


Mindfulness buffers the adverse impact of need frustration on employee outcomes: A self-determination theory perspective

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Abstract

According to the job demands–resources model, job demands (or hindrances) can drain energy and yield physiological and psychological costs by requiring sustained physical and/or mental effort at work. Using self-determination theory, the current study examined the associations among role conflict (as a proxy for job demands), frustration of the basic psychological needs for autonomy, competence, and relatedness, mindfulness, and employees' health and work-related functioning. In line with hypotheses, the results revealed an indirect effect of role conflict on burnout, somatic symptom burden, and turnover intentions through basic psychological need frustration. Further, these indirect effects were moderated by mindfulness, such that the mediation by basic psychological need frustration was less evident among individuals who reported higher levels of mindfulness. Taken together, these findings contribute to a small but growing literature on the benefits of mindfulness in organizational settings.

1 | INTRODUCTION

According to the job demands–resources model (JD-R model; Bakker & Demerouti, 2007; Demerouti et al., 2001), role conflict is a job demand (or hindrance) that can drain energy and yield physiological and psychological costs by requiring sustained physical and/or mental effort at work. Past research has shown that job demands are associated with higher levels of burnout (Demerouti et al., 2001; Schaufeli & Bakker, 2004) and sickness absenteeism (Bakker, Demerouti, de Boer et al., 2003; Bakker, Demerouti, Schaufeli, 2003). Other research has shown that employee health is associated with higher levels of job performance (Wright et al., 2007) and competitive advantage (Grawitch et al., 2006), as well as lower levels of turnover (Wright & Bonett, 2007). To be sure, such consequences are costly for organizations. For instance, estimates suggest that absenteeism costs businesses between \$1.41 and \$1.64 billion per year in Norway (Solberg, 2013) and \$43.70 billion per year in the United States (Bureau of Labor

Statistics, 2014; Circadian, 2005). Hence, the importance of identifying job demands and tempering their salience in the workplace is readily apparent.

Nonetheless, certain job demands might be difficult—if not impossible—to avoid. With this reality in mind, it is important to identify psychological factors that can attenuate the adverse impact that job demands can have on employees' health and work-related functioning. One such factor is mindfulness, which recently has emerged in the organizational literature and has been associated with work-related outcomes (Dane & Brummel, 2013; Hülsheger et al., 2013; Leroy et al., 2013). Indeed, recent research has shown that mindfulness can reduce the experience of need frustration among employees who report that their manager is unsupportive of their basic psychological needs (Schultz et al., 2015). Job demands are likely to engender an experience of need frustration at work, and thus it is important to examine whether mindfulness can buffer against the adverse impact that need frustration can have on employees' health and work-related functioning.

