

**REGULAR RESEARCH PAPER**

# Another sleepless night: Does a leader's poor sleep lead to subordinate's poor sleep? A spillover/crossover perspective

Hussain Tariq<sup>1,2</sup> | Qingxiong (Derek) Weng<sup>2</sup> | Thomas Noel Garavan<sup>3</sup> | Asfia Obaid<sup>1</sup> | Waseem Hassan<sup>1</sup>

<sup>1</sup>NUST Business School, National University of Sciences and Technology (NUST), Islamabad, Pakistan

<sup>2</sup>School of Management, University of Science and Technology of China, Hefei, Anhui, China

<sup>3</sup>Edinburgh Napier Business School, Edinburgh Napier University, Edinburgh, UK

**Correspondence**

Hussain Tariq, NUST Business School, National University of Sciences and Technology (NUST), Islamabad, Pakistan  
Emails: Hussain.tariq@nbs.nust.edu.pk; hussain@mail.ustc.edu.cn

**Funding information**

Financial support from the Natural Sciences Foundation of China (Project no. 71373251; no. 71422014) is gratefully acknowledged.

**Abstract**

Given the importance of sleep to an individual's health and well-being, relatively little research has been conducted in the management and organizational behaviour literature on the relationship between sleep and work behaviour. Using spillover/crossover theory, we extended the current literature by investigating the possible supervisor-subordinate sleep relationship and introduced a serial mediation mechanism to answer how a supervisor's poor night's sleep translates into his/her subordinate's poor night's sleep. We conducted an experience sampling study involving 101 supervisors and subordinates over five consecutive working days ( $N = 505$  occasions). Results verified that the spillover effect of supervisors' poor sleep on their next-day abusive supervisory behaviour has a crossover effect on their subordinates' poor sleep. Finally, results indicated that subordinate's physical exercise has the capacity to mitigate the influence of abusive supervision on subordinate' poor sleep. Future research should continue to examine the supervisor-subordinate sleep relationship and identify interventions in both the work and non-work domains of supervisor and subordinates as avenues for improving sleep health.

**KEYWORDS**

abusive supervision, China, morning depletion, physical exercise, sleep, spillover/crossover theory

## 1 | INTRODUCTION

Sleep research is becoming more relevant to organizational researchers (Barnes, Lucianetti, Bhave, & Christian, 2015) because of its tremendous importance (Wagner, Barnes, Lim, & Ferris, 2012) and the potentially disastrous consequences for individuals and organizations of inadequate sleep (Ferrara & De Gennaro, 2001; see Pereira, Gerhardt, Kottwitz, & Elfering, 2016, for a systematic review). The quantity and quality of a person's sleep have major implications for his/her health and attitudes (Elfering, Pereira, Grebner, & Müller, 2016; Kottwitz, Gerhardt, Pereira, Iseli, & Elfering, 2017; Kottwitz, Salathé, Buser, & Elfering, 2017; Salanova et al., 2016). According to estimates by the National Sleep Foundation, one-third of Americans do not get sufficient sleep on most nights (NSF; Lanaj, Johnson, &

Barnes, 2014; Marcus, 2010) because of work and non-work-related reasons (for example, family responsibility, cyberloafing, increased working hours, societal influences, late-night smartphone use at home, and workplace deviance; Barnes et al., 2015; Christian & Ellis, 2011; Lanaj et al., 2014; Wagner et al., 2012). Consideration of economic concerns makes the problem worse, as chronic sleep deprivation leads to increased occupational injuries and on-the-job accidents, lower levels of alertness, lower workers' well-being, lower performance, and increased sick leave and absenteeism (see Litwiller, Snyder, Taylor, & Steele, 2017, for a meta-analysis).

The examination of the supervisor-subordinate sleep relationship has been surprisingly neglected, despite prior studies showing potential sleep-to-work-related negative consequences (Christian & Ellis, 2011; Lanaj et al., 2014) and work-to-sleep disturbances

(Rafferty, Restubog, & Jimmieson, 2010). Thus, the focus of our study is to introduce the underlying mechanism to explain the possible influence of supervisors' sleep on subordinates' sleep. In doing so, we use spillover/crossover theory and introduce supervisor 'morning depletion' (i.e., depletion of the resources needed to function well) and abusive supervisory behaviour as underlying serial mechanisms to explain the supervisor-subordinate sleep relationship. In addition, we extend the theoretical and empirical literature by conducting an independent experience sampling study, which considers the within-individual relationship between supervisor sleep and subordinate's sleep over multiple days.

Spillover theory suggests that experiences, activities or events at home influence an individual's performance at work. In other words, spillover occurs when affective experiences or events flow from one domain (home) to another (work). Sonnentag, Binnewies, and Mojza (2008) argue that it is important to investigate off-the-job experiences to better understand work-related behaviour and that it is one's level of affect resulting from those experiences that sets the tone for work-related behaviour. Thus, we argue that a previous night of poor sleep quality (i.e., an off-the-job affective experience) spills over into the next day by leaving the supervisor depleted (i.e., affect), which, in turn, results in a greater likelihood of abusive supervision (i.e., behaviour). In addition to the potential spillover effect associated with supervisors' sleep, we argue that supervisors' poor sleep quality will have a crossover effect on their subordinates' sleep quality. Crossover theory suggests that crossover happens when the experience of one person (i.e., supervisor) is transferred to other members (i.e., subordinates) of a dyad. Therefore, we propose that the spillover effect of supervisors' poor sleep quality on their next-day abusive supervisory behaviour via morning depletion will crossover to their subordinates, affecting their sleep quality. We do not claim that spillover/crossover is the only path through which supervisors' sleep may influence their subordinates' sleep, but we focus on it here, because it offers one means of gaining a better understanding of the supervisor-subordinate sleep relationship.

