identified as individuals with higher self-esteem (Elias & Loomis, 2002) and greater emotional stability (Sadowski & Cogburn, 1997). Other authors discovered a negative relation between NFC and depression (Zerna, Strobel, & Strobel, 2022), whereas Nishiguchi et al. (2016) did not find NFC predicting depression since this relation was controlled for self-control. Zerna, Strobel, and Strobel (2022) found other well-being-promoting outcomes, whereby higher NFC was associated with more positive affect and satisfaction, as well as less negative affect, anxiety, and neuroticism. In respect of burnout, NFC was indentified as a protective factor against the syndrome (Fleischhauer et al., 2019; Grass et al., 2018; Naderi et al., 2018; Zerna, Engelmann et al., 2022). Grass et al. (2018) found a large negative correlation between NFC and rPE, whereas Zerna, Engelmann et al. (2022) and Fleischhauer et al. (2019) found a medium negative correlation. Therefore, (1) this study assumes a medium negative relationship between NFC and rPE as well.

The first mediator considered in examining the relationship between NFC and burnout is *self-control*. Self-control (also known as self-regulation) refers to an individual’s effort to modify their own responses. Thus, individuals prevent impulses and natural reactions from occurring, alter emotional reactions, desires, and thoughts (Baumeister et al., 1995). Various studies revealed a positive relationship between NFC and self-control (Bertrams & Dickhäuser, 2012; Grass et al., 2018, 2019; Nishiguchi et al., 2016; Sandra & Otto, 2018; Zerna, Engelmann et al., 2022). Both Grass et al. (2018) and Zerna, Engelmann et al. (2022) found a (2) medium positive correlation between both NFC and self-control. Hence, the same

relationship is assumed for this study. Further, Zerna, Engelmann et al. (2022) identified a small negative correlation between self-control and rPE. Other research, e.g., those from Bughi et al. (2017), Duru et al. (2014), and Grass et al. (2018) observed a large negative correlation between self-control and rPE. Given these findings, (3) a large negative correlation between self-control and rPE is expected for the study at hand.

In addition to self-control, emotion regulation strategies have been considered as potential mediators in the relationship between NFC and burnout (Grass et al., 2018; Zerna, Engelmann et al., 2022). Emotion regulation refers to the process by which individuals influence their perception and expression of emotional responses (Schütz et al., 2016). Two commonly used emotion regulation strategies are *reappraisal* and *suppression* (Gross, 2002). Reappraisal entails modifying the emotional impact of an emotion-triggering event by changing one's interpretation of the situation (Lazarus & Alfert, 1964). On the other hand, suppression involves inhibiting emotional reactions (Gross, 1998). It was shown that suppression can result in decreased life satisfaction, self-esteem, well-being, and increased burnout symptoms (Hu et al., 2014). In contrast, Chang (2020) showed that reappraisal can function as a preventing factor against burnout. Bing et al. (2022) found a medium negative correlation between reappraisal and burnout. Concerning the link between reappraisal and rPE, Grass et al. (2018) and Martín-Brufau et al. (2020) reported a large negative correlation, whereas Zerna, Engelmann et al. (2022) found a medium negative correlation of $r = -.20$, $p < .01$ between these variables. We (4) assume a medium negative correlation between reappraisal and rPE. In examining the relationship between suppression and rPE, Grass et al. (2018) found a correlation of $r = .21$, $p < 0.01$, whereas Zerna, Engelmann et al. (2018), Claponea and Iorga (2023), and Martín-Brufau et al. (2020) did not find a correlation. Therefore, (5) the present investigation also assumes there is no correlation between suppression and rPE. Regarding NFC, individuals with high NFC were found to utilize more emotion regulation strategies (Grass et al., 2018; Strobel et al., 2017, 2021). Grass et al. (2018), Zerna, Engelmann et al. (2022), as well as Karagiannopoulou et al. (2022) noted a small positive correlation between NFC and reappraisal. Thus, in this investigation, (6) a small positive correlation between NFC and reappraisal is also expected. For the relationship between NFC and suppression, Zerna, Engelmann et al. (2022) found a correlation of $r = -.18$, $p < 0.5$. Contrarily, Grass et al. (2018) and Karagiannopoulou et al. (2022) did not find a correlation. Accordingly, (7) we do not expect a correlation between NFC and suppression.

Another mediator that partly explains the influence of NFC and burnout is coping (Grass et al., 2018). Coping is understood as an attempt to deal with strains (Reisenzein et al.,

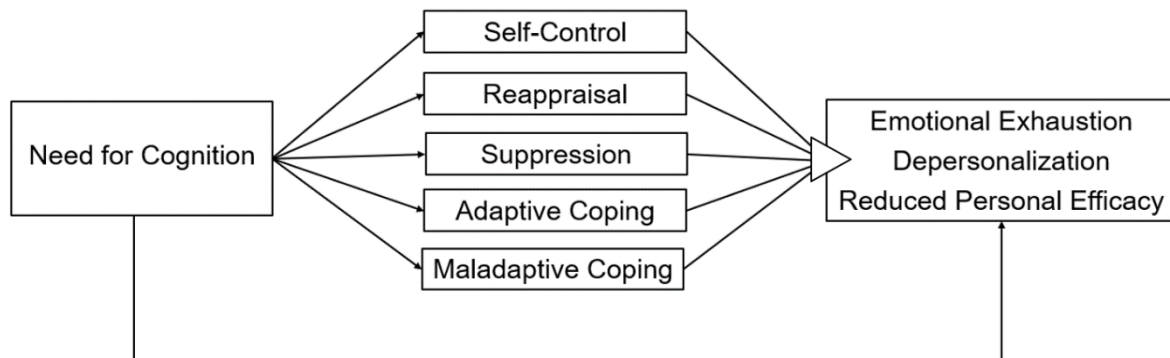
2003). It can be described as a cognitive and behavioral effort to manage or reduce stressors (Folkman & Lazarus, 1980). One approach to classify coping strategies is to distinguish between *adaptive* and *maladaptive coping* (Satow, 2012). Adaptive coping strategies are constructive, flexible, and organized, whereas maladaptive coping refers to strategies that are more detrimental, rigid, and disorganized (Skinner et al., 2003). Although numerous authors, such as Grass et al. (2018) and Zerna, Engelmann et al. (2022), categorize coping into active and passive strategies, this study refers to adaptive and maladaptive coping strategies. Both adaptive and active coping strategies are typically beneficial and promote well-being (Greenglass & Fiksenbaum, 2009). On the other hand, both maladaptive and passive coping strategies correlate negatively with well-being and outcomes that promote health (Reed-Knight et al., 2018). Therefore, we transfer and compare results and assumptions from active to adaptive, and from passive to maladaptive coping strategies. Examining the effect of these coping styles, Budimir et al. (2021) and Satow (2012) showed that adaptive coping positively correlates with well-being. Conversely, maladaptive coping functioned as a predictor for perceived stress, depression, and anxiety. Although limited research addressed adaptive and maladaptive coping strategies, some investigations indicated that individuals with high NFC displayed enhanced coping abilities. Hoff et al. (2022) reported a large positive correlation of $r = .57$, 99% CI [.51, .62] between NFC and active coping. Other research by Bye and Pushkar (2009) and Grass et al. (2018) identified a medium positive correlation between these variables. Regarding the relationship between NFC and passive coping, Grass et al. (2018) found a correlation of $r = -.19$, $p < .05$. Thus, (8) we expect a medium positive relationship between NFC and adaptive coping and (9) a small negative relationship between NFC and passive coping. Concerning the relation between coping and burnout, Vizoso et al. (2019) investigated that adaptive coping prevents against burnout, while maladaptive coping functions as a risk factor. Research from Vizoso et al. (2019), Grass et al. (2018), as well as Palupi and Findyartini (2019), found a large negative correlation (10) between adaptive coping and rPE, therefore we also expect a large negative relationship between these variables. Regarding the correlation between maladaptive coping and rPE, findings are heterogeneous. While Palupi and Findyartini (2019) and Li et al. (2014) found no relationship, Vizoso et al. (2019) observed a small positive relation. Since Grass et al. (2018) reported a large positive correlation between these variables, (11) a large positive relationship between maladaptive coping and rPE is assumed for the study at hand.

Finally, we adopt the mediation model proposed by Grass et al. (2018). Based on their results, (12) we hypothesize that higher levels of NFC are negatively associated with rPE

through increased levels of reappraisal and active coping, as well as decreased levels of passive coping. This association is not expected through self-control or suppression. Further, this mediation model is tested with (13) EE and (14) DE as outcome variables in place of rPE.

Figure 1.

Mediation model of the relationship between Need for Cognition and burnout dimensions via self-control, emotion regulation strategies, and coping strategies



2. Methods

Study Design

The preregistration of the current study is available at <https://osf.io/d6y9k>. The data was conducted in two separate investigations by Kadur (2019) and Ziessler (2019). These studies were assessed as anonymous, cross-sectional online surveys using the *Enterprise Feedback Suite Survey* platform (EFS; Questback, 2017, version summer 2017 and winter 2018). Participants were informed about the study's objectives, duration, and data security. Further, they were given the opportunity to participate in a cash raffle, where €25 were handed out to two participants for every 100 individuals who took part in the study. As additional reimbursement of effort, participants were offered to receive the study results on request as well as information on the personal and work-related risk factors of burnout. Before the subjects reported demographic information and completed the questionnaires, participants declared their consent for data security and study participation. At the end of the survey, a control item was included to ensure that participants indicated whether they answered the questions sincerely. Finally, those interested in recruitment efforts could provide their email address.

Setting and Subjects

The final sample for this study consists of two sub-samples, assessed in unpublished studies conducted in 2018 and 2019, respectively. The data for the first sample were collected

from May 30 until July 5, 2018, consisting of 413 participants. The second data collection took place between June 6 and August 1, 2019, with a total of 229 subjects. To recruit participants, recruitment letters were sent to clinics, residential and retirement homes, institutes for higher education, and other health facilities across several German cities in the federal states of Saxony and Hesse. Additionally, multiple calls for participants were made on social media platforms, such as Facebook and WhatsApp, and recruitment letters were emailed to friends and acquaintances working in the field of healthcare. Eligibility requirements for the study included a minimum age of 18 years, proficiency in the German language, and current employment in a healthcare profession. The total sample size of the present study is $N = 642$ (85.2% female, 14.6% male, .2% diverse). The age of the sample varied from 18 to 87 years ($M = 38.3$ years, $SD = 12.04$). The majority of participants (46.26%) worked as nurses, while 16.04% held management positions in healthcare. Others were employed as social workers (9.81%), psychotherapists (8.41%), and other therapeutic professions, such as occupational therapist or healthcare volunteers. Respective detailed statistics are listed in Table S1 in the supplemental material.

A post hoc power analysis was conducted using G*Power (Faul et al., 2007, version 3.1.9.7). For this analysis, the smallest standardized indirect effect from the mediation reported by Grass et al. (2018) was employed. When replicating the mediation model from Grass et al. (2018), a power of $1 - \beta = 0.99$ was achieved for linear multiple regression with $\alpha = 0.05$, $N = 642$, and f^2 of 0.05.