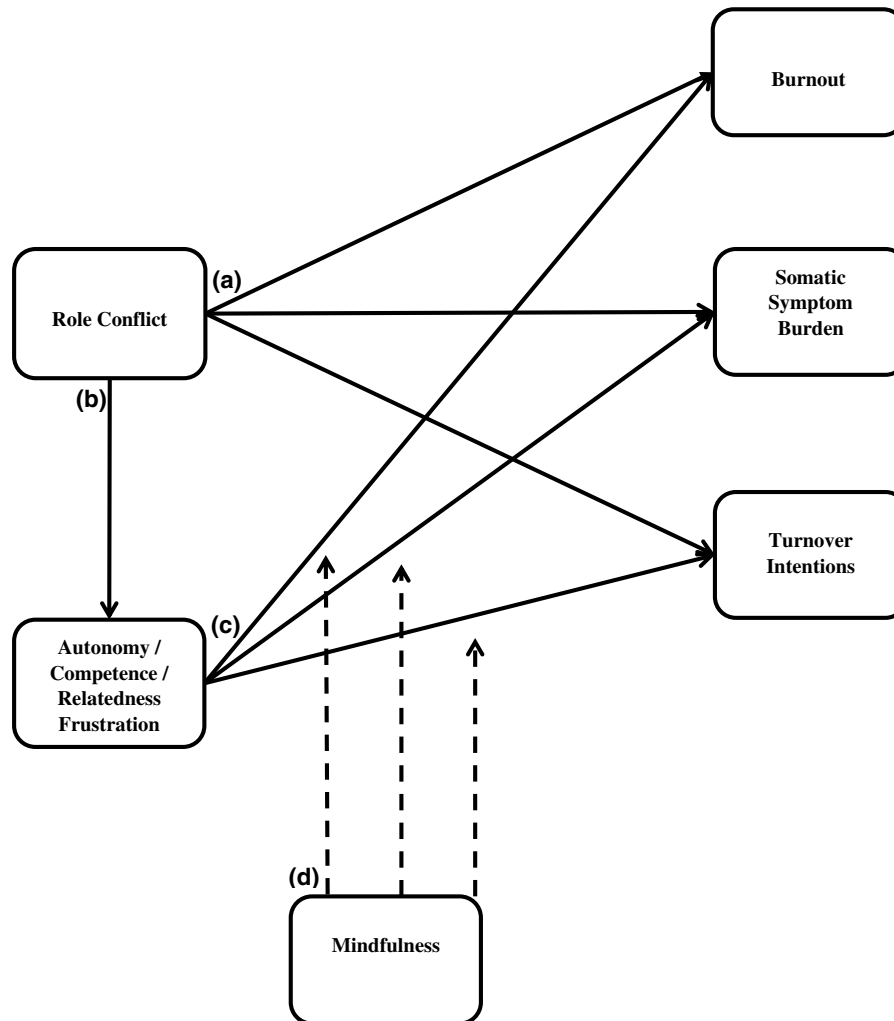


FIGURE 1 The proposed model for the current study

The focus of the current study, therefore, is threefold. First, it examines the detrimental consequences of role conflict (as a proxy for job demands) for the work-related outcomes of burnout, somatic symptom burden, and turnover intentions. Second, it examines the postulate—based on self-determination theory (SDT)—that frustration of the basic psychological needs for autonomy, competence, and relatedness can explain the association between job demands (such as role conflict) and the aforementioned work-related outcomes. Third, it examines the hypothesis that individual differences in mindfulness will attenuate the association between basic psychological need frustration and the aforementioned work-related outcomes. Combining these foci yields a conditional process model (moderated mediation) of employees' health and work-related functioning (see Figure 1). The first component of this model (labeled A) was that role conflict will be positively associated with burnout, somatic symptom burden, and turnover intentions. The second component (labeled B) was that role conflict will be positively associated with basic psychological need frustration. The third component (labeled C) was that basic psychological

need frustration will be positively associated with burnout, somatic symptom burden, and turnover intentions. The fourth component (labeled D) was that mindfulness will moderate the associations between basic psychological need frustration and burnout, somatic symptom burden, and turnover intentions, such that employees who experience higher levels of mindfulness will show weaker associations between basic psychological need frustration and burnout, somatic symptom burden, and turnover intentions. In other words, the mediation by basic psychological need frustration was expected to be less evident among individuals who report higher levels of mindfulness. As such, the current study contributes to an emerging but still relatively scarce literature on the benefits of mindfulness in organizational settings, and more importantly, it examines whether mindfulness can be of importance in coping with job demands that might yield adverse consequences due to basic psychological need frustration at work. The next section offers an overview of SDT, which will provide a theoretical and empirical context into which the proposed model for this study (see Figure 1) can be placed.

1.1 | Self-determination theory

SDT (Deci & Ryan, 2000; Ryan & Deci, 2017) is an organismic-dialectic approach to human motivation that has received empirical validation in the workplace (Deci et al., 2017) and in other life domains (see Ryan & Deci, 2017). At the core of SDT is the specification of three basic psychological needs for autonomy, competence, and relatedness (Ryan, 1995), the satisfaction of which is necessary for full, healthy functioning and organismic wellness (Deci & Ryan, 2000; Niemiec & Ryan, 2013). The need for *autonomy* (de Charms, 1968) refers to the experience of behavior as volitional, chosen, and enacted with a sense of reflective self-endorsement. The need for *competence* (White, 1959) refers to the experience of effectance, mastery, and skill development in behavioral pursuits. The need for *relatedness* (Baumeister & Leary, 1995) refers to the experience of mutual connection with, care for, and respect toward important others. Within SDT, these needs are theorized to be key psychological nutrients that are necessary for psychological growth and integrated functioning, as well as optimal motivation, performance, and well-being.

In the work domain, numerous studies have shown that employees who report higher levels of need satisfaction tend to report higher levels of optimal motivation (De Cooman et al., 2013), engagement (Deci et al., 2001), performance (Baard et al., 2004), and well-being (Van den Broeck et al., 2010), as well as lower levels of burnout (Fernet et al., 2013) and turnover intentions (Trépanier et al., 2015). In contrast, those who report higher levels of need frustration tend to report higher levels of stress (Olafsen et al., 2017), psychological complaints (Trépanier et al., 2015), counterproductive work behavior (Van den Broeck et al., 2014), and absenteeism (Schultz et al., 2015), as well as lower levels of engagement and performance (Trépanier, Forest, et al., 2015).

According to SDT, the social context in which an individual functions can have an impact on the satisfaction versus frustration of the person's basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2002). Interestingly, for several decades, job characteristics have been viewed as important social-contextual factors that can affect employees' motivation and work-related functioning (Hackman & Oldham, 1980; Karasek, 1979), and research has begun to examine the association between job characteristics and the satisfaction versus frustration of the basic psychological needs. For instance, job resources such as task autonomy, opportunities for skill utilization, supervisor support, and career opportunities have been found to be associated with higher levels of basic psychological need satisfaction (Olafsen & Halvari, 2017; Van den Broeck et al., 2008), whereas job demands such as task interruptions, role conflict, emotional demands, worrying, and work-home interference have been found to be associated with lower levels of basic psychological need satisfaction (Olafsen & Frølund, 2018; Van den Broeck et al., 2008) as well as higher levels of basic psychological need frustration (Trépanier, Forest, et al., 2015). Of most relevance to the current study, recent research has shown that role conflict is associated with higher levels

of basic psychological need frustration (Gillet et al., 2015) and that basic psychological need frustration is associated with higher levels of stress, burnout, somatic symptom burden, and turnover intentions (Olafsen et al., 2017; Schultz et al., 2015). Hence, job demands such as role conflict can trigger a process that leads to adverse consequences at work due to basic psychological need frustration—for example, it is likely that role conflict can leave an employee feeling incompetent.

The following hypotheses were specified based on the literature reviewed so far.

Hypothesis 1 *Role conflict will be positively associated with (a) burnout, (b) somatic symptom burden, and (c) turnover intentions.*

Hypothesis 2 *Role conflict will be positively associated with basic psychological need frustration.*

Hypothesis 3 *Basic psychological need frustration will be positively associated with (a) burnout, (b) somatic symptom burden, and (c) turnover intentions.*

Hypothesis 4 *There will be an indirect effect of role conflict on (a) burnout, (b) somatic symptom burden, and (c) turnover intentions through basic psychological need frustration.*

1.2 | The role of mindfulness

As stated above, it is important to identify psychological factors that can attenuate the adverse impact that job demands such as role conflict can have on employees' health and work-related functioning. One such factor is mindfulness, which is defined as a state of receptive attention to present experience (Brown & Ryan, 2003). The experience of mindfulness—both as a trait and as a state—has received considerable theoretical focus within the psychological literature over the last two decades, and research has shown that mindfulness is associated with various positive indicators of performance and wellness (for a review, see Brown et al., 2007). To explain the beneficial correlates associated with mindfulness, scholars have suggested that individuals who are higher in mindfulness can view events more objectively and dispassionately (Shapiro et al., 2006; Weinstein et al., 2009), are more effective in regulating their thoughts, feelings, and physiological responses (Lakey et al., 2007), and demonstrate enhanced cognitive flexibility and executive functioning (Zeidan et al., 2010).