In summary, we investigate the impact of leaders' sleep quality on subordinates' sleep quality from the perspectives of spillover and crossover theories and extend the current literature in two different ways. First, we propose a serial mediation mechanism including spillover and crossover effects, which explain the possible influence of supervisor sleep quality on his/her subordinate's sleep quality. Although researchers (e.g., Haines, Marchand, & Harvey, 2006) have

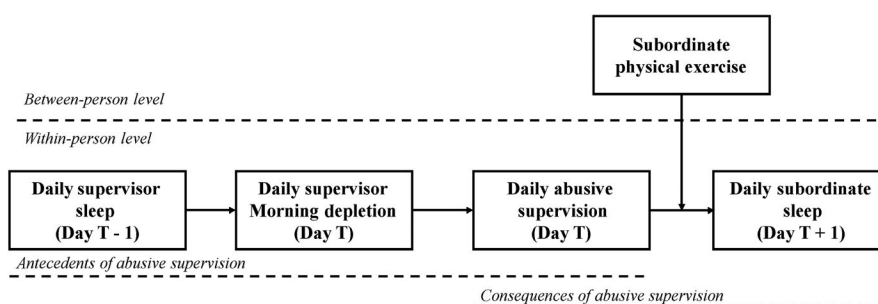
focused on the crossover between partners and spouses, surprisingly few have examined the crossover from supervisors to subordinates (see Li, Wang, Yang, & Liu, 2016; Ten Brummelhuis, Haar, & Roche, 2014, for exceptions). Thus, we propose that the spillover of supervisors' poor sleep quality (i.e., supervisor poor sleep quality → supervisor morning depletion → abusive supervision) will have crossover effects on their subordinates' subsequent poor sleep quality (i.e., supervisor poor sleep quality → supervisor morning depletion → abusive supervision → subordinate poor sleep quality). Second, we introduce one subordinate-level moderator, that is, physical exercise, as a buffer for the influence of abusive supervision on subordinates' sleep. The proposed theoretical model is presented in Figure 1.

## 2 | THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

### 2.1 | The spillover of a supervisor's poor sleep quality

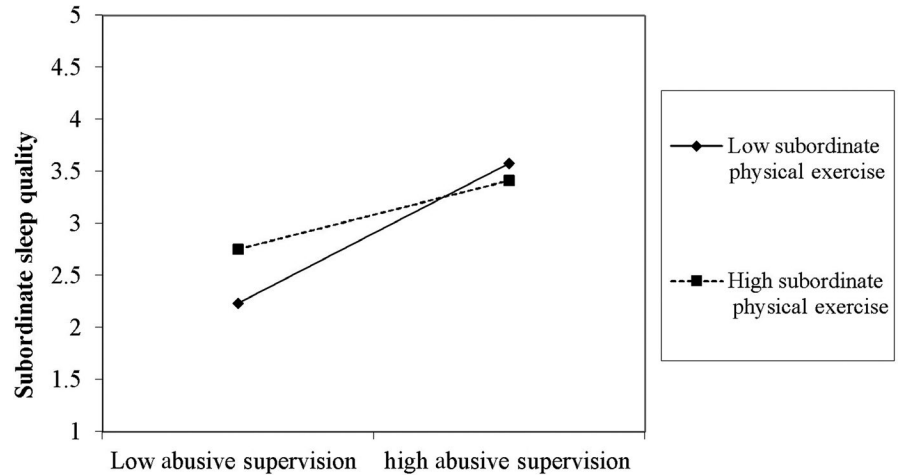
Given the importance of sleep behaviour, its connection with work affect, attitudes and behaviours has recently caught the attention of organizational researchers. Wagner et al. (2012) found that employees' low sleep quality resulted in "cyberloafing" behaviour at work. In addition, Barnes, Schaubroeck, Huth, and Ghumman (2011) established a relationship between poor sleep quality and unethical work behaviour via resource depletion, whereas Christian and Ellis (2011) found that employees' poor sleep quality depleted their resources and produced next-day organizational deviance. Although prior research on sleep and unethical behaviour at work has focused on a self-regulation perspective, adopting a spillover perspective may add to our understanding of why supervisors' sleep deprivation leads them to be abusive in the workplace.

The work-family literature has proposed that individuals transfer attitudes and affect from their home life into their work environment and vice versa. This spillover process highlights the positive and negative relationships between an individual's two most important domains (i.e., home and work). For example, Song, Foo, and Uy (2008) argued that the spillover process indicates the permanence of affective experiences across home and work domains. In line with this, individuals continually make choices regarding the time they spend on activities (i.e., recreational time, time spent with family or time spent working) that may compete with getting enough sleep



**FIGURE 1** A proposed model

**FIGURE 2** Interaction of abusive supervision and subordinate physical exercise on subordinate sleep quality



(Barnes et al., 2015). By spending more time on competing activities, an individual's sleep may be adversely affected. From the viewpoint of affect-regulation strategies, Sonnentag et al. (2008) found that poor sleep quality leads to negative affect the next morning, due to a poor quality night's sleep impeding an individual's ability to replenish resources. Harris and Daniels (2005) argue that negative affect may also be a by-product of one's appraisals and beliefs. That is, when people have a poor night's sleep, they anticipate difficulties or problems in being able to concentrate at work, which increases negative affect. Finally, Bushman, Baumeister, and Phillips (2001) found that people may behave aggressively in order to improve (regulate) their negative affect. Therefore, consistent with spillover theory and affect-regulation, we argue that a supervisor's poor sleep quality (i.e., affective experience) can spillover to work, resulting in next-day abusive supervision (i.e., behaviour) through morning depletion (i.e., affect).