Materials

All questionnaires used were administered in German language. The reliabilities (MacDonald's ω and Cronbach's α) of the inventories used can be found in Table 1.

The burnout dimensions rPE, EE, and DE were assessed using the German version of the 22-item *Maslach Burnout Inventory* (MBI-D; Büssing & Perrar, 1992). Items such as "I feel burned out by my job." were rated on a scale from 1 (does not occur at all) to 6 (occurs very often/strongly). The internal consistencies of the MBI-D showed good to excellent reliabilities (MacDonald's Omega $\omega > .82$). For clearer classification of the expression of each subdimension, Dreher et al. (2019) provided specific values, where rPE values ≥ 24 , EE values ≥ 22 , and DE values ≥ 8 are classified as high burnout expression.

NFC was assessed with the 16-item short version of the German *NFC scale* (NCS) from Bless et al., (1994) with items like "I like it when my life is full of tricky tasks that I have to solve." These items were rated on a seven-point rating scale ranging from +3 (very

accurate) to -3 (completely inaccurate). The scale demonstrated an excellent internal consistency of MacDonald's Omega $\omega \geq .91$.

Self-control was measured by using the 13-item short form of the *Self-Control Scale* (SCS-K-D; Bertrams & Dickhäuser, 2009). Thereby, a five-point Likert scale from 1 (completely inaccurate) to 5 (applies exactly) was used to answer questions like "I am good at resisting temptations." This scale showed an acceptable internal consistency of MacDonald's Omega $\omega \geq .79$.

Further, the *Emotion Regulation Questionnaire* (ERQ-D; Alber & Kessler, 2009), which included 10 items, was used to assess reappraisal and suppression. Reappraisal was measured by items like "When I get into a stressful situation, I change my thoughts about the situation, so it calms me down." Suppression was determined by items such as "I keep my feelings to myself." Participants responded on a rating scale ranging from 1 (not true at all) to 7 (absolutely true). The subscale that assessed reappraisal contained six items and achieved good reliability (MacDonald's Omega $\omega \geq .86$). The four-item suppression subscale of the ERQ-D also reached good reliability with MacDonald's Omega $\omega \geq .81$.

Finally, the 20-item *Stress- and Coping Inventory* (SCI; Satow, 2012) was used to measure coping strategies. This differs from Grass et al. (2018), who used the *Erfurt Stress Inventory* (EBI; Böhm-Kasper et al., 2000) to assess active and passive coping strategies. Instead, the current study measures adaptive as well as maladaptive coping strategies with the SCI (Satow, 2012). Adaptive coping was assessed by the subscales "positive thinking", "active stress management", "social support", and "holding on to faith". These subscales, consisting of 16 items such as "When stress and pressure arise, I directly address the causes," altogether demonstrated an internal consistency of MacDonald's Omega $\omega \geq .85$. Maladaptive coping was measured with the "increased alcohol and cigarette consumption" subscale, containing items like "When I am under too much stress, I smoke a cigarette." The items were rated from 1 (does not apply) to 4 (applies exactly). This subscale had a questionable internal consistency of MacDonald's Omega $\omega \geq .63$, which is below the interval consistency that Satow (2012) reported in the test and scale documentation of the SCI.

Ethical Approval

With regard to investigation conducted in 2018, the Ethics Committee of the Chemnitz University of Technology (reference number: V-259-15-AS-NFC-28032018) did not identify any ethical relevance. As a result, no full application was required to run this study. Concerning the study from 2019, a full application was submitted (reference number:

Table 1. *Spearman correlations and internal consistencies of the questionnaire scores outliers included*

		1	2	3	4	5	6	7	8	9	10	11	12
1	MBI	.92 (.89)											
2	MBI rPE	.69**	.82 (.76)										
3	MBI EE	.89**	.43**	.94 (.90)									
4	MBI DE	.68**	.38**	.41**	.89 (.78)								
5	NFC	-.19**	-.19**	-.18**	-.07	.91 (.85)							
6	SCS	-.16*	-.18**	-.14	-.08	.56**	.79 (.72)						
7	ERQ	-.06	-.14*	-.05	.01	.04	.00	.82 (.70)					
8	ERQ R	-.23**	-.29**	-.15*	-.18**	.06	.06	.73**	.86 (.80)				
9	ERQ S	.2**	.12	.13	.26**	-.01	-.06	.62**	-.02	.81 (.75)			
10	SCI	-.36**	-.36**	-.29**	-.22**	.05	-.01	.18**	.35**	-.16*	.81 (.75)		
11	SCI A	-.45**	-.42**	-.37**	-.28**	.15*	.09	.17*	.36**	-.19**	.93**	.85 (.79)	
12	SCI MA	.22**	.11	.22**	.15*	-.3**	-.28**	.03	-.02	.07	.23**	-.11	.63 (.48)

Notes. $N = 642$. Results were corrected according to the Bonferroni-Holm procedure. Values in bold: All significant results with $p < .01$. MBI: Maslach Burnout Inventory; MBI rPE: Reduced personal efficacy subscale; MBI EE: Emotional exhaustion subscale; MBI DE: Depersonalisation subscale; NFC: Need for Cognition Scale; SCS: Self Control Scale; ERQ: Emotion Regulation Questionnaire; ERQ R: Reappraisal subscale; ERQ S: Suppression subscale; SCI: Stress and Coping Inventory; SCI A: Adaptive coping subscales; SCI MA: Maladaptive coping subscale. $*p < .01$, $**p < .001$. Diagonal is MacDonald's Omega and Cronbach's Alpha (in brackets).

V-336-15-AS-Ressourcen-16052019). There were no ethical concerns regarding the implementation of the research project, and it also received a positive ethical review from the Ethics Committee.

Data Analysis

Data analyses were conducted with the statistical program *RStudio* (2023, version 6.0.421), mainly with the packages *lavaan* (Rosseel, 2012, version 0.6–16) and *psych* (Revelle, 2021, version 2.3.6). The separate datasets from the investigations assessed in 2018 and 2019 were first merged into a single dataset. Subsequently, all items were inverted according to the scale manuals. Further, the sum scores of all scales were calculated. For instance, for the burnout subdimension rPE, the sum of all items within the subscale rPE was computed. The same approach was used for the subdimensions EE and DE, as well as for other scales: NCS, SCS, reappraisal and suppression of the ERQ, adaptive and maladaptive coping of the SCI. To account for potential outliers, the z-score method was used to identify subjects with z-values greater than three. To assess for non-linear relationships, a correlation matrix was plotted. Following Grass et al. (2018) and Zerna, Engelmann et al. (2022), both the Shapiro-Wilk test and Mardia's test were used to determine the variables' normal distribution. No variable met the assumption of normal distribution. Therefore, Spearman's rank coefficient was used to compute correlation coefficients. Due to the numerous correlation hypotheses tested and the resulting potential increase in Type I error, the results were corrected using the Bonferroni-Holm method. To determine the internal consistency of the questionnaires and their subscales, both Cronbach's Alpha and MacDonald's Omega were utilized. MacDonald's Omega was additionally calculated due to its robustness against violations of the tau-equivalent assumption, a point of critique for Cronbach's Alpha (Dunn et al., 2013). Regarding control variables, based on the theoretical considerations of Grass et al. (2018), Bye and Pushkar (2009), and the statistical analyses of Kadur (2018) and Ziessler (2019) the variables age, gender, federal state (eastern German vs. western German federal states), presence of children in the participant's household, and marital status (married vs. not married) were considered. Given the wide range of occupations in the present sample, profession was introduced as another control variable. Here, the current study categorized professions into therapeutic professions, professions in management and coordination positions, as well as volunteers and trainees. Moreover, a control variable was introduced in the analysis as soon as it showed a significant correlation with the corresponding outcome variable in the model. To account for the correlation between both the control variable and the outcome variable, Spearman's rank correlation was calculated for continuous variables,

and the Chi square test was applied to categorial control variables. Regarding the control variables that were ultimately incorporated into the mediation analyses, Table 2 lists the distribution of participants for those categorical control variables not detailed in the main text. This includes the distribution of participants across the dummy categories of the control variable profession and marital status.

Table 2. *Distribution of participants across the dummy categories of the control variables profession and marital status (outliers included)*

Dummy category	Absolute quantity	Percentage (%)
<i>Profession</i>		
Therapeutic professions	503	78.35
Professions in management and coordination positions	103	16.04
Volunteers and trainees	36	5.61
<i>Marital status</i>		
Not married	382	59.5
Married	260	40.5

Note. $N = 642$.

Replication of the Mediation Model of Grass et al. (2022)

In our replication, the mediation model that we tested corresponds to that of Grass et al. (2018). NFC was introduced as the predictor, while self-control, reappraisal, suppression, adaptive, and maladaptive coping served as mediators. The burnout subscale rPE was implemented as an outcome variable. In the exploratory analyses, EE and DE were used as outcome variables in place of rPE. Prior to calculation the mediation models, the seed was set to 13. Afterwards, just like Grass et al. (2018) and Zerna, Engelmann et al. (2022), bootstrap confidence intervals with $N = 2000$ replicates were calculated. To evaluate the fit of the various mediation models, several indices were used. Following Zerna, Engelmann et al. (2022), the Chi-square test statistic, the *Comparative Fit Index* (CFI), the *Tucker-Lewis Index* (TLI), the *Root Mean Square Error of Approximation* (RMSEA), and the *Standardized Root Mean Square Residuals* (SRMR) were utilized for this purpose. Acceptable model fits are indicated by $\chi^2/df < 3$, $CFI > .90$, $TLI > .95$, $RMSEA < .08$, and $SRMR < .08$ (Hu & Bentler, 1999).

The investigations of both Grass et al. (2018) and Zerna, Engelmann et al. (2022) were replicated as closely as possible. However, since previously collected data were used,

some deviations occurred in contrast to the previous investigations. First, there were differences in the measurement instruments used for assessing burnout and coping. Second, the sample size differs from those in the studies of Grass et al. (2018) and Zerna, Engelmann et al. (2022). The present investigation included $N = 642$ participants. In contrast, Grass et al. (2018) involved $N = 167$ participants, and Zerna, Engelmann et al. (2022) tested their model with $N = 180$ subjects. Third, the present work not just puts a focus on the burnout dimension rPE, but also on EE, and DE. Lastly, there were differences in the control variables implemented. Grass et al. (2018) conducted age and high school graduation grade as control variables. Zerna, Engelmann et al. (2022) accounted for the number of years their participants had been teaching.