In the work domain, studies have shown that employees who report higher levels of mindfulness tend to report higher levels of satisfaction (Hülshager et al., 2013), engagement (Leroy et al., 2013), and performance (Dane & Brummel, 2013), as well as lower levels of burnout (Hülshager et al., 2013; Narayanan & Moynihan, 2006; Olafsen, 2017) and turnover intentions (Dane & Brummel, 2013; Olafsen, 2017). Most germane to the current study, recent research has shown that mindfulness can buffer against the adverse impact of an unsupportive work environment. More specifically, employees who are higher in mindfulness are less likely to experience basic psychological need frustration in

response to an unsupportive manager (Schultz et al., 2015), which is important because basic psychological need frustration was associated with higher levels of burnout, turnover intentions, and absenteeism in that study.

Building on this research, the current study investigated the moderating role of mindfulness. In contrast to the work of Schultz et al. (2015), the current study examined moderation by mindfulness of the association between basic psychological need frustration and employees' health and work-related functioning (*second stage moderation*). Although job demands (such as role conflict) can frustrate the basic psychological needs for autonomy, competence, and relatedness, the consequences of such frustration might be less severe among individuals who are higher in mindfulness. Indeed, within SDT, mindfulness is characterized as an "allowing" form of awareness (Deci et al., 2015) in which the ego is "quieted" (Niemiec et al., 2008) and attention is laid bare as a simple witness to internal and external events as they occur—without cognitive distortion or defense (Brown et al., 2008). Such awareness is thought to facilitate choice and authenticity (Ryan et al., 2012) and, accordingly, is expected to mitigate the defensive tendency to convert basic psychological need frustration into compromised health and work-related functioning among employees.

In sum, because mindfulness affords a more objective, dispassionate view of events (Shapiro et al., 2006; Weinstein et al., 2009) that is marked by reflectivity (Narayanan & Moynihan, 2006) and clarity of mind, individuals who report higher levels of mindfulness might be less likely to feel burnt out, experience physical complaints, and desire to leave the organization in response to basic psychological need frustration that stems from role conflict at work. Hence, variations in mindfulness have the potential to shed light on why some employees preserve their health and work-related functioning in demanding organizational contexts, whereas others do not.

The following hypotheses were specified based on the literature reviewed in this section.

Hypothesis 5 *Mindfulness will moderate the associations between basic psychological need frustration and (a) burnout, (b) somatic symptom burden, and (c) turnover intentions.*

Hypothesis 6 *The indirect effect of role conflict on (a) burnout, (b) somatic symptom burden, and (c) turnover intentions through basic psychological need frustration will be less evident among individuals who report higher levels of mindfulness.*

In the current study, all hypotheses were tested using each *individual* basic psychological need—in separate analyses—rather than a composite score based on the three needs. Such an approach was recommended by Van den Broeck et al. (2016), as little previous research has examined the *frustration* (rather than *satisfaction*) of autonomy, competence, and relatedness in separate analyses. Although frustration of each of the three needs is theorized to yield comparable adverse consequences for burnout, somatic symptom burden, and turnover intentions, it is important

not only to document these associations in separate analyses but also to determine whether mindfulness moderates each of these hypothesized associations.

2 | METHOD

2.1 | Participants and procedure

As described elsewhere (Olafsen, 2017; Olafsen et al., 2017), participants were 267 (205 female, 60 male, and two unspecified) unit leaders who worked in the Norwegian health care system. This sample of managers was of interest in this study because these employees are responsible for allocating resources to advanced medical care requirements while providing cost-effective services. To be sure, limited resources (viz., tight annual budgets, personnel who might not be able to fulfill roles that are required for adequate service) can leave managers "stuck" between a confluence of requests, obligations, staff issues, and cost limitations while trying to deliver quality health care to their patients (Nilsen et al., 2016). Indeed, such factors offer an intriguing context for an examination of role conflict at work.

An electronic questionnaire was sent to—what were at that time—the 428 municipalities in Norway, and unit leaders from 133 municipalities in all 19 counties in Norway were represented in the sample. A large percentage of participants were between 50 and 59 years of age (40.8%), whereas the remainder were 29 years of age or younger (0.7%), between 30 and 39 years of age (12.4%), between 40 and 49 years of age (33.3%), 59 years of age or older (12.4%), and of unspecified ages (0.4%). A majority of participants worked in rural municipalities (56.6%), whereas the remainder worked in urban municipalities (42.7%) or at unspecified locations (0.7%). As well, a large percentage of participants worked at home-based care units (43.8%), whereas the remainder worked at institutions (36.0%) or at unspecified units (20.2%).

2.2 | Measures

2.2.1 | Role conflict

The role conflict subscale of the Role Conflict and Ambiguity Questionnaire (Rizzo et al., 1970) assessed role conflict at work (eight items; I receive an assignment without adequate resources and materials to execute it). Responses were made on a 7-point scale from 1 (*totally disagree*) to 7 (*totally agree*). The reliability for this measure was $\alpha = .84$.