**Hypothesis 1** *Supervisor's poor sleep quality will be positively related to morning depletion.*

**Hypothesis 2** *Supervisor's morning depletion will be positively related to abusive supervisory behaviour.*

**Hypothesis 3** *Morning depletion will mediate the relationship between supervisor's poor sleep quality and abusive supervisory behaviour.*

## 2.2 | The crossover of supervisors' poor sleep quality and subordinates' poor sleep quality

"Once the spillover takes place, the crossover between partners [supervisor and subordinate] is particularly likely when they discuss their feelings at home [at work] and pay attention to each other" (Sanz-Vergel, Rodríguez-Muñoz, Bakker, & Demerouti, 2012). Crossover theory is an interpersonal process that proposes that the strain or stress experienced by one individual (e.g., leader) transfers to another individual (e.g., subordinate). Researchers (e.g., Haines

et al., 2006) have focused on partners and spouses when examining the crossover effects of stress or strain but have neglected supervisor-subordinate crossover effects (Hoobler & Hu, 2013; Li et al., 2016; Ten Brummelhuis et al., 2014). In contrast, Hoobler and Hu (2013) investigated the overlooked crossover effects of stress in supervisor-subordinate dyads and found that the effects of crossover between supervisors and subordinates were a by-product of abusive supervision. Most recently, Li et al. (2016) investigated the crossover effects of negative interactions (i.e., abusive supervision) as a result of burnout in supervisor-subordinate dyads. Thus, to examine the possible influence of supervisors' poor sleep quality on subordinates' poor sleep, we propose that the spillover of supervisors' poor sleep quality on to next-day abusive supervision due to morning depletion will have crossover effects on subordinates' sleep.

We also draw on self-regulatory theory to provide support for the spillover/crossover between supervisor and subordinate sleep relationships. Muraven and Baumeister (2000) explain an individual's self-regulation as the psychological process through which he/she controls counter-normative impulses or urges. In line with this, Baumeister, Bratslavsky, Muraven, and Tice (1998) argue that all forms of self-regulation are drawn from a single, finite pool of resources. When an individual is engaged in events or acts that deplete the limited pool of resources, then he/she may fail or be less able to resist temptations or urges to engage in negative behaviours. Self-regulatory theory rests on the view that when resource depletion occurs, human beings struggle to re-stock their limited pool of self-regulatory resources, which are needed to behave appropriately in the workplace because this depletion leads to psychological stress or discomfort. Therefore, depleted individuals will often adopt self-defending or counterproductive loss-control strategies to conserve what little they have left, and may even develop a defensive posture to do so.

Despite these contributions to the literature, the impact of depleted resources on leaders themselves and how a leader's depleted resources lead to his/her subordinates' resource depletion remain unclear. Using the perspective of self-regulatory theory, Barnes (2012) and Barnes et al. (2015) argue that an individual's self-regulatory process may be affected by his/her sleep quality. This argument

is in line with the proposition of Muraven and Baumeister (2000) and Baumeister (2003) that sleep is imperative for the recovery of physiological resources involved in self-regulation. Likewise, sleep physiologists have found that a lack of sleep leads to socially inappropriate behaviour. Accordingly, we argue that distressed or depleted leaders, as a result of inadequate sleep, are less able to control their behaviours and emotions and will be more prone to demonstrating abusive supervision due to morning depletion (i.e., spillover hypothesis). As a consequence, abusive supervision drains subordinates' resources and causes them to experience poor sleep. Thus, supervisor's morning depletion and abusive supervision contribute to an intermediary process linking leaders' and followers' lack of sleep (i.e., crossover hypothesis).

**Hypothesis 4** *Abusive supervision will be positively related to a subordinate's poor sleep quality patterns.*

**Hypothesis 5** *A supervisor's morning depletion and abusive supervision will mediate the relationship between a supervisor's poor sleep quality and subordinate's poor sleep.*

### 2.3 | Buffering role of subordinates' physical exercise

The impact of abusive supervisory behaviour on subordinates' poor sleep quality may vary across individuals. As one would anticipate, Burton, Hoobler, and Scheuer (2012) argued that not all persons respond in the same way to stressful events. Research on job-stress recovery revealed that individuals who demonstrated the higher level of recovery at home experience higher stress or strain at work (Sonnetag et al., 2008). An individual's ability to recover from job stress or strain when at home has been shown to be related to positive mood (Sonnetag & Bayer, 2005), low fatigue and a greater sense of well-being (Sonnetag et al., 2008). Whereas Sonnetag et al. (2008) demonstrated that a number of methods, such as relaxation and psychological detachment, can help one overcome job stress, we focus on an individual's physical exercise (a leisure activity; Gerber, Kellmann, Hartmann, & Pühse, 2010), which has the capacity to buffer the negative influence of abusive supervision on sleep. In addition, employees who are engaged in leisure activities such as exercise are less anxious, more relaxed and more cognitively focused, and perceive more control over their lives. Therefore, we propose that subordinates who experience abusive supervision but actively engage in physical exercise will report better sleep quality compared with those who are less active.

**Hypothesis 6** *A subordinate's physical exercise will moderate the positive relationship between abusive supervision and subordinates' poor sleep quality, such that the relationship is weaker (stronger) when a subordinate's physical exercise is high (low).*

## 3 | METHOD

We conducted an experience sampling study at a large multinational merchandizing company located in the Anhui province of the People's Republic of China. We gathered dyadic data (i.e., supervisor and his/her subordinates) to examine the within-individual relationship between supervisor and subordinate sleep quality over multiple days. To do so, we communicated with mid-level managers from different departments of the company through the company's human resource department and shared information about our study. After obtaining the company's consent to participate in our study, we delivered information packages to the managers. Each package consisted of a letter with information about the data collection procedures and a return form for registration. After completing the registration process, we delivered the general questionnaire to the participants and organized a 5-day plan for daily data collection through hand-held computers.