3. Results

Unexpected outliers were identified that were not preregistered. Thus, all analyses were conducted both with these outliers and with the 16 outliers removed. The analyses including the outliers are presented. However, in some mediation models, the control variable “gender” was included. Respecting this variable, one participant responded with “diverse” as their gender. Given the dummy-coding method applied to our control variables, analyses considering “gender” excluded this participant due to an insufficient sample size of those who identified as “diverse”. Consequently, the mediation model regarding DE, which incorporated the control variable “gender”, was computed using 641 datasets instead of 642. Nonetheless, all results of the correlation and mediation analyses without outliers, as well as those that included the total MBI score as outcome variable, can be found in the supplemental material (Table S2 – S15).

Descriptive Statistics and Correlation Analyses

Descriptive statistics for the questionnaire scores and subscales can be found in Table 3. None of the subscales demonstrated a normal distribution. However, according to the central limit theorem, data derived from a sample size of 30 or more can be approximated as normally distributed (Bortz & Schuster, 2010). Regarding the MBI subdimensions, the mean values of the present sample indicated high EE and DE scores, as well as low rPE scores. The mean values of the scales are listed in Table 3. Spearman correlations and internal consistencies are detailed in Table 1. Based on the correlation analysis, the relationship between (4) rPE and reappraisal ($\rho = -.29, p < .001$), (5) rPE and suppression ($\rho = .12, p > .01$), (7) NFC and suppression ($\rho = -.01, p > .01$), and (10) rPE and adaptive coping ($\rho = -.42, p < .001$) matched the stated assumptions. The relationship between (1) NFC and rPE ($\rho = -.19, p < .001$) deviated slightly from the hypotheses, as a medium negative correlation was

expected. Another correlational assumption that was not confirmed involved the relationship between (2) NFC and self-control ($\rho = .56, p < .001$), where a medium positive association was anticipated. The relationship between (3) rPE and self-control ($\rho = -.18, p < .001$) also did not match the expectation of a large negative correlation. Between (6) NFC and reappraisal ($\rho = .06, p > .01$), a small positive correlation was expected, yet no association was discovered. Moreover, the relationship between NFC and adaptive coping ($\rho = .15, p < .01$) was expected to be a medium positive relation, and thus, was smaller than expected. Contrarily, the relationship between (9) NFC and maladaptive coping ($\rho = -.3, p < .001$) was larger than hypothesized, with a large negative correlation found instead of the expected small negative correlation. Finally, between (11) rPE and maladaptive coping ($\rho = .11, p > .01$), no correlation was found, contrary to the assumed large positive association. In particular, the correlations of NFC with self-control ($\rho = -.56, p < .001$) and reappraisal ($\rho = .06, p > .01$), as well as the relationship between maladaptive coping and rPE ($\rho = .11, p > .01$), diverged from the expected correlations more than those of the other variables.

Table 3. *Descriptive statistics of the questionnaire scores*

	Variable	<i>M</i>	<i>SD</i>	Minimum	Maximum	Normality	Range	Skewness	Kurtosis
1	MBI	58.05	13.93	27	108	No	22 – 132	.42	-.07
2	MBI rPE	18.24	4.45	8	36	No	8 – 48	.59	.78
3	MBI EE	28.71	8.58	9	54	No	9 – 54	.20	-.40
4	MBI DE	11.10	4.46	5	26	No	5 – 30	.66	-.28
5	NFC	.89	16.37	-36	45	No	-48 – 48	.55	-.55
6	SCS	39.81	7.54	21	65	No	13 – 65	.42	-.21
7	ERQ	40.73	8.14	10	65	No	10 – 70	-.17	.72
8	ERQ R	27.72	6.27	6	42	No	6 – 42	-.28	.46
9	ERQ S	13.00	5.14	4	28	No	4 – 28	.29	-.51
10	SCI	54.15	6.32	34	71	No	20 – 80	-.20	.46
11	SCI A	43.76	6.23	23	61	No	16 – 64	-.12	.42
12	SCI MA	10.39	2.10	7	19	No	4 – 16	.26	.10

Notes. *N* = 642; *M* = Mean; *SD* = Standard deviation; MBI: Maslach Burnout Inventory; MBI rPE: Reduced personal efficacy subscale; MBI EE: Emotional exhaustion subscale; MBI DE: Depersonalisation subscale; NFC: Need for Cognition Scale; SCS: Self Control Scale; ERQ: Emotion Regulation Questionnaire; ERQ R: Reappraisal subscale; ERQ S: Suppression subscale; SCI: Stress and Coping Inventory; SCI A: Adaptive coping subscales; SCI MA: Maladaptive coping subscale.

Replication of Grass et al. (2018) With Healthcare Workers

To prove the association between NFC and the respective burnout subdimensions, multiple mediation models were tested. First, respecting the replication of the mediation model of Grass et al. (2018), the results of the mediation model with rPE as outcome variable are presented. Subsequent sections provide the results of the exploratory analyses with EE and DE as outcome variables.

In the model that considered rPE as the outcome variable, neither the model without control variable ($\chi^2(21, N = 642) = 724.06, p < 0.001$), nor the model with age as control variable ($\chi^2(27, N = 642) = 741.85, p < 0.001$) fitted the data. However, the fit indices of both models were CFI = 1, TLI = 1, SRMR = .00, and RMSEA = .00, 95% CI [.00, .00], and thus, indicated a good fit (Hu & Bentler, 1999). The results from both the model without a control variable and the model with age as control variable were almost identical. As a result, the total, direct, and indirect effects of the model without control variable are detailed in Table 4. The (12) replication with rPE as the outcome variable yielded a positive association of NFC and self-control ($\beta = 0.6$, 95% CI [.45, .56]). As reported by Grass et al. (2018), self-control was not associated with rPE ($\beta = -0.04$, 95% CI [-.13, .04]). Other associations that were replicated were, on the one hand, the positive relation between NFC and reappraisal ($\beta = .10$, 95% CI [.02, .16]), whereas reappraisal was negatively associated with rPE ($\beta = -.13$, 95% CI [-.19, -.04]). Moreover, as expected, suppression was not associated with both NFC ($\beta = -.03$, 95% CI [-.12, .05]) and rPE ($\beta = .06$, 95% CI [-.01, .10]). Furthermore, adaptive coping aligned the assumptions, showing a positive relationship with NFC ($\beta = .19$, 95% CI [.09, .22]) and a negative one with rPE ($\beta = -.36$, 95% CI [-.44, -.25]). The relationship between NFC and maladaptive coping was consistent with the hypotheses with both variables being related ($\beta = -.33$, 95% CI [-.35, -.22]). Yet, it was surprising that maladaptive coping and rPE were not associated ($\beta = .00$, 95% CI [-.06, .07]). Finally, NFC maintained a negative relation to rPE ($\beta = -.11$, 95% CI [-.15, -.02]), and the total effect of this model was $\beta = -.22$, 95% CI [-.23, -.12].

Exploratory Analyses

This section presents the results of the mediation models with EE and DE as outcome variables. Results of the correlation analyses concerning EE and DE are shown in Table 5 and Table 6, whereas further implications of correlational relations are made in the discussion section. Results of the mediation model, which included the total MBI score as the outcome variable, can be found in Table S12 – S15 in the supplemental material.

Table 4. Results of the replication of Grass et al. (2018) – Mediation model with rPE as the outcome variable (control variables not included)

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.509	.029	17.832	.000	.452	.564	.600
NFC on reappraisal	.089	.036	2.516	.012	.023	.160	.104
NFC on suppression	-.036	.044	-.812	.417	-.119	.051	-.034
NFC on adaptive coping	.158	.032	4.951	.000	.094	.219	.194
NFC on maladaptive coping	-.286	.034	-8.322	.000	-.352	-.221	-.330
NFC on rPE (controlled for mediators)	-.085	.035	-2.449	.014	-.152	-.017	-.108
Self-control on rPE	-.040	.044	-.900	.368	-.129	.043	-.043
Reappraisal on rPE	-.114	.039	-2.953	.003	-.189	-.039	-.125
Suppression on rPE	.046	.029	1.585	.113	-.012	.103	.062
Adaptive coping on rPE	-.347	.048	-7.17	.000	-.442	-.253	-.358
Maladaptive coping on rPE	.003	.033	.100	.920	-.064	.067	.004
Indirect effects							
NFC on rPE via self-control	-.020	.023	-.899	.368	-.066	.022	-.026
NFC on rPE via reappraisal	-.010	.005	-.1919	.055	-.022	-.002	-.013
NFC on rPE via suppression	-.002	.003	-.639	.523	-.008	.003	-.002
NFC on rPE via adaptive coping	-.055	.013	-4.224	.000	-.082	-.031	-.070
NFC on rPE via maladaptive coping	-.001	.010	-.099	.921	-.020	.019	-.001
Total effect							
Total effect	-.173	.029	-5.975	.000	-.229	-.115	-.220

Note. $N = 642$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; rPE: Reduced personal efficacy subscale of the Maslach Burnout Inventory.

Emotional Exhaustion. The first exploratory analysis tested is (13) the mediation model with EE as the outcome variable. The Chi-square test statistic was $\chi^2(21, N = 642) = 679.80$, $p < 0.001$ for the mediation models without control variables and $\chi^2(33, N = 642) = 712.70$, $p < 0.001$ for the model that included control variables. However, the fit indices repeatedly indicated a good fit (CFI = 1, TLI = 1, SRMR = .00, and RMSEA = .00, 95% CI [.00, .00]). Again, the results from both the model without control variables and with control variables (age, marital status) were nearly identical. Therefore, the model without control variables is presented in detail, while all respective values can be found in Table 5. Here, adaptive and maladaptive coping fully mediated the effect of NFC on EE. Additionally, positive associations were observed between NFC and its relation to self-control ($\beta = .60$,

95% CI [.46, .57]) and reappraisal ($\beta = .10$, 95% CI [.02, .16]), as well between suppression and EE ($\beta = .08$, 95% CI [.00, .14]). The total effect was ($\beta = -.22$, 95% CI [-.28, -.14]).

Table 5. *Mediation model with EE as the outcome variable (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.509	.028	18.115	.000	.455	.565	.600
NFC on reappraisal	.089	.036	2.48	.013	.021	.161	.104
NFC on suppression	-.036	.044	-.809	.418	-.120	.049	-.034
NFC on adaptive coping	.158	.033	4.841	.000	.091	.219	.194
NFC on maladaptive coping	-.286	.033	-8.637	.000	-.349	-.220	-.330
NFC on EE (controlled for mediators)	-.082	.046	-1.768	.077	-.174	.009	-.087
Self-control on EE	-.038	.053	-.715	.475	-.141	.071	-.034
Reappraisal on EE	-.007	.043	-.160	.873	-.093	.082	-.006
Suppression on EE	.072	.034	2.096	.036	.004	.135	.080
Adaptive coping on EE	-.352	.047	-7.416	.000	-.449	-.256	-.303
Maladaptive coping on EE	.159	.045	3.562	.000	.076	.249	.146
Indirect effects							
NFC on EE via self-control	-.019	.027	-.715	.475	-.074	.036	-.021
NFC on EE via reappraisal	-.001	.004	-.148	.883	-.010	.008	-.001
NFC on EE via suppression	-.003	.004	-.678	.498	-.012	.003	-.003
NFC on EE via adaptive coping	-.055	.013	-4.147	.000	-.082	-.030	-.059
NFC on EE via maladaptive coping	-.046	.015	-3.13	.002	-.077	-.021	-.048
Total effect							
Total effect	-.206	.036	-5.638	.000	-.281	-.137	-.218

Note. $N = 642$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; EE: Emotional exhaustion subscale of the Maslach Burnout Inventory.