2.2.2 | Basic psychological need frustration

The Psychological Needs Thwarting Scale (Bartholomew et al., 2011) was adapted for the work context and assessed

personal experiences at work regarding frustration of autonomy (four items; I feel forced to agree with job decisions made for me), competence (four items; I feel inadequate because I am not given opportunities to fulfill my potential), and relatedness (four items; I feel other people dislike me). Responses were made on a 5-point scale from 1 (*totally disagree*) to 5 (*totally agree*). The reliability for autonomy frustration was $\alpha = .83$. The reliability for competence frustration was $\alpha = .85$. The reliability for relatedness frustration was $\alpha = .78$.

2.2.3 | Mindfulness

The Mindful Attention Awareness Scale (Brown & Ryan, 2003) assessed mindfulness (five items; I rush through activities without being really attentive to them). Responses were made on a 6-point scale from 1 (*almost never*) to 6 (*almost always*). The reliability for this measure was $\alpha = .76$.

2.2.4 | Burnout

The Maslach Burnout Inventory (Maslach et al., 1996) assessed personal experiences at work regarding emotional exhaustion (five items; I feel emotionally drained from my work), personal accomplishment (six items; I have accomplished many worthwhile things in this job), and cynicism (five items; I doubt the significance of my work). Responses were made on a 7-point scale from 1 (*never*) to 7 (*always*). A composite measure was created as the average of the raw-score (nonstandardized) assessments of emotional exhaustion and cynicism minus the raw-score (nonstandardized) assessment of personal accomplishment. The reliability for this composite measure was $\alpha = .82$.

2.2.5 | Somatic symptom burden

The Patient Health Questionnaire-15 (Kroenke et al., 2002) assessed somatic symptom burden (15 items; headaches) during the past 4 weeks. Responses were made on a 3-point scale from 1 (*not bothered*) to 2 (*somewhat bothered*) to 3 (*strongly bothered*). The reliability for this measure was $\alpha = .83$.

2.2.6 | Turnover intentions

One measure assessed current thinking about turnover (O'Driscoll & Beehr, 1994—three items; I plan to look for a new job over the next 12 months), and one measure assessed thinking about turnover during the past year (Luchak & Gellatly, 2007—three items; during the past year, I have regularly had thoughts of quitting). Responses were made on a 7-point scale from 1 (*never*) to 7 (*always*). A composite measure was created as the average of the two raw-score

(nonstandardized) assessments of turnover intentions. The reliability for this composite measure was $\alpha = .95$.

2.3 | Analytic overview

Hypotheses were tested based on the analytic methods discussed by Preacher and colleagues (Preacher & Hayes, 2008; Preacher et al., 2007) using the PROCESS MACRO version 3.0 for SPSS (Hayes, 2018). More specifically, analyses relevant to simple mediation (based on Preacher & Hayes, 2008) were used to test Hypotheses 1–4, and analyses relevant to moderated mediation (based on Preacher et al., 2007) were used to test Hypotheses 5 and 6. In these analyses, 95% confidence intervals were calculated based on 5,000 bootstrapped resamples in order to avoid issues of statistical power due to asymmetry and non-normal sampling distributions of the indirect effects (cf. MacKinnon et al., 2004).

3 | RESULTS

3.1 | Preliminary analyses

Table 1 presents means, standard deviations, ranges, and intercorrelations for the study variables. Multivariate analyses of variance (MANOVAs) were performed on the study variables to examine whether these variables are associated with demographic factors (viz., gender, urban vs. rural municipality, and home-based care vs. institution) reported by the participants. No demographic factors had significant multivariate associations with the study variables, and thus no demographic factors were modeled as covariates in the primary analyses.

3.2 | Primary analyses relevant to simple mediation

Hypothesis 1 posited that role conflict will be positively associated with (a) burnout, (b) somatic symptom burden, and (c) turnover intentions. This prediction was supported, as role conflict related positively to burnout ($B_s = .23/.24/.24$, all $ps < .001$, in the analyses using frustration of autonomy, competence, and relatedness, respectively), somatic symptom burden ($B_s = .10/.10/.10$, all $ps < .001$, in the analyses using frustration of autonomy, competence, and relatedness, respectively), and turnover intentions ($B_s = .42/.42/.39$, all $ps < .001$, in the analyses using frustration of autonomy, competence, and relatedness, respectively).

Hypothesis 2 posited that role conflict will be positively associated with basic psychological need frustration. This prediction was supported, as role conflict related positively to autonomy frustration ($B_s = .37/.36/.35$, all $ps < .001$, in the analyses using burnout, somatic symptom burden, and turnover intentions, respectively), competence frustration ($B_s = .34/.34/.34$, all $ps < .001$, in the analyses using burnout, somatic symptom burden, and turnover intentions,

TABLE 1 Means, standard deviations, ranges, and intercorrelations for the study variables

Variable	M	SD	Range	1	2	3	4	5	6	7	8
1. Role conflict	3.80	1.21	1.00–6.63	–							
2. Autonomy frustration	2.19	.78	1.00–4.75	.54***	–						
3. Competence frustration	2.31	.80	1.00–5.00	.52***	.68***	–					
4. Relatedness frustration	1.64	.63	1.00–4.00	.37***	.48***	.53***	–				
5. Mindfulness	4.51	.67	2.20–6.00	–.48***	–.47***	–.47***	–.26***	–			
6. Burnout	–.31	.62	–1.53–2.33	.45***	.52***	.54***	.40***	–.56***	–		
7. Somatic symptom burden	1.32	.28	1.00–2.50	.42***	.42***	.44***	.35***	–.43***	.63***	–	
8. Turnover intentions	2.35	1.28	1.00–7.00	.39***	.45***	.39***	.27***	–.38***	.57***	.45***	–
<i>Measures of burnout</i>											
Emotional exhaustion	2.48	1.03	1.00–6.40								
Personal accomplishment	5.41	.72	3.33–7.00								
Cynicism	2.01	.84	1.00–6.60								
<i>Measures of turnover intentions</i>											
Turnover intentions (current)	2.61	1.33	1.00–7.00								
Turnover intentions (past year)	2.10	1.34	1.00–7.00								

* $p < .05$; ** $p < .01$; *** $p < .001$.

respectively), and relatedness frustration ($B_s = .17/.19/.19$, all $p < .001$, in the analyses using burnout, somatic symptom burden, and turnover intentions, respectively).