We approached 316 supervisors and requested them to nominate one of their subordinates with whom they frequently communicated or worked together on a daily basis. We used these nominations to contact the subordinates and solicit their participation in our study. In total, 160 supervisors responded to our request and also nominated their subordinates (i.e., 51% participation rate). The 160 supervisors and their corresponding subordinates were asked to respond to a general survey and the daily surveys over 5 consecutive working days. In the general survey, which was completed with paper and pencil, supervisors and subordinates responded to questions on demographic variables, and subordinates also responded to a question on how frequently they exercised. In the supervisors' daily survey, we assessed their previous night's sleep and morning depletion at the beginning of each work day and abusive behaviour at the end of each day. In the subordinates' daily survey, we assessed their sleep quality in the morning 1 day removed from the supervisor's daily survey. We checked the time-stamps associated with the start of the workday and afternoon surveys to verify that the supervisors and their respective subordinates completed each survey at the appropriate time. In line with this, we programmed coded responses as invalid when, for instance, morning responses were answered in the evening. To assure timely responses from participants, we programmed reminders on the hand-held computers that fitted with their daily schedules. We also offered movie and coffee vouchers to the participants to encourage their participation. Finally, we matched supervisors' daily surveys with their respective subordinates' daily surveys through codes. Our final dyadic sample consisted of 101 out of 160 supervisors and subordinates having a 63% response rate and also comprised 505 daily survey responses. We excluded 59 invalid responses as a result of unmatched dyadic responses, missing the daily responses over five consecutive working days, and responses that were not given at the appropriate time.

### 3.1 | Measures

Given the repeated nature of our research design, we referred to studies that used experience sampling techniques (Barnes et al.,

2015; Tariq & Ding, 2018). These studies typically employed short surveys to make responding easier, in order to increase response rates (Lanaj et al., 2014; Uy, Lin, & Ilies, 2017). We ensured that our overall survey length reasonably captured our key constructs without imposing an undue response burden on participants. Following Brislin (1980) and other research using Chinese samples (e.g., Hongbo, Waqas, & Tariq, 2019; Tariq & Weng, 2018), we used the translation-back translation method to translate an English language survey into a Chinese language survey. We enlisted two Chinese bilingual professors to convert the surveys from English to Chinese independently.

### 3.1.1 | Daily supervisor and subordinate sleep quality

We followed the work of Sonnentag and Binnewies (2013) to measure daily sleep quality with the following validated item derived from the Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), and it correlates highly with the full Pittsburgh Sleep Quality Index: How do you evaluate your last night's sleep? Participants rated their sleep quality on a 7-point Likert scale so that a low score indicates poor sleep quality (1 = very poor; 7 = very good).

### 3.1.2 | Daily supervisor morning depletion

We measured supervisor's morning depletion at the point at which he/she sits down to work, prior to interacting with any of his/her subordinates. We used the following phrase to collect responses from supervisors about their morning depletion on a 5-point Likert scale (1 = very slightly or not at all; 5 = extremely): Before you begin your day, tell us how you feel, and please indicate to what extent you feel this way right now. Supervisor's morning depletion items included "distressed," "upset," "irritable," "nervous," "jittery" and "afraid" from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

### 3.1.3 | Daily abusive supervision

We used a five-item abusive supervisory scale and followed the work of Liang et al. (2016) to measure daily abusive supervisory behaviour. Participants were asked to visualize their subordinate and instructed to indicate the "frequency with which they engaged in each of the 5 behaviours today at work," using a 6-point Likert scale (1 = never; 6 = always). Sample items include "Tell him/her he/she is incompetent" and "Tell him/her his/her thoughts or feelings are stupid."

### 3.1.4 | Subordinate physical exercise

We used a one-item scale recently adopted by Burton et al. (2012) to measure subordinate's physical exercise. We asked subordinates to rate their frequency of physical exercise per week through the question: On average, how often do you exercise per week (1 = never,

2 = 1 day, 3 = 2-3 days, 4 = 4-5 days, 5 = 6-7 days)? Research has shown that self-reported measures are consistent with objective measures of exercise (Brown, 1991).

### 3.1.5 | Demographic and control variables

We assessed participants' age and gender and controlled for daily quantity of sleep at the within-individual level. We adopted the following item from Buysse et al. (1989) to measure participants' sleep quantity: How many hours of actual sleep did you get last night (this may be different from the number of hours you spent in bed)?

## 3.2 | Analytical strategy

We, consistent with recent studies (e.g., Eissa & Lester, 2017; Hongbo et al., 2019; Tariq & Weng, 2018), followed the recommendations of Preacher, Rucker, and Hayes (2007) to test our hypothesized model. We used SPSS (IBM SPSS Statistics) and tested our hypotheses through the PROCESS macro developed by Hayes (2013) from the work of Preacher et al. (2007). In our study, we formally hypothesize a simple mediation (Hypotheses 1 to 3), a serial mediation (Hypotheses 1 to 5) and a moderated model (Hypothesis 6). Thus, in accordance with previous research testing similar patterns of hypotheses (e.g., Butt, Tariq, Weng, & Sohail, 2019; Cole, Walter, & Bruch, 2008; Tariq & Weng, 2018), we ran three different sets of analyses. First, we used the PROCESS macro, Model 4, to test the simple mediation. Second, we used the PROCESS macro, Model 6, to test the serial mediation. Finally, we used the PROCESS macro, Model 1, to test the formal moderation model.

## 4 | RESULTS

The descriptive statistics (i.e., estimated reliabilities, means, standard deviations and intercorrelation reliabilities among the latent variables of our study) are reported in Table 1 and show preliminary support for our hypotheses. Supervisors' poor sleep quality is positively related to their morning depletion ( $r = .54, p < .01$ ). Moreover, supervisors' morning depletion is positively related to their abusive behaviour ( $r = .64, p < .01$ ) and abusive supervision is positively related to subordinate' poor sleep quality ( $r = .40, p < .01$ ). The correlations suggest that there is no direct relationship between supervisor and subordinate sleep quality ( $r = .27$ , not significant [ns]) and quantity ( $r = .05$ , ns). However, consistent with previous studies (Barnes et al., 2011, 2015; Lanaj et al., 2014), we found sleep quality and quantity are related for both supervisors ( $r = .04, p < .05$ ) and subordinates ( $r = .08, p < .05$ ).