Depersonalization. The (14) subsequent exploratory analysis used DE as the outcome variable. Both the model without control variables ($\chi^2(21, N = 642) = 649.79, p < 0.001$) and the model with control variables (gender, age) included did not fit the data ($\chi^2(33, N = 641) = 701.65, p < 0.001$). However, once again, the fit indices indicated a good fit (CFI = 1, TLI = 1, SRMR = .00, and RMSEA = .00, 95% CI [.00, .00]). For both models, the results were almost identical. Therefore, values of the model control variables excluded are presented in detail. In this model, the direct effect of NFC on DE was fully mediated by reappraisal, adaptive coping, and maladaptive coping. Additionally, there were positive associations

between NFC and self-control ($\beta = .60$, 95% CI [.45, .56]), as well as between suppression and DE ($\beta = .21$, 95% CI [.14, .28]). The total effect was $\beta = -.12$, 95% CI [-.20, -.06]).

Table 6. *Mediation model with DE as the outcome variable (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.509	.028	18.006	.000	.454	.563	.600
NFC on reappraisal	.089	.035	2.524	.012	.017	.159	.104
NFC on suppression	-.036	.043	-.826	.409	-.123	.048	-.034
NFC on adaptive coping	.158	.032	4.961	.000	.095	.219	.194
NFC on maladaptive coping	-.286	.034	-8.361	.000	-.354	-.217	-.330
NFC on DE (controlled for mediators)	-.035	.051	-.684	.494	-.138	.060	-.033
Self-control on DE	-.003	.064	-.044	.965	-.126	.126	-.002
Reappraisal on DE	-.115	.049	-2.353	.019	-.211	-.020	-.094
Suppression on DE	.205	.036	5.628	.000	.136	.277	.206
Adaptive coping on DE	-.243	.053	-4.584	.000	-.351	-.143	-.187
Maladaptive coping on DE	.127	.047	2.668	.008	.033	.218	.104
Indirect effects							
NFC on DE via self-control	-.001	.033	-.044	.965	-.065	.065	-.001
NFC on DE via reappraisal	-.010	.006	-1.778	.075	-.023	-.001	-.010
NFC on DE via suppression	-.007	.009	-.796	.426	-.026	.010	-.007
NFC on DE via adaptive coping	-.038	.011	-3.448	.001	-.062	-.019	-.036
NFC on DE via maladaptive coping	-.036	.015	-2.49	.013	-.066	-.009	-.034
Total effect							
Total effect	-.128	.039	-3.318	.001	-.204	-.055	-.122

Note. $N = 642$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; DE:

Depersonalization subscale of the Maslach Burnout Inventory.

4. Discussion

The present study investigated the contributing role of NFC, an individuals' inclination to engage in and enjoy effortful cognitive activities (Cacioppo & Petty, 1982), in relation to the occurrence of burnout in healthcare workers. Burnout is a psychological, work-related stress syndrome that is especially high among this group (Hassan et al., 2020; Maslach, 2003). Here, not only the tough job strains that the healthcare sector entails but also the COVID-19 pandemic have led to an increased prevalence of burnout cases (Galanis et al., 2021; Lyndon, 2015; Prasad et al., 2021). Building on other studies, the present research questions derived from findings in which NFC appeared to protect against developing

burnout (Fleischhauer et al., 2019; Grass et al., 2018; Naderi et al., 2018; Zerna, Engelmann et al., 2022). Despite numerous studies on the syndrome, ambiguities remain regarding the specific mechanisms of action of NFC as a possible protective factor in the occurrence of burnout. Consequently, this investigation aimed to replicate a mediation model previously tested by Grass et al. (2018) and Zerna, Engelmann et al. (2022), reviewing their results among healthcare workers. The mediation analysis focussed on NFC as the predictor, the burnout subdimension rPE as outcome variable, and self-control, the emotion regulation strategies reappraisal and suppression, as well as adaptive and maladaptive coping strategies as mediators. Exploratory analyses were performed whereas, instead of rPE, the burnout subscales EE and DE were tested as outcome variables in the described mediation model. In the following sections, the discussion first presents all correlation and mediation analyses regarding rPE. This is followed by discussing the results of the correlation analyses for EE, and then DE. Finally, the mediation analyses for EE, followed by DE, are discussed.

Correlation Analyses of NFC, rPE, and the Mediators

Following the order of the hypotheses presented in the introduction, the results are sequentially discussed and compared with the current study's assumptions. The enumeration of the hypotheses as elaborated in the theory part is revisited here. Furthermore, it should be noted that based on the conducted correlation analysis, only assumptions about the influence and the direction of the influence of the variables on each other can be made.

NFC, rPE, and Self-Control

The first relationship examined is (1) the association between NFC and rPE. The observed correlation was slightly lower than expected ($\rho = -.19, p < .001$). Given that Zerna, Engelmann et al. (2022) reported a correlation of $\rho = -.20$ ($p < .01$), the result of the present study aligns with this prior work. Other investigations, such as those by Fleischhauer et al. (2019) and Grass et al. (2018), found medium to large correlations between both NFC and rPE. These discrepancies may arise from a methodological difference between this study and the investigation of Grass et al. (2018). Grass et al. (2018) used the student version *MBI-SS* from Gumz et al. (2013), while the present research refers to the *MBI-D* from Büssing and Perrar (1992). Nevertheless, taken together, the results of the present research provide further support to the idea that NFC might serve as a protective factor against rPE. As a result, heightened NFC may decrease the risk of developing burnout and its associated symptoms in healthcare worker. Conversely, since a correlational analysis was computed, it remains possible that an individual's level of rPE may negatively influence their ability to intensely engage with or elaborate matters.

The (2) association between NFC and self-control revealed a large positive correlation, which was higher than expected. However, a similar relationship was found by Bertrams and Dickhäuser (2012), Nishiguchi et al. (2016) as well as Strobel et al. (2021), who also discovered a large positive correlation between these variables. A possible explanation for this unexpected finding could be the field of healthcare that often demands higher self-control, for example, due to its heavy work strains and time constraints (Lyndon, 2015). However, it is important to emphasize that this interpretation is speculative and has to be stressed with further research. Nevertheless, the result underlines NFC as an indicator for an individual's inclination to engage in self-control.

Further, in terms of self-control, (3) our results did not confirm the hypothesized large negative correlation between self-control and rPE. Instead, a small negative correlation emerged, aligning more closely with the findings of Zerna, Engelmann et al. (2022). This finding is unlike the results of several other studies. Grass et al. (2018), Bughi et al. (2017), and Duru et al. (2014) found large negative relationships between self-control and rPE. Moreover, the study by Hoff et al. (2022) revealed a large negative association between self-control and burnout. The discrepancies when comparing the results of other authors to the current investigations could possibly stem from variations in sample characteristics and contextual factors. Again, the dynamics of the healthcare environment might make it more challenging for enhanced self-control to effectively reduce rPE. However, despite the smaller correlation observed in the present study, it remains reasonable that strengthening self-control capabilities could positively impact the reduction of rPE among healthcare professionals.

NFC, rPE, and the Emotion Regulation Strategies Reappraisal and Suppression

Regarding emotion regulation strategies, (4) the correlation between rPE and reappraisal met the expectations, showing a medium negative relationship. Furthermore, Bing et al. (2022) found a medium negative correlation between reappraisal and burnout, whereby Martín-Brufau et al. (2020) reported a large negative relation. However, our result ($\rho = -.29, p < .001$) closely aligns with the large negative correlation that Grass et al. (2018) reported. This underscores that individuals who frequently use reappraisal strategies may be more likely to experience lower levels of rPE. Further, (5) the assumption of the relation between rPE and suppression also corresponds with our expectation, revealing no significant relationship. This is consistent with the work of Zerna, Engelmann et al. (2022), Claponea and Iorga (2023), and Martín-Brufau et al. (2020). The result suggests that a perceived loss of one's achievements at work is not necessarily associated with inhibiting emotional reactions. Therefore, suppressing emotions may not lead to in- or decreased rPE, and vice versa.

Nevertheless, future studies should examine whether such an association can be ruled out both in general and in people from the healthcare sector.

In terms of emotion regulation strategies and their relation to NFC, (6) the correlation between NFC and reappraisal was surprising. A small positive association was hypothesized, yet no significant correlation was found. This contrasts with the findings of from Grass et al. (2018), Zerna, Engelmann et al. (2022), and Karagiannopoulou et al. (2022), who all reported a medium positive correlation between these variables. One explanation could be the high-pressure healthcare setting, which may limit how effectively individuals employ reappraisal. Even those with a natural inclination toward reflective and thoughtful processing (i.e., high NFC) might, under severe stress, resort to more automatic, less controlled responses. This could have diminished the observed relationship between NFC and reappraisal. Again, future research might explore other variables unique to healthcare, that could enlighten the conditions under which NFC promotes effective use of reappraisal. Despite this, the results of the present study (7) confirmed the absence of a relationship between NFC and suppression, as previously noted by Grass et al. (2018) and Karagiannopoulou et al. (2022), though not by Zerna, Engelmann et al. (2022). Hence, it seems likely that any expression of NFC does not influence one's use of suppression.

NFC, rPE, and Adaptive and Maladaptive Coping Strategies

Finally, the correlations of adaptive as well as maladaptive coping strategies with NFC and rPE are discussed. First, (8) in the case of NFC and adaptive coping, the observed small positive correlation differed from the assumed medium positive correlation. This result diverges from the medium positive correlation found in Grass et al. (2018) and Bye and Pushkar (2009), and further from the large positive correlation found in Hoff et al. (2022). The unexpected small correlation may arise from specific dynamics in the field of healthcare. For instance, job strains, such as time constraints (Lyndon, 2015), may lead to a decline in opportunities to invest in adaptive coping strategies. Nevertheless, our result still suggests that those with high NFC might be more inclined to engage in adaptive coping – even if this population showed small, instead of an assumed medium positive correlation.

Second, (9) the relation between NFC and maladaptive coping demonstrated a large negative correlation, which is larger than the expected small negative relationship. Other studies, such as those by Grass et al. (2018), revealed a small negative association between these variables, while Hoff et al. (2022) found a medium negative correlation between NFC and emotional coping. Hence, the present result suggests that high-NFC individuals might be less prone to adopting maladaptive coping strategies than expected. Again, the conditions of

healthcare professionals may lead an individual to not only to less adaptive but also reduced maladaptive coping compared to other work environments. However, it needs to be emphasized that this assumption is speculative and should be reviewed by further studies. Currently, the results only allow inferences about the present sample.