Hypothesis 3 posited that basic psychological need frustration will be positively associated with (a) burnout, (b) somatic symptom burden, and (c) turnover intentions. This prediction was supported, as autonomy frustration related positively to burnout ($B = .33$, $p < .001$), somatic symptom burden ($B = .11$, $p < .001$), and turnover intentions ($B = .54$, $p < .001$); competence frustration related positively to burnout ($B = .33$, $p < .001$), somatic symptom burden ($B = .11$, $p < .001$), and turnover intentions ($B = .40$, $p < .001$); and relatedness frustration related positively to burnout ($B = .29$, $p < .001$), somatic symptom burden ($B = .11$, $p < .001$), and turnover intentions ($B = .37$, $p < .01$).

Hypothesis 4 posited that there will be an indirect effect of role conflict on (a) burnout, (b) somatic symptom burden, and (c) turnover intentions through basic psychological need frustration. This prediction was supported, as role conflict had an indirect effect on burnout through autonomy frustration ($B = .12$, 95% CI: .07, .19), competence frustration ($B = .11$, 95% CI: .07, .17), and relatedness frustration ($B = .05$, 95% CI: .02, .09); role conflict had an indirect effect on somatic symptom burden through autonomy frustration ($B = .04$, 95% CI: .02, .21), competence frustration ($B = .04$, 95% CI: .02, .06), and relatedness frustration ($B = .02$, 95% CI: .01, .04); and role conflict had an indirect effect on turnover intentions through autonomy frustration ($B = .19$, 95% CI: .10, .28), competence frustration

($B = .14$, 95% CI: .06, .22), and relatedness frustration ($B = .07$, 95% CI: .02, .14). Table 2 presents results from the primary analyses relevant to simple mediation.

3.3 | Primary analyses relevant to moderated mediation

Hypothesis 5 posited that mindfulness will moderate the associations between basic psychological need frustration and (a) burnout, (b) somatic symptom burden, and (c) turnover intentions. This prediction was supported, as mindfulness moderated the associations between autonomy frustration and burnout ($B = -.16$, $p = .002$), somatic symptom burden ($B = -.08$, $p = .002$), and turnover intentions ($B = -.39$, $p < .001$); mindfulness moderated the associations between competence frustration and burnout ($B = -.18$, $p < .001$), somatic symptom burden ($B = -.06$, $p = .028$), and turnover intentions ($B = -.29$, $p = .011$); and mindfulness moderated the associations between relatedness frustration and burnout ($B = -.22$, $p < .001$), somatic symptom burden ($B = -.08$, $p = .011$), and turnover intentions ($B = -.44$, $p = .002$).

Hypothesis 6 posited that the indirect effect of role conflict on (a) burnout, (b) somatic symptom burden, and (c) turnover intentions through basic psychological need frustration will be less evident among individuals who report higher levels of mindfulness. This prediction was partially supported, as mindfulness moderated

TABLE 2 Results from the primary analyses relevant to simple mediation

IV	MV	DV	N	IV to MV (a path)		MV to DV (b path)		IV to DV (c path)		IV to DV (c' path)		Point estimate and confidence intervals for the indirect effect			
				B	SE _B	B	SE _B	B	SE _B	B	SE _B	B	SE _B	B	SE _B
Role conflict	Autonomy frustration	Burnout	218	.37***	.04	.33***	.06	.23***	.03	.11**	.04	.12	.03	.0655	.1866
Role conflict	Competence frustration	Burnout	217	.34***	.04	.33***	.05	.24***	.03	.12***	.03	.11	.02	.0675	.1652
Role conflict	Relatedness frustration	Burnout	214	.17***	.03	.29***	.06	.24***	.03	.19***	.03	.05	.02	.0189	.0901
Role conflict	Autonomy frustration	Somatic symptom burden	229	.36***	.04	.11***	.03	.10***	.01	.06***	.02	.04	.01	.0162	.2081
Role conflict	Competence frustration	Somatic symptom burden	227	.34***	.04	.11***	.02	.10***	.01	.06***	.02	.04	.01	.0183	.0586
Role conflict	Relatedness frustration	Somatic symptom burden	223	.19***	.03	.11***	.03	.10***	.01	.08***	.01	.02	.01	.0067	.0382
Role conflict	Autonomy frustration	Turnover intentions	252	.35***	.03	.54***	.11	.42***	.06	.23***	.07	.19	.05	.1036	.2847
Role conflict	Competence frustration	Turnover intentions	250	.34***	.04	.40***	.11	.42***	.06	.28***	.07	.14	.04	.0572	.2242
Role conflict	Relatedness frustration	Turnover intentions	247	.19***	.03	.37**	.13	.39***	.06	.32***	.07	.07	.03	.0151	.1383

Note: Unstandardized regression coefficients (Bs) are reported.

Abbreviations: DV, dependent variable; IV, independent variable; MV, mediator variable; UL, upper limit of the confidence interval for the indirect effect.

p* < .05; *p* < .01; ****p* < .001.