Table 2 provides the results of our spillover hypotheses and the mediation (1-1-1) analysis. Supervisors' poor sleep quality was positively related to their morning depletion ( $r = .43, p < .001$ ) and supervisors' morning depletion was positively related to their abusive behaviour ( $r = .24, p < .001$ ), which provides support for Hypotheses

**TABLE 1** Intercorrelations, descriptive statistics and estimated reliabilities among the latent variables

Variables	M	SD	1	2	3	4	5	6	7
1. Supervisor's sleep quantity	5.32	1.33	(-)						
2. Subordinate's sleep quantity	5.61	1.35	0.05	(-)					
3. Supervisor's sleep quality	3.51	1.04	0.04*	0.02	(-)				
4. Subordinate's sleep quality	3.60	1.06	-0.05	0.08*	0.27	(-)			
5. Supervisor's morning depletion	3.49	0.77	-0.02	-0.01	0.54**	0.39	(0.88)		
6. Abusive supervision	3.42	0.82	0.01	0.02	0.47**	0.40**	0.64**	(0.82)	
7. Subordinate's exercise	3.69	0.87	0.01	-0.04	0.19	0.18*	0.27	0.19	(-)

Note:  $N = 505$ . Significant at: \* $p < .05$ ; \*\* $p < .01$ . Figures in parentheses are alpha internal consistency reliabilities. M: mean; SD: standard deviation.

1 and 2 (see Table 2). Hypothesis 3 stated that supervisors' morning depletion would mediate the relationship between supervisors' poor sleep quality and abusive behaviour. Following the recommendations of Bauer, Preacher, and Gil (2006) to perform mediation (1-1-1) analysis and calculated the indirect effect of supervisor's poor sleep

quality on his/her abusive supervisor via morning depletion. We then obtained a confidence interval (CI) around the indirect effect by conducting a Monte Carlo simulation with 20,000 replications, because it is considered to be an appropriate method for estimating an indirect effect (Wang et al., 2013). Preacher, Zyphur, and Zhang

**TABLE 2** (a) Results of mediation (1-1-1) analysis. (b) Results of direct, indirect, total and normal theory effects of supervisor's sleep quality on abusive supervision

Antecedents	Supervisor's morning depletion						Abusive supervision					
	B	SE	t	LLCI	ULCI	R <sup>2</sup>	B	SE	t	LLCI	ULCI	R <sup>2</sup>
(a)												
Constant	1.76	0.09	19.32***	1.58	1.93	0.44***	0.84	0.14	6.06***	0.56	1.11	0.63***
Supervisor's sleep quantity	-0.01	0.02	-0.62	-0.05	0.03		0.01	0.02	0.48	-0.02	0.04	
Supervisor's sleep quality	0.43	0.02	19.91***	0.45	0.54		0.49	0.03	17.21***	0.43	0.55	
Supervisor's morning depletion							0.24	0.04	6.16***	0.16	0.31	
(b)												
Direct effect												
Supervisor sleep quality on abusive supervision				0.49***			0.43				0.55	
Indirect effect												
Supervisor sleep quality on abusive supervision via morning depletion				0.12**			0.07				0.17	
Total effect												
Supervisor sleep quality on abusive supervision												
Normal theory test for indirect effect												
Supervisor sleep quality on abusive supervision via morning depletion				B			SE				Z	
				0.12			0.02				5.88***	

Note:  $N = 505$ . LLCI: lower level of the 95% confidence interval; ULCI: upper level of 95% confidence interval; SE: standard error. \*\* $p < .01$ ; \*\*\* $p < .001$ .

(2010) indicate that Monte Carlo simulation produces confidence intervals that account for the non-normal sampling distribution of the indirect effect. This analysis supported Hypothesis 3, that the indirect effect of supervisors' poor sleep quality on their abusive behaviour through morning depletion was significant ( $ab = .12, p < .01$ ; 95% CI [.07, .17]).

Table 3 provides the results of our spillover and crossover hypotheses and the serial mediation (1-1-1-1) analysis. We proposed that the spillover of supervisors' poor sleep quality will have crossover effects on their subordinates' poor sleep via supervisors' morning depletion and abusive behaviour. The results show that abusive supervision was positively related to subordinates' poor sleep quality ( $r = .28, p < .001$ ), which provides support for Hypothesis 4. Moreover, Hypothesis 5 stated that supervisors' morning depletion and abusive supervision would mediate the relationship between supervisors' poor sleep quality and subordinates' poor sleep. Again, we followed the recommendation of Bauer et al. (2006) to determine the serial mediated effect. Table 4 provides the results of the direct, indirect and total effects of supervisor sleep quality on subordinate sleep quality. We found that there is no direct relationship between supervisor and subordinate sleep quality ( $ab = -.05, ns$ ; 95% CI [-.18, .08]). The indirect effects of supervisor sleep quality on subordinate sleep quality via morning depletion ( $ab = .24, p < .01$ ; 95% CI [.30, .52]; the first-stage mediator), supervisor sleep quality on subordinate sleep quality via abusive supervision ( $ab = .14, p < .01$ ; 95% CI [.06, .22]; the second-stage mediator), and supervisor sleep quality on subordinate sleep quality via morning depletion and abusive supervision ( $ab = .03, p < .05$ ; 95% CI [-.01, .06]; serial mediation) were all significant. Thus, Hypothesis 5 was supported.

Finally, Hypothesis 6 stated that a subordinate's physical exercise will moderate the positive relationship between abusive supervision and subordinate poor sleep quality, such that the relationship is weaker (stronger) when the subordinate's physical exercise is high (low). The results, shown in Table 5, show the moderating effect of subordinates' physical exercise on the relationship between abusive supervision and subordinates' sleep quality; that is, the interaction term, abusive supervision  $\times$  subordinate physical exercise ( $r = -.17, p < .01$ ), was significant. When the interaction values were plotted, as demonstrated in Figure 2, we found that subordinates' physical exercise moderated the relationship of abusive supervision and their poor sleep. Table 5 also provides the results of conditional effects of abusive supervision on subordinates' sleep quality at values of subordinates' physical exercise across three levels (at  $-1 SD, M$  and  $+1 SD$ ). As presented in Table 5, the conditional effects of abusive supervision on subordinates' poor sleep at the mean level are significantly different from zero ( $ab = .50, p < .001$ ; 95% CI [.39, .60]). The conditional effects of abusive supervision on subordinates' poor sleep quality become stronger at a lower level of exercise ( $ab = .63, p < .001$ ; 95% CI [.48, .77]) and weaker at higher levels of exercise ( $ab = .36, p < .001$ ; 95% CI [.22, .51]). Thus, we found support for Hypothesis 6.