Another outcome that diverges from the assumed correlation is (11) the relation between rPE and maladaptive coping. Unlike the expected large positive correlation, no association was found in this study. However, small to large positive correlations were shown in other research, such as in the studies by Li et al. (2014), Vizoso et al. (2019), and Grass et al. (2018). In contrast, the investigation by Palupi and Findyartini (2019) demonstrated no relationship between rPE and maladaptive coping. This may indicate that the use of maladaptive coping strategies does not affect the onset of the burnout dimension rPE, or conversely, that the expression of rPE does not influence one's utilization of maladaptive coping strategies.

The discrepancies between our results and our expectations for hypotheses (8), (9), and (11) could also have arisen due to various reasons. One explanation could be traced back to methodical differences in the assessment of coping. Thus, an insufficient theoretical framework, especially concerning the relationships between adaptive and maladaptive coping and NFC, combined with incomplete findings in the field of healthcare for these variables, might have led to inaccurate assumptions regarding this relationship. Further, the maladaptive coping scale's internal consistency, as measured by MacDonald's Omega ω , was questionable. Thus, any conclusions drawn from maladaptive coping results should be made with caution. Subsequent research is important to define and assess these relationships more accurately.

After all, considering (10) the relationship between rPE and adaptive coping, a large negative correlation was found, which confirmed our hypotheses. This is in line with the findings of Grass et al. (2018), Vizoso et al. (2019), and Palupi and Findyartini (2019), thereby reinforcing the consistency of this relationship across various contexts. Li et al. (2014) found a correlation of $r = .27$ ($p < .01$) between these variables, further corroborating the current findings. Hence, the results underline the idea that individuals who engage in adaptive coping may be protected against developing rPE. Conversely, those with increased rPE levels may have less adaptive coping abilities. This could stem from the circumstance that individuals with low rPE have greater capacities for engaging in adaptive coping compared to those with high rPE expression. Regarding future investigations, further studies

are required to confirm this relation across various demographics on the one hand as well as in the field of healthcare on the other.

Replication of the Mediation Model with rPE as Outcome Variable

In the following section, (12) the mediation model with rPE as the outcome variable is discussed. Since the mediation model with control variables included did not differ substantially from the model without control variables, the subsequent discussion refers to both. Moreover, as Zerna, Engelmann et al. (2022) did not assess coping strategies, the current findings are predominantly compared with those of Grass et al. (2018). While the mediation model demonstrated a good fit, not all patterns were replicated, confirming our hypotheses only in part. Regarding the direct effects within the mediation model, NFC had a positive association with self-control, reappraisal, and adaptive coping, consistent with our assumptions. The negative associations observed were the direct effects of NFC on both rPE and maladaptive coping. Hereby, the effect of NFC on rPE was not replicated, contradicting our hypothesis that this effect would be fully mediated. In contrast, the negative direct effect of NFC on maladaptive coping was as expected. Other observed negative relations included the effects of reappraisal and adaptive coping on rPE, supporting the assumed hypotheses. Further, a positive effect of maladaptive coping on rPE was expected, yet maladaptive coping did not affect rPE. Other variables that were not related included self-control with rPE, and suppression with both NFC and rPE, which aligns our hypotheses. Accordingly, in this mediation model, the direct effect of NFC on rPE was partly mediated by reappraisal and adaptive coping.

These findings emphasize that especially the emotion regulation strategy reappraisal and adaptive coping strategies play an important role in reducing rPE, not just among teacher students as in Grass et al. (2018) and Zerna, Engelmann et al. (2022), but also among healthcare workers. Consequently, individuals who are inclined to effortful thinking seem to reframe situations positively may cope in more adaptive and sustainable ways – accordingly, the probability of burnout development appears to be reduced. Cacioppo et al. (1996) already suggested that experiences in which challenges were overcome through the use of cognitive effort can have a positive influence on the development of adaptive coping strategies. Furthermore, the conclusions of Strobel et al. (2017) pointed out that evaluating life events as beneficial for personal growth may improve well-being as well as mental health. Despite the current findings, it is surprising that maladaptive coping did not mediate the effect of NFC on rPE. This may be attributed to the scale's low reliability and the choice to measure adaptive and maladaptive coping strategies instead of active and passive coping, as done by Grass et

al. (2018). This could have had a crucial impact on the results. Therefore, future investigations are needed to clarify these relations. Regarding the unexpected effect of NFC on rPE, it can be suggested that in this specific sample, the underlying mechanisms and influencing variables are of a different nature. Perhaps healthcare workers benefit from a deeper elaboration of contexts and situations, leading to a less pronounced feeling of declined capabilities – a link that was already made by Fleischhauer et al. (2019) in different demographics. Alternatively, other influencing variables not considered in the current model might mediate the direct impact of NFC on rPE. Again, further exploration is required to gain deeper insight into the underlying mechanisms.

Overall, the discrepancies between the findings of Grass et al. (2018) and those of the present analysis suggest that different factors influence the burnout subdimension rPE in healthcare workers compared to teacher students. Within the demanding work environment of healthcare professions, the reappraisal of thoughts and active coping strategies seems especially relevant in dealing with job stressors. In comparison, for student teachers, not only adaptive coping and reappraisal but also maladaptive coping might influence rPE (Grass et al., 2018). This distinction might arise from different demands faced by healthcare staff versus university students. For instance, students possibly have more opportunities, allowing them to avoid maladaptive coping due to fewer constraints, such as those related to time scheduling (Demirdağ, 2021). Consequently, enhancing these regulatory strategies is mandatory for supporting healthcare workers' mental well-being. This could involve periodically educating the staff about strategies to manage stress. Alternatively, even more effective could be providing opportunities for adaptive coping during work hours as a part of occupational safety measures implemented by healthcare facilities.

Exploratory Analyses

In this section the results of the exploratory research questions are discussed. Initially, the correlations concerning the relationships of EE and DE with the variables NFC, self-control, reappraisal, suppression, adaptive coping, and maladaptive coping are examined. Subsequently, the mediation analyses regarding EE and DE as outcome variables are reviewed. Because the values of the models with control variables differ marginally from those without control variables, both models are addressed in the discussion.

Correlation Analyses

Emotional Exhaustion. The findings of the present study revealed small negative correlations of EE with NFC and reappraisal, differing from other investigations. For instance, Grass et al. (2018) and Fleischhauer et al. (2019) found no correlation between EE

and NFC. Regarding EE and reappraisal, no association was revealed by Chang (2020) as well as Zerna, Engelmann et al. (2022), whereas Grass et al. (2018) identified a medium negative correlation. The results of the current research may imply that individuals with higher expressions in these variables tend to have lower EE, suggesting these factors could function preventively against developing EE. A possible explanation for this relationship might be the positive effect that NFC generally has on health outcomes and well-being (Strobel et al., 2017, 2021), which could consequently apply to EE as well. Thus, those with higher NFC scores may use cognitive strategies more effectively to manage workplace challenges. When examining the relationship between reappraisal and EE, our data suggests that individuals who reinterpret adverse events more positively might feel less emotionally depleted. However, it is important to emphasize that causal inferences cannot be drawn from correlational analyses; whether higher levels of EE decrease one's ability to engage in NFC and reappraisal, or vice versa, remains speculative. Another negative correlation was found between adaptive coping and EE. The present analysis discovered a large negative relationship, whereby Grass et al. (2018) revealed a medium negative correlation, and Vizoso et al. (2019) found a small negative association. These outcomes suggest that adaptive coping may offer more protection against developing EE. Conversely, higher levels of EE might hinder the ability to engage in constructive methods for managing stress. However, this finding is supported by the medium positive correlation shown between EE and maladaptive coping, aligning with the small positive correlation revealed by Grass et al. (2018) and the large positive correlation shown in the study of Vizoso et al. (2019). This implies that using ineffective strategies to deal with stressors might intensify feelings of emotional exhaustion. Conversely, high levels of EE could lead individuals more to maladaptive coping strategies. Indeed, especially the interpretation concerning maladaptive coping should be treated cautiously due to potential bias from the scale's low reliability.

Finally, no correlations were found between EE and self-control, as well as the emotion regulation strategy suppression. Concerning EE and self-control, other analyses revealed heterogeneous findings, with no correlation in Grass et al. (2018), but medium to large negative associations in Zerna, Engelmann et al. (2022) and Duru et al. (2014). Hence, according to the present result, avoiding or holding back emotional responses might not lead to feelings of emotional fatigue, and vice versa. Furthermore, the association between EE and suppression aligns with findings by Zerna, Engelmann, et al. (2022), but not with the small positive association found by Grass et al. (2018), nor the correlation of $r = .09$ ($p < .05$) seen in Chang (2020). The current finding suggest no influence of restraining the expressions of

emotions on EE. In reverse, feeling emotionally drained does not seem to influence one's suppression.

Depersonalization. In the context of DE, no correlation was found between NFC and DE, implying that the tendency to enjoy thinking might not play a role in feelings of estrangement from one's work or clients. The result corresponds with those from Grass et al. (2018) and Fleischhauer et al. (2019). Moreover, there was also no significant association between DE and self-control, suggesting that impulse control might not affect the emergence of depersonalization, and the other way around. In this regard, Grass et al. (2018) also found no relation, whereas Zerna, Engelmann et al. (2018) as well as Duru et al. (2014) showed a large negative correlation. In respect of emotion regulation strategies, a small negative correlation was observed between DE and reappraisal, aligning with Chang (2020), but not with Grass et al. (2018) and Zerna, Engelmann et al. (2018), who discovered no relationship. Concerning DE and suppression, a medium positive relation was calculated, verifying the results of Chang (2020) and Grass et al. (2018). However, Zerna, Engelmann et al. (2022) identified a small positive correlation between DE and suppression. Nevertheless, similar to the findings with EE, these results suggest that using reappraisal might be protective against feelings of DE, while suppression could exacerbate them. Additionally, a medium negative correlation was observed between DE and adaptive coping, and a small positive correlation between DE and maladaptive coping. Regarding adaptive coping and DE, Vizoso et al. (2019) and Grass et al. (2018) found small to medium negative correlations. In contrast, with DE and maladaptive coping, the observations from other studies differ notably from our findings. Vizoso et al. (2019) revealed a small negative relationship, whereas Grass et al. (2018) showed a large positive association. Again, the reliability issues of maladaptive coping scale make it difficult to interpret and compare these outcomes with other research. Nonetheless, the relationship patterns with both adaptive and maladaptive coping closely mirror those found with EE, emphasizing the central role of coping strategies in the manifestation of burnout symptoms. In conclusion, it is also important to emphasize again that causal conclusions cannot be derived from these correlational analyses, which is why further research is essential to substantiate the findings.