TABLE 3 Results from the primary analyses relevant to moderated mediation—autonomy frustration

Predictors	Burnout (N = 231)			Somatic symptom burden (N = 223)			Turnover intentions (N = 245)					
	B	SE _B	t	B	SE _B	t	B	SE _B	t			
Intercept	-1.09	.61	-1.78	.59	.31	1.90	-1.56	1.34	-1.17			
Role conflict	.05	.03	1.58	.04	.02	2.51*	.17	.07	2.34*			
Autonomy frustration	.95	.23	4.14***	.44	.12	3.82***	2.20	.50	4.40***			
Mindfulness	.01	.12	.08	.08	.06	1.33	.50	.27	1.82			
Autonomy frustration × mindfulness	-.16	.05	-3.18**	-.08	.03	-3.22**	-.39	.11	-3.57***			
Direct, indirect, and total effects	Effect	SE_B	LL	UL	Effect	SE_B	LL	UL	Effect	SE_B	LL	UL
Direct effect of role conflict	.05	.35	-.0136	.1206	.04	.02	.0088	.0740	.17	.07	.0261	.3066
<i>Conditional effect of autonomy frustration</i>												
Mindfulness: Low (3.80)	.35	.06	.2234	.4712	.38	.06	.2644	.5004	.72	.13	.4570	.9811
Mindfulness: Moderate (4.60)	.22	.05	.1151	.3257	.24	.05	.1426	.3312	.41	.11	.1868	.6290
Mindfulness: High (5.20)	.13	.06	-.0013	.2519	.13	.06	.0120	.2435	.17	.14	.2039	.4444
<i>Conditional indirect effect of role conflict through autonomy frustration</i>												
Mindfulness: Low (3.80)	.13	.03	.0634	.1907	.05	.02	.0166	.0781	.26	.05	.1488	.3584
Mindfulness: Moderate (4.60)	.08	.03	.0363	.1345	.03	.01	.0049	.0479	.15	.04	.0676	.2271
Mindfulness: High (5.20)	.05	.03	-.0063	.1072	.01	.01	-.0152	.0333	.06	.05	-.0285	.1530

Note: Unstandardized regression coefficients (Bs) are reported. LL = lower limit of the confidence interval for the indirect effect. UL = upper limit of the confidence interval for the indirect effect. The conditional effect is calculated by $b_1 + b_3W$, where b_1 is the path from autonomy frustration (from the dependent variable model), b_3 is the path from the interaction of autonomy frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), and W is mindfulness. The conditional indirect effect is calculated by $a(b_1 + b_3W)$, where b_1 is the path from autonomy frustration (from the dependent variable model), b_3 is the path from the interaction of autonomy frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), W is mindfulness, and a is the path from role conflict to burnout/somatic symptom burden/turnover intentions (from the dependent variable model). If the 95% bias corrected bootstrapped confidence interval does not include zero, then $p < .05$ (two-tailed).

* $p < .05$; ** $p < .01$; *** $p < .001$.

the indirect effect of role conflict on burnout through autonomy frustration ($B = -.06$, 95% CI: $-.10, -.003$), competence frustration ($B = -.06$, 95% CI: $-.10, -.01$), and relatedness frustration ($B = -.04$, 95% CI: $-.07, -.01$); mindfulness moderated the indirect effect of role conflict on somatic symptom burden through autonomy frustration ($B = -.03$, 95% CI: $-.05, -.001$) but not through competence frustration ($B = -.02$, 95% CI: $-.04, .01$) or relatedness frustration ($B = -.02$, 95% CI: $-.03, .001$); and mindfulness moderated the indirect effect of role conflict on turnover intentions through autonomy frustration ($B = -.14$, 95% CI: $-.21, -.05$), competence frustration ($B = -.10$, 95% CI: $-.19, -.002$), and relatedness frustration ($B = -.08$, 95% CI: $-.15, -.01$). Tables 3–5 present results from the primary analyses relevant to moderated mediation.

4 | DISCUSSION

Using SDT, the current study examined the associations among role conflict, frustration of the basic psychological needs for autonomy, competence, and relatedness, mindfulness, and employees' health and work-related functioning. In line with hypotheses, the results revealed an indirect effect of role conflict on burnout, somatic symptom burden, and turnover intentions through basic psychological need frustration. Further, these indirect effects were moderated by mindfulness, such that the mediation by basic psychological need frustration was less evident among individuals who reported higher levels of mindfulness. Taken together, these findings contribute to a small but growing literature on the benefits of mindfulness in

TABLE 4 Results from the primary analyses relevant to moderated mediation—competence frustration

Predictors	Burnout (N = 212)			Somatic symptom burden (N = 209)			Turnover intentions (N = 243)					
	B	SE _B	t	B	SE _B	t	B	SE _B	t			
Intercept	−1.59	.64	−2.48*	.77	.33	2.32*	−.49	1.45	−.34			
Role conflict	.07	.03	2.03*	.04	.02	2.74*	.22	.07	3.11**			
Competence frustration	1.07	.23	4.62***	.34	.12	2.86**	1.62	.52	3.09**			
Mindfulness	.09	.13	.72	.04	.07	.57	.27	.29	.93			
Competence frustration × mindfulness	−.18	.05	−3.62***	−.06	.03	2.21*	−.29	.11	−2.56*			
Direct, indirect, and total effects	Effect	SE_B	LL	UL	Effect	SE_B	LL	UL	Effect	SE_B	LL	UL
Direct effect of role conflict	.07	.03	.0020	.1294	.04	.02	.0124	.0762	.22	.07	.0822	.3655
<i>Conditional effect of competence frustration</i>												
Mindfulness: Low (3.80)	.43	.07	.2858	.5743	.12	.03	.0642	.1850	.51	.13	.2466	.7778
Mindfulness: Moderate (4.60)	.26	.05	.1491	.3654	.08	.02	.0312	.1265	.28	.11	.0656	.4927
Mindfulness: High (5.20)	.13	.07	−.0034	.2587	.05	.03	−.0140	.1030	.10	.13	−.1586	.3673
<i>Conditional indirect effect of role conflict through competence frustration</i>												
Mindfulness: Low (3.80)	.08	.02	.0361	.1201	.04	.02	.0104	.0732	.18	.06	.0628	.2931
Mindfulness: Moderate (4.60)	.05	.01	.0188	.0779	.03	.01	.0084	.0482	.10	.04	.0167	.1860
Mindfulness: High (5.20)	.02	.02	−.0048	.0561	.02	.01	−.0060	.0381	.04	.05	−.0602	.1400