**TABLE 3** Results of serial mediation (1-1-1-1) analysis

Antecedents	Supervisor morning depletion					Abusive supervision					Subordinate sleep quality							
	B	SE	t	LLCI	ULCI	R <sup>2</sup>	B	SE	t	LLCI	ULCI	R <sup>2</sup>	B	SE	t	LLCI	ULCI	R <sup>2</sup>
Constant	1.90	0.17	11.08***	1.57	2.24	0.44***	0.79	0.16	4.80***	0.47	1.11	0.63***	1.61	0.31	5.15***	1.00	2.23	0.24***
Supervisor sleep quantity	-0.01	0.02	-0.58	-0.05	0.03		0.01	0.02	0.46	-0.03	0.04		-0.03	0.03	-0.97	-0.09	0.09	
Subordinate sleep quantity	-0.02	0.02	-0.81	-0.05	0.02		0.01	0.02	0.51	-0.02	0.04		-0.06	0.03	-0.193	-0.12	0.00	
Supervisor sleep quality	0.44	0.02	19.92***	0.45	0.54		0.49	0.03	17.17***	0.43	0.55		-0.05	0.07	-0.74	-0.18	0.08	
Supervisor's morning depletion	-	-	-	-	-		0.24	0.04	6.17***	0.16	0.31		0.49	0.07	6.65***	0.35	0.64	
Abusive supervision	-	-	-	-	-		-	-	-	-	-		0.28	0.08	3.31***	0.11	0.44	

Note: N = 505. LLCI: lower level of the 95% confidence interval; ULCI: upper level of 95% confidence interval; SE: standard error. \*\*\* $p < .001$ .

Predictor	Effect	SE	LLCI	ULCI
Direct effect				
Supervisor sleep quality on subordinate sleep quality	-0.05	0.07	-0.18	0.08
Indirect effect				
Supervisor sleep quality on subordinate sleep quality via morning depletion	0.24**	0.04	0.30	0.52
Supervisor sleep quality on subordinate sleep quality via abusive supervision	0.14**	0.04	0.06	0.22
Supervisor sleep quality on subordinate sleep quality via morning depletion and abusive supervision	0.03*	0.01	0.01	0.06
Total effect				
Supervisor sleep quality on subordinate sleep quality via morning depletion and abusive supervision	0.36**	0.04	0.28	0.44

**TABLE 4** Results of direct, indirect and total effects of supervisor's sleep quality on subordinate's sleep quality

Note:  $N = 505$ . LLCI: lower level of the 95% confidence interval; ULCI: upper level of 95% confidence interval; SE: standard error. \* $p < .05$ ; \*\* $p < .01$ .

**TABLE 5** (a) Moderating effects of subordinates' physical exercise on the relationship between an abusive supervisor and subordinates' sleep quality. (b) Results of conditional effects of abusive supervision on subordinate sleep quality at values of subordinate physical exercise

Antecedents	Subordinate sleep quality					
	B	SE	t	LLCI	ULCI	R <sup>2</sup>
(a)						
Constant	4.01	0.18	21.85***	3.65	4.38	0.19***
Subordinate sleep quantity	-0.07	0.03	-2.18	-0.13	-0.01	
Abusive supervision	0.50	0.05	9.30***	0.39	0.60	
Subordinate physical exercise	0.09	0.05	2.15	0.00	0.21	
Abusive supervision × Subordinate physical exercise	-0.17	0.06	-2.57**	-0.27	-0.04	
Moderator: subordinate physical exercise						
Effect	SE	t	LLCI	ULCI		
(b)						
-SD	0.63	0.07	8.61***	0.48	0.77	
Mean	0.50	0.05	9.30***	0.39	0.60	
+SD	0.36	0.08	4.85***	0.22	0.51	

Note:  $N = 505$ . LLCI: lower level of the 95% confidence interval; ULCI: upper level of 95% confidence interval; SE: standard error. \*\* $p < .01$ ; \*\*\* $p < .001$ .

## 5 | DISCUSSION

To date, the relationship between supervisors' and subordinates' sleep quality has been neglected by organizational researchers. To explore the possible supervisor-subordinate sleep relationship, we drew on the perspectives of spillover and crossover effects and introduced a serial mediation mechanism that has the capacity to explain the influence of supervisors' poor sleep on their subordinates' poor sleep. We found that supervisors' poor sleep quality is associated with their abusive behaviour through morning depletion (i.e., spillover) and that the spillover of supervisors' poor sleep quality has crossover effects on subordinates' poor sleep quality (i.e.,

crossover). Moreover, we found that subordinates' physical exercise has the capacity to buffer the influence of abusive supervision on their sleep. Our findings have implications for research on spillover and crossover effects between the non-work and work domains of supervisors and subordinates, as well as research on sleep.

First, relative to research on sleep, our study extends the literature by suggesting that there is no direct relationship between supervisors' and subordinates' sleep, but supervisors' sleep can indirectly influence their subordinates' sleep. Our study extends the literature by providing evidence for the indirect influence of supervisors' sleep quality on their subordinates' sleep quality through a serial mediation mechanism. The serial mediation of the possible indirect

influence of supervisors' sleep on their subordinates' sleep depends on two mechanisms; that is, spillover of supervisors' poor sleep quality on to their next working day's abusive behaviour through morning depletion, and the crossover effect that the spillover has on their subordinates' poor sleep quality. Our study's findings also provide evidence that the relationship of supervisors' abusive supervision and subordinates' poor sleep can be buffered through engaging in physical exercise. This leads to the notion that subordinates who are frequently engaged in physical exercise experience less poor sleep even when facing abusive supervision in the workplace.