Mediation Analyses

Emotional Exhaustion. Looking at (13) the relationship of NFC and EE, the variables adaptive and maladaptive coping fully mediated the effect in both the mediation model without and with control variables (age, marital status). However, NFC seemed to positively influence self-control and reappraisal, while suppression also affected EE. Again,

the results suggest that those who have the propensity to enjoy cognitive processing appear to be more likely to employ adaptive coping strategies and avoid maladaptive ones. Adaptive coping strategies emerged to function protective by developing EE. One plausible explanation for the observed result could be that when individuals emotionally and mentally distance themselves from stressors through active stress management techniques, it may result in at least a transient reduction in feelings of being emotionally drained. Conversely, maladaptive coping seems to be a risk factor when it comes to an increased level of EE. For example, increased alcohol and cigarette consumption could, in fact, exacerbate stress (Blaine et al., 2016; So-Hyung et al., 2015), leaving individuals more susceptible to feelings of emotional depletion. In contrast to rPE, reappraisal did not mediate the relationship between NFC and the outcome variable. One explanation for this result might lie in the circumstance that a feeling of being emotionally worn out may not be related to reinterpreting one's situation positively. In summary, the influence of NFC on EE appears to function differently compared to the burnout subdimension rPE. In this context, reappraisal loses its mediating role, while maladaptive coping becomes significant in avoiding feelings of being emotionally depleted. Hence, adaptive coping seems to maintain its potentially protecting function against burnout symptoms. Again, promoting the mental well-being of healthcare workers by enhancing adaptive and reducing maladaptive regulation mechanisms should be focused on. Moreover, future investigations should further examine underlying influences of EE.

Depersonalization. In examining the mediation model that evaluates (14) the suspected influence of NFC on the burnout dimension of DE, adaptive and maladaptive coping emerged as mediators in both the model without and the model with control variables (gender, age). Additionally, reappraisal occurred as another variable that mediated the effect of NFC on DE. Further, NFC directly influenced self-control positively, while suppression had a positive direct effect on DE. Therefore, heightened NFC appeared to possibly prevent feelings of estrangement from one's work or clients, as increased NFC leads to more reappraisal and adaptive coping and less maladaptive coping. This, in turn, seems to reduce the extent of DE. A possible explanation for the suspected health-promoting effects of a higher propensity to engage with complex matters on the variables observed could be that both beneficial and detrimental coping strategies are more likely to be recognized as such and, consequently, are applied more or less. The reasons why reappraisal and adaptive coping appeared to act as resources against developing DE may partly stem from the circumstance that adaptive coping strategies, such as conversations with close ones, potentially lead to more empathy towards others - thereby possibly reducing cynical emotions towards clients.

On the other hand, according to the present results, an intensified cognitive engagement with certain situations could also lead a person to employ less maladaptive coping, thereby experiencing reduced additional psychological strain (Blaine et al., 2016; So-Hyung et al., 2015). This reduced strain may in turn lead to a decreased need to emotionally distance oneself from individuals within the work environment. From a practical standpoint, burnout prevention efforts could be enhanced by cultivating emotion regulation strategies, like reevaluating one's thoughts about a situation positively and strengthen adaptive coping strategies while reducing maladaptive ones. To better implement health-protective interventions, further studies should examine the interaction among these variables concerning individuals employed in the health sector. However, to draw more accurate and valid conclusions, it is also necessary here that the results should be verified with further studies.

Limitations and Future Implications

Regarding the limitations of this study, even though the mediation model has been tested in other investigations (e.g., Grass et al., 2018; Zerna, Engelmann et al., 2022), the present study employs a cross-sectional design. Longitudinal data would provide a more suitable framework to account for causality or track changes over time. This is especially noteworthy for the correlation analysis and its corresponding interpretations. Moreover, the findings are based on self-reported data, which might cause biases such as social desirability or other response tendencies that potentially decrease the validity. Yet relying on individual perceptions can be reasonable, since they may serve as stronger predictors of subsequent behavior than their actual objective measures (Haefel & Howard, 2010). Further, collecting data online may be disadvantageous. For instance, individuals without internet access might be excluded, and there is less control over potential confounding variables, like background noise and distractions. Since the data for this study originate from two distinct investigations – one conducted in 2018 and the other in 2019 – these datasets were collected at two different points in time. This might influence comparability and potentially introduce temporal biases not addressed in the current research. Another criticism concerns the exclusion of the subject who identifies as gender-diverse from those mediation models, that included gender as control variable. This not only limits the generalizability of the findings but also diminishes the inclusivity of this investigation. For future research, it's imperative to adopt a more inclusive sampling approach, including participants across various gender identities. Enhanced inclusivity will not only enrich the study's findings but will also ensure that the results are representative of the broader population. What further needs to be pointed out is

that the control variables used in this study differed from those used in the replicated studies (Grass et al., 2018; Zerna, Engelmann et al., 2022), potentially affecting the comparability of results. Finally, the assessment of coping possibly influenced the quality of the study. Here, the assumptions of the current investigation are predominantly based on a theoretical framework that focuses on active and passive coping strategies, and not on adaptive and maladaptive coping. Even though a transfer of these constructs is reasonable, direct transfer of the hypotheses and comparison of the results is challenging. Moreover, the maladaptive coping scale showed a questionable internal consistency. This limitation should be considered when interpreting the findings related to maladaptive coping, as the potential measurement error could influence the results. Future research might consider refining the scale, possibly by revisiting item wording, adding new items, or removing those that do not contribute to a more cohesive and reliable measurement of the maladaptive coping construct.

5. Conclusion

The present study extends research concerning NFC and its influence on burnout. Within this context, further investigations in NFC's relation to self-control, emotion regulation strategies such as reappraisal and suppression, and adaptive and maladaptive coping strategies were conducted. The aim was to replicate and expand upon the studies of Grass et al. (2018) and Zerna, Engelmann et al. (2022) with a sample of healthcare professionals. Investigating burnout among individuals employed in healthcare is highly important, especially given the challenging working conditions that intensified during the COVID-19 pandemic. In sum, the primary findings corroborate the trend seen in previous results, indicating that NFC positively correlates with self-control and adaptive coping. There were negative associations primarily with maladaptive coping and the burnout dimensions of reduced personal efficacy and emotional exhaustion. Additionally, the results of the multiple mediation models suggest that NFC may have a protective effect against burnout development through various mediators. In this regard, reappraisal appeared to mitigate the occurrence of reduced personal efficacy and depersonalization. Additionally with the mediator adaptive coping, the results suggest that the motivation to cognitively process more complex thoughts seems to lead to a greater tendency to cope adaptively with problems and stress, which in turn exerted a protective influence against the onset of reduced personal efficacy, emotional exhaustion, and depersonalization. Furthermore, maladaptive coping arose as another contributor to explaining the occurrence of burnout, with higher NFC scores being associated with less maladaptive coping, which in turn resulted in lower levels of emotional exhaustion and depersonalization. However, due to the questionable reliability of

the scale, these findings should be interpreted with caution. This study is, to our knowledge, the first to test these specific mediations on a sample of healthcare professionals. Thus, future research should aim to further explore the interrelations and mechanisms of these variables within this sample while integrating a certain focus on individuals who identify their gender as diverse. Contrary to previous findings, the present healthcare sample showed that not only reduced personal efficacy but also emotional exhaustion and depersonalization appeared to be influenced by NFC, emotion regulation and coping strategies, whereby the specific role of maladaptive coping needs further examination. Practically, to alleviate severe risks concerning burnout development, protective workplace measures might be considered, especially those that create space for adaptive coping strategies and promote such strategies among staff.

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Supplemental Material

Table S1. *Descriptive statistics of the professions (outliers included)*

Profession	Absolute quantity	Percentage (%)
Nurse	297	46.26
Physician	17	2.65
Psychologist, medical psychotherapist, child and adolescent psychotherapist	54	8.41
Social worker/Social pedagogue	63	9.81
Chaplain/Deacon	18	2.80
Management/Coordination	103	16.04
Other therapeutic professions (e.g., occupational therapist, speech therapist, gerontologist etc.)	15	2.34
Assistant professions (e.g., nursing or physician assistant etc.)	27	4.21
Caring/Supporting professions (e.g., curative education nurse)	12	1.87
Other positions (e.g., federal voluntary service, retired volunteer etc.)	7	1.09
Persons in training or study	29	4.52

Note. $N = 642$.

Table S2. *Spearman correlations and internal consistencies of the questionnaire scores outliers excluded*

		1	2	3	4	5	6	7	8	9	10	11	12
1	MBI	.91 (.88)											
2	MBI rPE	.68**	.81 (.74)										
3	MBI EE	.89**	.42**	.94 (.90)									
4	MBI DE	.68**	.38**	.41**	.89 (.78)								
5	NFC	-.19**	-.19**	-.18**	-.07	.91 (.85)							
6	SCS	-.16*	-.18**	-.14	-.08	.57**	.79 (.72)						
7	ERQ	-.06	-.14	-.05	.01	.04	.00	.79 (.66)					
8	ERQ R	-.23**	-.29**	-.14	-.18**	.06	.07	.73**	.85 (.79)				
9	ERQ S	.2**	.11	.13	.26**	-.00	-.07	.63**	-.02	.80 (.75)			
10	SCI	-.34**	-.34**	-.28**	-.21**	.04	-.01	.18**	.35**	-.15*	.79 (.72)		
11	SCI A	-.43**	-.39**	-.36**	-.27**	.14	.08	.16*	.36**	-.18**	.93**	.85 (.79)	
12	SCI MA	.22**	.10	.22**	.15*	-.3**	-.27**	.03	-.02	.07	.24**	-.10	.63 (.48)

Notes. $N = 625$. Results were corrected according to the Bonferroni-Holm procedure. Values in bold: All significant results with $p < .01$. MBI: Maslach Burnout Inventory; MBI rPE: Reduced personal efficacy subscale; MBI EE: Emotional exhaustion subscale; MBI DE: Depersonalisation subscale; NFC: Need for Cognition Scale; SCS: Self Control Scale; ERQ: Emotion Regulation Questionnaire; ERQ R: Reappraisal subscale; ERQ S: Suppression subscale; SCI: Stress and Coping Inventory; SCI A: Adaptive coping subscales; SCI MA: Maladaptive coping subscale. $*p < .01$, $**p < .001$. Diagonal is MacDonald's Omega and Cronbach's Alpha (in brackets).

Table S3. *Results of the replication of Grass et al. (2018) – Mediation model with rPE as the outcome variable outliers excluded (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.529	.03	17.932	.000	.47	.585	.599
NFC on reappraisal	.091	.039	2.346	.019	.02	.172	.101
NFC on suppression	-.031	.044	-.707	.48	-.122	.055	-.03
NFC on adaptive coping	.158	.034	4.676	.000	.09	.224	.187
NFC on maladaptive coping	-.376	.044	-8.476	.000	-.462	-.29	-.33
NFC on rPE (controlled for mediators)	-.098	.041	-2.382	.017	-.179	-.017	-.112
Self-control on rPE	-.055	.051	-1.08	.28	-.154	.046	-.056
Reappraisal on rPE	-.154	.042	-3.684	.000	-.242	-.074	-.159
Suppression on rPE	.054	.034	1.589	.112	-.015	.123	.065
Adaptive coping on rPE	-.311	.049	-6.288	.000	-.405	-.211	-.3
Maladaptive coping on rPE	-.002	.031	-.06	.952	-.064	.057	-.002
Indirect effects							
NFC on rPE via self-control	-.029	.027	-1.076	.282	-.081	.025	-.033
NFC on rPE via reappraisal	-.014	.007	-1.912	.056	-.031	-.003	-.016
NFC on rPE via suppression	-.002	.003	-.558	.577	-.009	.003	-.002
NFC on rPE via adaptive coping	-.049	.012	-4.002	.000	-.075	-.026	-.056
NFC on rPE via maladaptive coping	-.001	.012	.06	.952	-.022	.024	-.001
Total effect							
Total effect	-.192	.034	-5.646	.000	-.26	-.128	-.218

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; rPE: Reduced personal efficacy subscale of the Maslach Burnout Inventory.