Note: Unstandardized regression coefficients (Bs) are reported. LL = lower limit of the confidence interval for the indirect effect. UL = upper limit of the confidence interval for the indirect effect. The conditional effect is calculated by $b_1 + b_3W$, where b_1 is the path from competence frustration (from the dependent variable model), b_3 is the path from the interaction of competence frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), and W is mindfulness. The conditional indirect effect is calculated by $a(b_1 + b_3W)$, where b_1 is the path from competence frustration (from the dependent variable model), b_3 is the path from the interaction of competence frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), W is mindfulness, and a is the path from role conflict to burnout/somatic symptom burden/turnover intentions (from the dependent variable model). If the 95% bias corrected bootstrapped confidence interval does not include zero, then $p < .05$ (two-tailed).

* $p < .05$; ** $p < .01$; *** $p < .001$.

organizational settings. Theoretical and practical implications are discussed in the following sections.

4.1 | Theoretical implications

Past research has documented the detrimental impact that role conflict can have on employees' physical and psychological health (Fisher & Gitelson, 1983; Glazer & Beehr, 2005; Jackson & Schuler, 1985), and role conflict has been characterized as a job demand (or hindrance) that drains employees' energy (Demerouti et al., 2001). In line with considerable theory and research from the JD-R model, the current study revealed positive associations between role conflict at work and burnout, somatic symptom burden, and turnover intentions among employees. Of note, role conflict contributed to

experiences of basic psychological need frustration, which explained the associations between role conflict and employees' health and work-related functioning. As such, these findings contribute to a burgeoning literature that explains the impact of job characteristics on employee outcomes using the concept of basic psychological needs within SDT.

The results of the current study suggest that job demands such as role conflict can drain employees of their psychological energy through frustration of the basic psychological needs for autonomy, competence, and relatedness, which can undermine the health and functioning of employees and organizations alike. Interestingly, one antidote to this process that was identified in the current study is mindfulness. Of importance, the results of the current study suggest that mindfulness can buffer against the adverse impact that need frustration can have on employees' health and work-related

TABLE 5 Results from the primary analyses relevant to moderated mediation—relatedness frustration

Predictors	Burnout (N = 209)			Somatic symptom burden (N = 217)			Turnover intentions (N = 240)					
	B	SE _B	t	B	SE _B	t	B	SE _B	t			
Intercept	-1.03	.59	-1.75	.81	.30	2.69**	-.26	1.34	-.20			
Role conflict	.09	.03	2.93**	.05	.02	3.15**	.21	.07	2.04**			
Relatedness frustration	1.25	.29	4.36***	.47	.15	3.18***	2.31	.66	3.52***			
Mindfulness	-.02	.12	.89	.03	.06	.60	.27	.27	1.00			
Relatedness frustration × mindfulness	-.22	.06	-3.52***	-.08	.03	-2.56*	-.44	.14	-3.08**			
Direct, indirect, and total effects	Effect	SE _B	LL	UL	Effect	SE _B	LL	UL	Effect	SE _B	LL	UL
Direct effect of role conflict	.09	.03	.0305	.1555	.05	.02	.0185	.0806	.09	.03	.0305	.1555
<i>Conditional effect of relatedness frustration</i>												
Mindfulness: Low (3.80)	.38	.06	.2644	.5004	.16	.04	.0861	.2315	.38	.06	.2644	.5004
Mindfulness: Moderate (4.60)	.24	.05	.1426	.3312	.09	.03	.0399	.1488	.24	.05	.1426	.3312
Mindfulness: High (5.20)	.13	.06	.0120	.2435	.05	.04	-.0207	.1127	.13	.06	.0120	.2435
<i>Conditional indirect effect of role conflict through relatedness frustration</i>												
Mindfulness: Low (3.80)	.13	.03	.0708	.1881	.03	.01	.0084	.0501	.13	.03	.0708	.1881
Mindfulness: Moderate (4.60)	.08	.02	.0455	.1213	.02	.01	.0047	.0332	.08	.02	.0455	.1213
Mindfulness: High (5.20)	.04	.02	.0036	.0878	.01	.01	-.0047	.0263	.04	.02	.0036	.0878

Note: Unstandardized regression coefficients (Bs) are reported. LL = lower limit of the confidence interval for the indirect effect. UL = upper limit of the confidence interval for the indirect effect. The conditional effect is calculated by $b_1 + b_3W$, where b_1 is the path from relatedness frustration (from the dependent variable model), b_3 is the path from the interaction of relatedness frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), and W is mindfulness. The conditional indirect effect is calculated by $a(b_1 + b_3W)$, where b_1 is the path from relatedness frustration (from the dependent variable model), b_3 is the path from the interaction of relatedness frustration and mindfulness to burnout/somatic symptom burden/turnover intentions (from the dependent variable model), W is mindfulness, and a is the path from role conflict to burnout/somatic symptom burden/turnover intentions (from the dependent variable model). If the 95% bias corrected bootstrapped confidence interval does not include zero, then $p < .05$ (two-tailed).