Second, our research also supports the notion that events in the non-work domain have the capacity to affect events in the work domain and vice versa. The spillover effect of supervisors' poor sleep quality on to their next-day abusive supervisory behaviour crosses over into the subordinates' non-work domain, negatively affecting their sleep quality. However, our findings also note that there are actions that subordinates can take to mitigate these crossover effects. If subordinates engage in stress-reduction techniques, in our case exercise, the crossover effects of abusive supervision can be minimized.

Finally, our study goes beyond a static approach toward understanding behaviours in the non-work and work places. For example, some research on abusive supervision indicates that some leaders are abusive and some are not; that is, abusive supervision is a leader's trait or a consistent style. Such an approach neglects the momentary nature of supervision, which indicates that a leader's abusive behaviour may fluctuate on a daily basis. Our findings suggest that researchers should focus on momentary abuse in order to get a more complete and nuanced view of abusive supervision. Stated differently, our study highlights the importance of taking a within-person rather than a between-person approach to non-work as well as work behaviours.

## 5.1 | Limitations, future research and practical implications

We acknowledge the strong points of the present study (e.g., a multi-source, multi-wave experience sampling study) but we also note that it has several limitations that could provide openings for future research. First, while investigating the within-individual-level relationship between supervisors' and subordinates' sleep, we relied on self-ratings. This raises the concern of common-method variance (CMV) bias. We attempted to alleviate this concern by collecting multi-wave data (i.e., collect data in the morning and evening through daily surveys), which has been found to be effective for lessening bias due to CMV (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We used a single-item scale to measure sleep quality, which might raise concerns about the psychometric properties (e.g., reliability and validity) of a single-item scale. We used the shortened scale, following the common practice in experience sampling studies (e.g., Lanaj et al., 2014; Sonnentag & Binnewies, 2013), because it helps to reduce the burden on participants and also to motivate them to regularly and appropriately participate in the study (Fisher & To, 2012). Future studies investigating the supervisor-subordinate sleep relationship

might go beyond the single-item scale and subjective rating of sleep quality by using objective measures such as actigraphy (see Barber, Taylor, Burton, & Bailey, 2017; Pereira & Elfering, 2014a,b; Pereira et al., 2016; Pereira, Meier, & Elfering, 2013 for objective measures of sleep quality) or spousal ratings, etc., to reduce common-method bias. Additionally, we also suggest that future researchers should consider change across time over the working week and model auto-regression of sleep quantity and quality of the criterion to fully understand the supervisor-subordinate sleep relationship.

Second, the present study relied on the perspectives of spillover and crossover theory and investigated only one underlying mechanism; that is, a serial mediation mechanism to explore the supervisor-subordinate sleep relationship. By doing so, we ignored other possible theoretical perspectives (e.g., psychological and neurocognitive perspectives). Thus, future research should identify other possible underlying mechanisms, other forms of stress, persistent after-work-hours contact from a supervisor, supervisors' complimentary (as opposed to abusive) behaviour, etc., which might affect the relationship between supervisors' and subordinates' sleep patterns. In line with this, supervisors and their respective subordinates are expected to share task demands or stressors on a daily basis, which may influence the spillover and crossover between supervisors' and subordinates' sleep patterns. By considering other possible perspectives and mechanisms, future research could get a more nuanced view of the supervisor-subordinate sleep relationship.

Our study offers implications for practitioners and organizations by highlighting the importance of the supervisor-subordinate sleep relationship. First, organizations may mitigate the negative effects of their employees' poor sleep quality through the strategic use of technology (e.g., fitness trackers), which may help supervisors and subordinates be more attentive to their health. Barber et al. (2017) indicate that fitness trackers help supervisors and subordinates track and improve their sleep patterns. Moreover, many organizations found improvements in their financial position and employees' social interactions by tracking health activities. Second, researchers have recently begun to pay attention to strategies that help organizations manage tired employees, for example, consuming stimulants (e.g., caffeine), scheduling breaks, reorganizing important responsibilities and tasks, and taking naps (Barnes et al., 2011). Organizations might also provide a more sleep-friendly environment and work schedules that are more favourable for tired employees. Alternatively, some organizations are turning to active workstations for their tired employees, as individuals who use a treadmill desk instead of a standing or seated desk report less stress and higher job satisfaction. Although such strategies do not eliminate the problem (i.e., poor sleep quality), they can alleviate the negative and detrimental influence of sleep-deprived employees in the workplace.

## 6 | CONCLUSION

Our study investigated the daily supervisor-subordinate sleep relationship, demonstrating that a supervisor's sleep quality is related to next-day abusive behaviour at work through morning depletion, which ultimately negatively affects subordinates' sleep quality. Our study

provides support for the notion that organizations should consider the relationship between employees' daily off-the-job experiences/events and their on-the-job experiences (e.g., employees' sleep and deviant behaviour) in order to maintain a positive and healthy work environment for their employees. Our study's key premise highlights the importance of investigating within-individual-level variations in the supervisor-subordinate sleep relationship. We hope this encourages future research on sleep and its relevance to work behaviours.