Table S4. *Results of the replication of Grass et al. (2018) – Mediation model with rPE as the outcome variable outliers included (control variable age included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.505	.029	17.422	.000	.448	.561	.596
NFC on reappraisal	.080	.037	2.171	.030	.008	.153	.093
NFC on suppression	-.002	.045	-.041	.967	-.089	.092	-.002
NFC on adaptive coping	.136	.033	4.098	.000	.071	.203	.168
NFC on maladaptive coping	-.283	.034	-8.295	.000	-.350	-.216	-.327
NFC on rPE (controlled for mediators)	-.090	.036	-2.494	.013	-.159	-.024	-.114
Self-control on rPE	-.041	.045	-.901	.368	-.131	.049	-.044
Reappraisal on rPE	-.114	.037	-3.060	.002	-.187	-.041	-.125
Suppression on rPE	.049	.029	1.672	.095	-.008	.105	.066
Adaptive coping on rPE	-.350	.050	-7.032	.000	-.446	-.252	-.361
Maladaptive coping on rPE	.003	.033	.098	.922	-.065	.065	.004
Indirect effects							
NFC on rPE via self-control	-.021	.023	-.902	.367	-.066	.025	-.026
NFC on rPE via reappraisal	-.009	.005	-1.759	.078	-.021	-.001	-.012
NFC on rPE via suppression	-.000	.003	-.035	.972	-.005	.005	-.000
NFC on rPE via adaptive coping	-.048	.013	-3.643	.000	-.074	-.023	-.061
NFC on rPE via maladaptive coping	-.001	.010	-.097	.923	-.019	.019	-.001
Total effect							
Total effect	-.168	.031	-5.442	.000	-.228	-.109	-.214

Note. *N* = 642; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; rPE: Reduced personal efficacy subscale of the Maslach Burnout Inventory.

Table S5. *Results of the replication of Grass et al. (2018) – Mediation model with rPE as the outcome variable outliers excluded (control variable age included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.525	.031	17.159	.000	.465	.586	.594
NFC on reappraisal	.078	.039	2.014	.044	.000	.154	.086
NFC on suppression	-.000	.044	-.009	.993	-.087	.089	-.000
NFC on adaptive coping	.135	.035	3.854	.000	.063	.203	.159
NFC on maladaptive coping	-.373	.045	-8.349	.000	-.460	-.285	-.331
NFC on rPE (controlled for mediators)	-.102	.042	-2.423	.015	-.185	-.017	-.117
Self-control on rPE	-.056	.050	-1.125	.261	-.152	.043	-.056
Reappraisal on rPE	-.154	.041	-3.729	.000	-.237	-.075	-.159
Suppression on rPE	.057	.034	1.675	.094	-.011	.124	.068
Adaptive coping on rPE	-.313	.049	-6.374	.000	-.406	-.218	-.302
Maladaptive coping on rPE	-.002	.031	-.063	.949	-.061	.060	.003
Indirect effects							
NFC on rPE via self-control	-.029	.026	-1.117	.264	-.081	.023	-.033
NFC on rPE via reappraisal	-.012	.007	-1.733	.083	-.028	-.000	-.014
NFC on rPE via suppression	-.000	.003	-.007	.994	-.007	.006	-.000
NFC on rPE via adaptive coping	-.042	.012	-3.589	.000	-.066	-.020	-.048
NFC on rPE via maladaptive coping	.001	.012	.063	.950	-.023	.023	.001
Total effect							
Total effect	-.185	.034	-5.423	.000	-.252	-.120	-.211

Note. *N* = 625; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; rPE: Reduced personal efficacy subscale of the Maslach Burnout Inventory.

Table S6. *Mediation model with EE as the outcome variable outliers excluded (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.529	.030	17.719	.000	.471	.588	.599
NFC on reappraisal	.091	.038	2.427	.015	.018	.166	.101
NFC on suppression	-.031	.043	-.732	.464	-.114	.056	-.03
NFC on adaptive coping	.158	.033	4.751	.000	.093	.223	.187
NFC on maladaptive coping	-.376	.045	-8.285	.000	-.463	-.286	-.330
NFC on EE (controlled for mediators)	-.073	.049	-1.492	.136	-.168	.027	-.076
Self-control on EE	-.045	.053	-.852	.394	-.152	.057	-.042
Reappraisal on EE	-.011	.045	-.257	.798	-.095	.080	-.011
Suppression on EE	.070	.036	1.979	.048	-.002	.138	.077
Adaptive coping on EE	-.336	.047	-7.146	.000	-.429	-.247	-.296
Maladaptive coping on EE	.133	.035	3.797	.000	.063	.202	.156
Indirect effects							
NFC on EE via self-control	-.024	.028	-.850	.396	-.081	.030	-.025
NFC on EE via reappraisal	-.001	.004	-.239	.811	-.010	.008	-.001
NFC on EE via suppression	-.002	.004	-.625	.532	-.011	.004	-.002
NFC on EE via adaptive coping	-.053	.013	-4.046	.000	-.081	-.030	-.055
NFC on EE via maladaptive coping	-.050	.015	-3.375	.001	-.079	-.021	-.052
Total effect							
Total effect	-.203	.037	-5.428	.000	-.279	-.127	-.212

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; EE: emotional exhaustion subscale of the Maslach Burnout Inventory.

Table S7. *Mediation model with EE as the outcome variable outliers included (control variables age and marital status included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.507	.030	16.854	.000	.449	.565	.598
NFC on reappraisal	.081	.036	2.241	.025	.008	.156	.095
NFC on suppression	-.006	.044	-.137	.891	-.093	.079	-.006
NFC on adaptive coping	.143	.033	4.340	.000	.078	.207	.176
NFC on maladaptive coping	-.288	.034	-8.467	.000	-.357	-.220	-.330
NFC on EE (controlled for mediators)	-.080	.047	-1.703	.089	-.171	.016	-.085
Self-control on EE	-.037	.054	-.682	.495	-.144	.067	-.033
Reappraisal on EE	-.007	.043	-.164	.869	-.092	.079	-.006
Suppression on EE	.069	.033	2.054	.040	.002	.134	.077
Adaptive coping on EE	-.347	.047	-7.437	.000	-.443	-.259	-.299
Maladaptive coping on EE	.158	.043	3.642	.000	.073	.242	.145
Indirect effects							
NFC on EE via self-control	-.019	.028	-.679	.497	-.074	.034	-.020
NFC on EE via reappraisal	-.001	.004	-.147	.883	-.009	.008	-.001
NFC on EE via suppression	-.000	.003	-.125	.901	-.008	.006	-.000
NFC on EE via adaptive coping	-.050	.013	-3.752	.000	-.078	-.026	-.053
NFC on EE via maladaptive coping	-.045	.014	-3.242	.001	-.075	-.020	-.048
Total effect							
Total effect	-.195	.038	-5.193	.000	-.269	-.119	-.207

Note. $N = 642$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; EE: Emotional exhaustion subscale of the Maslach Burnout Inventory.

Table S8. *Mediation model with EE as the outcome variable outliers excluded (control variables age, marital status, and profession included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.516	.031	16.436	.000	.456	.579	.585
NFC on reappraisal	.074	.041	1.814	.070	-.006	.155	.082
NFC on suppression	-.007	.045	-.146	.884	-.099	.083	-.006
NFC on adaptive coping	.146	.036	4.067	.000	.075	.216	.172
NFC on maladaptive coping	-.377	.046	-8.192	.000	-.466	-.287	-.334
NFC on EE (controlled for mediators)	-.058	.05	-1.152	.249	-.158	.039	-.060
Self-control on EE	-.045	.053	-.853	.394	-.152	.057	-.042
Reappraisal on EE	-.008	.044	-.189	.850	-.098	.076	-.008
Suppression on EE	.086	.036	2.383	.017	.015	.154	.094
Adaptive coping on EE	-.331	.049	-6.797	.000	-.429	-.237	-.292
Maladaptive coping on EE	.137	.035	3.951	.000	.068	.205	.161
Indirect effects							
NFC on EE via self-control	-.023	.028	-.846	.398	-.080	.030	-.024
NFC on EE via reappraisal	-.001	.004	-.166	.868	-.009	.006	-.001
NFC on EE via suppression	-.001	.004	-.135	.892	-.010	.008	-.001
NFC on EE via adaptive coping	-.048	.014	-3.480	.001	-.076	-.023	-.050
NFC on EE via maladaptive coping	-.052	.015	-3.395	.001	-.083	-.024	-.054
Total effect							
Total effect	-.182	.039	-4.64	.000	-.260	-.103	-.190

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; EE: Emotional exhaustion subscale of the Maslach Burnout Inventory.

Table S9. *Mediation model with DE as the outcome variable outliers excluded (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.529	.029	18.061	.000	.473	.590	.599
NFC on reappraisal	.091	.038	2.434	.015	.021	.169	.101
NFC on suppression	-.031	.043	-.735	.463	-.114	.055	-.030
NFC on adaptive coping	.158	.033	4.735	.000	.093	.225	.187
NFC on maladaptive coping	-.376	.045	-8.275	.000	-.464	-.289	-.333
NFC on DE (controlled for mediators)	-.035	.059	-.590	.555	-.157	.083	-.030
Self-control on DE	-.001	.069	-.018	.985	-.138	.136	-.001
Reappraisal on DE	-.127	.052	-2.445	.014	-.231	-.028	-.101
Suppression on DE	.229	.041	5.518	.000	.148	.307	.210
Adaptive coping on DE	-.248	.056	-4.428	.000	-.356	-.134	-.183
Maladaptive coping on DE	.110	.039	2.799	.005	.032	.186	.108
Indirect effects							
NFC on DE via self-control	-.001	.037	-.018	.985	-.072	.072	-.001
NFC on DE via reappraisal	-.012	.007	-1.748	.080	-.027	-.001	-.010
NFC on DE via suppression	-.007	.010	-.712	.477	-.028	.012	-.006
NFC on DE via adaptive coping	-.039	.012	-3.236	.001	-.066	-.018	-.034
NFC on DE via maladaptive coping	-.041	.016	-2.58	.010	-.075	-.012	-.036
Total effect							
Total effect	-.135	.044	-3.096	.002	-.223	-.050	-.118

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; DE:

Depersonalization subscale of the Maslach Burnout Inventory.