* $p < .05$; ** $p < .01$; *** $p < .001$.

functioning. That is, the strength of association between basic psychological need frustration and burnout, somatic symptom burden, and turnover intentions was weaker among employees who reported higher levels of mindfulness. In line with the work of Schultz et al. (2015), these findings suggest that mindfulness affords clarity of mind, which can temper the translation of nonoptimal experiences into maladaptive outcomes. It is useful to consider reasons why mindfulness might buffer the impact of basic psychological need frustration that stems from role conflict at work on employees' health and work-related functioning. At both the neurological (Chiesa & Serretti, 2010; Creswell et al., 2007; Treadway & Lazar, 2009) and phenomenological (Shapiro et al., 2006) levels, there is indication that mindfulness is conducive to decentering—an experience in which events are viewed more objectively and dispassionately, attention is removed from stress appraisals and ruminative

spirals, and individuals are better positioned to cope with experiences of distress and energy depletion. In other words, although role conflict is associated with basic psychological need frustration, employees who report higher levels of mindfulness are less likely to convert their need frustration into experiences of burnout, somatic symptom burden, and turnover intentions.

4.2 | Practical implications

Employees who report higher levels of mindfulness are less likely to experience maladaptive outcomes associated with frustration of autonomy, competence, and relatedness at work. Therefore, organizations might consider the implementation of mindfulness training programs to build psychological resources in their employees

that can be used to cope with nonoptimal work environments. Intervention studies have shown that mindfulness can be developed (Wolever et al., 2012) and, in doing so, can yield positive effects for physical health, psychological wellness, and performance (Baer, 2003; Chiesa & Serretti, 2009, 2011). That being said, mindfulness training programs are not to be considered a panacea for nonoptimal work environments. Indeed, a recent systematic review and meta-analysis (Goyal et al., 2014) revealed moderate evidence of small improvements in depression, anxiety, and pain following enrollment in such programs and limited (if any) benefit for positive mood and stress-related behavior.

It goes without saying, then, that mindfulness training programs are not intended to be a substitute for the development of work environments that limit role conflict and other job demands, as the results of the current study reveal positive correlations between role conflict and basic psychological need frustration, burnout, somatic symptom burden, and turnover intentions. In an effort to limit job demands, managers might decide to map potential sources of role conflict in the workplace, reduce their salience, and provide job resources that can be used to cope with job demands (Bakker & Demerouti, 2007) and enhance mindfulness (Reb et al., 2015). Job resources, along with provision of support for the basic psychological needs (Niemic & Spence, 2017), can yield positive correlates for employees' health and work-related functioning.

4.3 | Limitations and future research directions

Several limitations deserve mention. First, the current study utilized a correlational design. Conclusions about causality, therefore, are not warranted. It is important for future research to examine the model that was hypothesized in the current study following the implementation of an intervention designed to temper the salience of job demands in the workplace and/or enhance mindfulness among employees.

Second, the current study relied solely on self-report data collected at a single point in time. Although common method bias represents a potential threat to validity, steps were taken to ensure the accuracy of the data, including a guarantee of anonymity, an emphasis on the importance of truthful responses, and an acknowledgement of there being no "right" or "wrong" responses (Podsakoff et al., 2003). In addition, the predictor and criterion variables were assessed using measures that contain different end points and that have demonstrated convergent validity, discriminant validity, and reliability (Conway & Lance, 2010). To be sure, the alignment of results with theory-rooted hypotheses suggests that common method bias does not pose much threat to the validity of the current study—indeed, the most novel contribution of the current study (i.e., moderation by mindfulness) is not susceptible to common method bias. That being said, it is important for future research to obtain physician validation of somatic

symptoms and objective data on actual turnover (rather than turnover intentions).

Third, the current study was based on a nonrandom selection of respondents from the population of unit leaders who worked in the Norwegian health care system, which might affect generalizability of the findings. Of interest, though, Williams et al. (2014) collected measures of emotional exhaustion, somatic symptom burden, and turnover intentions from a sample of employed adults in four leading Nordic companies, and they reported descriptive statistics for these variables that are comparable with those reported herein. Nonetheless, the reported levels of emotional exhaustion, cynicism, and turnover intentions in the current study were lower than those reported in a more heterogeneous sample (see Schultz et al., 2015). Accordingly, it is important for future research to examine the model that was hypothesized in the current study using a sample that is more representative of the working population.

Finally, it is worth noting that work environments can be modified directly in ways that enhance need satisfaction and/or reduce need frustration (see Deci et al., 2017). Therefore, it is important for future research to develop and evaluate interventions that enhance need support, mindfulness, or both in order to determine their respective contributions to promoting employees' health and work-related functioning.

4.4 | Conclusion

The current study demonstrated that role conflict is associated with frustration of the basic psychological needs for autonomy, competence, and relatedness, which, in turn, is associated with higher levels of burnout, somatic symptom burden, and turnover intentions. Of importance, mindfulness attenuated the associations between basic psychological need frustration and burnout, somatic symptom burden, and turnover intentions, thereby buffering the adverse impact that role conflict has on employees' health and work-related functioning. It is important that organizations create social contexts that are rich in job resources and support for basic psychological needs and that are conducive to the cultivation of mindfulness, to promote full functioning and organismic wellness among their employees.

CONFLICT OF INTEREST

All authors declare that they have no conflict of interest.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Data collection was approved by the Norwegian Social Science Data Services, and participation was voluntary. This article does not contain any studies with animals performed by any of the authors.

PEER REVIEW

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