Table S10. *Mediation model with DE as the outcome variable and one outlier excluded
(control variables age and sex included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.507	.030	16.861	.000	.446	.564	.597
NFC on reappraisal	.077	.036	2.140	.032	.007	.147	.090
NFC on suppression	-.016	.044	-.356	.722	-.098	.075	-.015
NFC on adaptive coping	.138	.034	4.054	.000	.071	.202	.170
NFC on maladaptive coping	-.287	.033	-8.695	.000	-.350	-.219	-.332
NFC on DE (controlled for mediators)	-.033	.051	-.644	.520	-.132	.067	-.031
Self-control on DE	.003	.062	.045	.964	-.113	.129	.002
Reappraisal on DE	-.120	.048	-2.499	.012	-.217	-.025	-.098
Suppression on DE	.176	.037	4.773	.000	.101	.247	.178
Adaptive coping on DE	-.233	.051	-4.561	.000	-.328	-.129	-.180
Maladaptive coping on DE	.119	.046	2.608	.009	.029	.210	.098
Indirect effects							
NFC on DE via self-control	.001	.031	.045	.964	-.059	.066	.001
NFC on DE via reappraisal	-.009	.006	-1.62	.105	-.022	-.000	-.009
NFC on DE via suppression	-.003	.008	-.349	.727	-.019	.013	-.003
NFC on DE via adaptive coping	-.032	.010	-3.061	.002	-.055	-.014	-.030
NFC on DE via maladaptive coping	-.034	.014	-2.443	.015	-.064	-.008	-.033
Total effect							
Total effect	-.11	.040	-2.764	.006	-.187	-.029	-.105

Note. *N* = 641; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; DE: Depersonalization subscale of the Maslach Burnout Inventory.

Table S11. *Mediation model with DE as the outcome variable outliers excluded (control variables age and sex included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.526	.031	16.794	.000	.465	.587	.596
NFC on reappraisal	.076	.038	1.996	.046	.003	.152	.084
NFC on suppression	-.016	.044	-.365	.715	-.104	.068	-.015
NFC on adaptive coping	.136	.035	3.842	.000	.071	.207	.161
NFC on maladaptive coping	-.378	.045	-8.315	.000	-.463	-.285	-.335
NFC on DE (controlled for mediators)	-.028	.058	-.492	.623	-.144	.081	-.025
Self-control on DE	.002	.066	.030	.976	-.122	.138	.002
Reappraisal on DE	-.128	.052	-2.469	.014	-.229	-.027	-.101
Suppression on DE	.196	.041	4.785	.000	.114	.278	.180
Adaptive coping on DE	-.239	.055	-4.356	.000	-.347	-.127	-.177
Maladaptive coping on DE	.106	.038	2.764	.006	.033	.178	.104
Indirect effects							
NFC on DE via self-control	.001	.035	.030	.976	-.065	.073	.001
NFC on DE via reappraisal	-.010	.006	-1.583	.113	-.023	.000	-.009
NFC on DE via suppression	-.003	.009	-.353	.724	-.021	.015	-.003
NFC on DE via adaptive coping	-.033	.011	-2.946	.003	-.057	-.013	-.028
NFC on DE via maladaptive coping	-.040	.015	-2.585	.010	-.072	-.012	-.035
Total effect							
Total effect	-.113	.043	-2.599	.009	-.201	-.027	-.098

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; DE:

Depersonalization subscale of the Maslach Burnout Inventory.

Table S12. Mediation model with the total MBI score as the outcome variable (control variables not included)

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.509	.028	18.075	.000	.454	.566	.600
NFC on reappraisal	.089	.035	2.545	.011	.021	.157	.104
NFC on suppression	-.036	.043	-.823	.411	-.118	.050	-.034
NFC on adaptive coping	.158	.031	5.055	.000	.096	.220	.194
NFC on maladaptive coping	-.286	.033	-8.723	.000	-.348	-.221	-.330
NFC on MBI (controlled for mediators)	-.084	.037	-2.280	.023	-.155	-.016	-.099
Self-control on MBI	-.036	.043	-.827	.408	-.116	.053	-.036
Reappraisal on MBI	-.073	.036	-2.046	.041	-.141	-.001	-.074
Suppression on MBI	.109	.029	3.818	.000	.053	.166	.136
Adaptive coping on MBI	-.379	.042	-9.102	.000	-.454	-.297	-.361
Maladaptive coping on MBI	.112	.035	3.544	.000	.058	.193	.125
Indirect effects							
NFC on MBI via self-control	-.018	.022	-0.824	.410	-.060	.026	-.021
NFC on MBI via reappraisal	-.007	.004	-1.574	.115	-.016	.000	-.008
NFC on MBI via suppression	-.004	.005	-.780	.435	-.015	.005	-.005
NFC on MBI via adaptive coping	-.060	.013	-4.556	.000	-.087	-.035	-.070
NFC on MBI via maladaptive coping	-.035	.011	-3.176	.001	-.058	-.015	-.041
Total effect							
Total effect	-.207	.031	-6.672	.000	-.268	-.147	-.243

Note. *N* = 642; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; MBI: Total score of all subscales of the Maslach Burnout Inventory.

Table S13. *Mediation model with the total MBI score as the outcome variable outliers excluded (control variables not included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.529	.029	18.218	.000	.472	.588	.599
NFC on reappraisal	.091	.037	2.444	.015	.018	.167	.101
NFC on suppression	-.031	.043	-.734	.463	-.116	.053	-.030
NFC on adaptive coping	.158	.033	4.780	.000	.093	.224	.187
NFC on maladaptive coping	-.376	.044	-8.506	.000	-.463	-.286	-.333
NFC on MBI (controlled for mediators)	-.084	.037	-2.108	.035	-.163	-.005	-.093
Self-control on MBI	-.045	.045	-1.012	.311	-.135	.044	-.044
Reappraisal on MBI	-.089	.039	-2.271	.023	-.164	-.010	-.089
Suppression on MBI	.118	.030	3.942	.000	.060	.178	.136
Adaptive coping on MBI	-.365	.042	-8.708	.000	-.443	-.282	-.338
Maladaptive coping on MBI	.107	.028	3.761	.000	.050	.162	.132
Indirect effects							
NFC on MBI via self-control	-.024	.024	-1.007	.314	-.070	.024	-.026
NFC on MBI via reappraisal	-.008	.005	-1.594	.111	-.020	-.000	-.009
NFC on MBI via suppression	-.004	.005	-.702	.482	-.015	.006	-.004
NFC on MBI via adaptive coping	-.058	.013	-4.418	.000	-.084	-.032	-.063
NFC on MBI via maladaptive coping	-.040	.012	-3.369	.001	-.065	-.018	-.044
Total effect							
Total effect	-.218	.034	-6.360	.000	-.284	-.152	-.239

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; MBI: Total score of all subscales of the Maslach Burnout Inventory.

Table S14. Mediation model with the total MBI score as the outcome variable, one outlier excluded (control variables age and sex included)

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.507	.030	16.861	.000	.446	.564	.597
NFC on reappraisal	.077	.036	2.140	.032	.007	.147	.090
NFC on suppression	-.016	.044	-.356	.722	-.098	.075	-.015
NFC on adaptive coping	.138	.034	4.054	.000	.071	.202	.170
NFC on maladaptive coping	-.278	.033	-8.695	.000	-.350	-.219	-.332
NFC on MBI (controlled for mediators)	-.075	.038	-1.968	.049	-.148	.001	-.089
Self-control on MBI	-.036	.044	-.806	.420	-.123	.051	-.036
Reappraisal on MBI	-.071	.036	-1.977	.048	-.139	.002	-.072
Suppression on MBI	.112	.028	3.983	.000	.057	.167	.140
Adaptive coping on MBI	-.376	.041	-9.147	.000	-.457	-.296	-.358
Maladaptive coping on MBI	.125	.035	3.603	.000	.060	.197	.128
Indirect effects							
NFC on MBI via self-control	-.018	.023	-.803	.422	-.063	.026	-.021
NFC on MBI via reappraisal	-.005	.004	-1.434	.152	-.014	.001	-.006
NFC on MBI via suppression	-.002	.005	-.344	.731	-.012	.008	-.002
NFC on MBI via adaptive coping	-.052	.014	-3.747	.000	-.081	-.026	-.061
NFC on MBI via maladaptive coping	-.036	.011	-3.225	.001	-.059	-.016	-.042
Total effect							
Total effect	-.188	.034	-5.62	.000	-.253	-.118	-.221

Note. *N* = 641; *b*: unstandardized regression coefficient; *SE*: standard error; CI: confidence interval; β : standardized regression coefficient; NFC: Need for Cognition; MBI: total score of all subscales of the Maslach Burnout Inventory

Table S15. *Mediation model with the total MBI score as the outcome variable outliers excluded (control variable age included)*

Path	<i>b</i>	<i>SE_b</i>	<i>z</i> -value	<i>p</i> -value	CI lower	CI upper	β
Direct effects							
NFC on self-control	.525	.030	17.245	.000	.464	.584	.594
NFC on reappraisal	.078	.039	1.990	.047	.003	.157	.086
NFC on suppression	-.000	.045	-.009	.993	-.087	.088	-.000
NFC on adaptive coping	.135	.036	3.710	.000	.063	.202	.159
NFC on maladaptive coping	-.373	.046	-8.071	.000	-.460	-.281	-.331
NFC on MBI (controlled for mediators)	-.077	.042	-1.840	.066	-.155	.011	-.085
Self-control on MBI	-.044	.046	-.964	.335	-.135	.046	-.043
Reappraisal on MBI	-.088	.038	-2.310	.021	-.162	-.013	-.088
Suppression on MBI	.115	.032	3.621	.000	.052	.173	.132
Adaptive coping on MBI	-.361	.043	-8.441	.000	-.444	-.276	-.335
Maladaptive coping on MBI	.107	.030	3.551	.000	.048	.167	.132
Indirect effects							
NFC on MBI via self-control	-.023	.024	-.960	.337	-.072	.024	-.025
NFC on MBI via reappraisal	-.007	.005	-1.455	.146	-.018	.000	-.008
NFC on MBI via suppression	-.000	.005	-.008	.993	-.011	.010	-.000
NFC on MBI via adaptive coping	-.049	.014	-3.506	.000	-.077	-.022	-.053
NFC on MBI via maladaptive coping	-.040	.013	-3.17	.002	-.066	-.017	-.044
Total effect							
Total effect	-.196	.036	-5.506	.000	-.265	-.125	-.215

Note. $N = 625$; *b*: Unstandardized regression coefficient; *SE*: Standard error; CI: Confidence interval; β : Standardized regression coefficient; NFC: Need for Cognition; MBI: Total score of all subscales of the Maslach Burnout Inventory.

Statement of Authorship / Selbstständigkeitserklärung

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Selbstständigkeitserklärung

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