## ORCID

Hussain Tariq  <https://orcid.org/0000-0002-9538-9797>

## REFERENCES

- Barber, L. K., Taylor, S. G., Burton, J. P., & Bailey, S. F. (2017). A self-regulatory perspective of work-to-home undermining spillover/crossover: Examining the roles of sleep and exercise. *Journal of Applied Psychology, 102*(5), 753–763. <https://doi.org/10.1037/apl0000196>
- Barnes, C. M. (2012). Working in our sleep: Sleep and self-regulation in organizations. *Organizational Psychology Review, 2*(3), 234–257. <https://doi.org/10.1177/2041386612450181>
- Barnes, C. M., Lucianetti, L., Bhave, D. P., & Christian, M. S. (2015). "You wouldn't like me when I'm sleepy": Leaders' sleep, daily abusive supervision, and work unit engagement. *Academy of Management Journal, 58*(5), 1419–1437. <https://doi.org/10.5465/amj.2013.1063>
- Barnes, C. M., Schaubroeck, J., Huth, M., & Ghumman, S. (2011). Lack of sleep and unethical conduct. *Organizational Behavior and Human Decision Processes, 115*(2), 169–180. <https://doi.org/10.1016/j.obhdp.2011.01.009>
- Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: New procedures and recommendations. *Psychological Methods, 11*(2), 142–163. <https://doi.org/10.1037/1082-989x.11.2.142>
- Baumeister, R. F. (2003). Ego depletion and self-regulation failure: A resource model of self-control. *Alcoholism: Clinical and Experimental Research, 27*(2), 281–284. <https://doi.org/10.1097/01.alc.0000060879.61384.a4>
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*(5), 1252–1265. <https://doi.org/10.1037/0022-3514.74.5.1252>
- Brislin, R. W. (1980). Translation and content analysis of oral and written materials. In H. C. Triandis, & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (pp. 389–444). Boston, MA: Allyn & Bacon.
- Brown, J. D. (1991). Staying fit and staying well: Physical fitness as a moderator of life stress. *Journal of Personality and Social Psychology, 60*(4), 555–561. <https://doi.org/10.1037/0022-3514.60.4.555>
- Burton, J. P., Hoobler, J. M., & Scheuer, M. L. (2012). Supervisor workplace stress and abusive supervision: The buffering effect of exercise. *Journal of Business and Psychology, 27*(3), 271–279. <https://doi.org/10.1007/s10869-011-9255-0>
- Bushman, B. J., Baumeister, R. F., & Phillips, C. M. (2001). Do people aggress to improve their mood? Catharsis beliefs, affect regulation opportunity, and aggressive responding. *Journal of Personality and Social Psychology, 81*(1), 17–32. <https://doi.org/10.1037/0022-3514.81.1.17>
- Butt, H. P., Tariq, H., Weng, Q., & Sohail, N. (2019). I see you in me, and me in you: The moderated mediation crossover model of work passion. *Personnel Review, 48*(5), 1209–1238. <https://doi.org/10.1108/pr-05-2018-0176>
- Buyse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research, 28*(2), 193–213. [https://doi.org/10.1016/0165-1781\(89\)90047-4](https://doi.org/10.1016/0165-1781(89)90047-4)
- Christian, M. S., & Ellis, A. P. (2011). Examining the effects of sleep deprivation on workplace deviance: A self-regulatory perspective. *Academy of Management Journal, 54*(5), 913–934. <https://doi.org/10.5465/amj.2010.0179>
- Cole, M. S., Walter, F., & Bruch, H. (2008). Affective mechanisms linking dysfunctional behavior to performance in work teams: A moderated mediation study. *Journal of Applied Psychology, 93*(5), 945–958. <https://doi.org/10.1037/0021-9010.93.5.945>
- Eissa, G., & Lester, S. W. (2017). Supervisor role overload and frustration as antecedents of abusive supervision: The moderating role of supervisor personality. *Journal of Organizational Behavior, 38*(3), 307–326. <https://doi.org/10.1002/job.2123>
- Elfering, A., Pereira, D., Grebner, S., & Müller, U. (2016). Lack of detachment and impaired sleep connect perceived unfairness with health complaints: A population-based mediation test. *Applied Research in Quality of Life, 11*(4), 1207–1225. <https://doi.org/10.1007/s11482-015-9430-y>
- Ferrara, M., & De Gennaro, L. (2001). How much sleep do we need? *Sleep Medicine Reviews, 5*(2), 155–179. <https://doi.org/10.1053/smr.2000.0138>
- Fisher, C. D., & To, M. L. (2012). Using experience sampling methodology in organizational behavior. *Journal of Organizational Behavior, 33*(7), 865–877. <https://doi.org/10.1002/job.1803>
- Gerber, M., Kellmann, M., Hartmann, T., & Pühse, U. (2010). Do exercise and fitness buffer against stress among Swiss police and emergency response service officers? *Psychology of Sport and Exercise, 11*(4), 286–294. <https://doi.org/10.1016/j.psychsport.2010.02.004>
- Haines, V. Y. III, Marchand, A., & Harvey, S. (2006). Crossover of workplace aggression experiences in dual-earner couples. *Journal of Occupational Health Psychology, 11*(4), 305–314. <https://doi.org/10.1037/1076-8998.11.4.305>
- Harris, C., & Daniels, K. (2005). Daily affect and daily beliefs. *Journal of Occupational Health Psychology, 10*(4), 415–428. <https://doi.org/10.1037/1076-8998.10.4.415>
- Hayes, A. (2013). *Methodology in the social sciences: Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hongbo, L., Waqas, M., & Tariq, H. (2019). From victim to saboteur: Testing a moderated mediation model of perceived undermining, state hostility, and service sabotage. *Journal of Service Theory and Practice, 29*(1), 2–21. <https://doi.org/10.1108/jstp-02-2018-0030>
- Hoobler, J. M., & Hu, J. (2013). A model of injustice, abusive supervision, and negative affect. *The Leadership Quarterly, 24*(1), 256–269. <https://doi.org/10.1016/j.leaqua.2012.11.005>
- Kottwitz, M. U., Gerhardt, C., Pereira, D., Iseli, L., & Elfering, A. (2017). Teacher's sleep quality: Linked to social job characteristics? *Industrial Health, 56*, 53–61.
- Kottwitz, M. U., Salathé, C. R., Buser, C., & Elfering, A. (2017). Emotion work and musculoskeletal pain in supermarket cashiers: A test of a sleep-mediation model. *Scandinavian Journal of Work and Organizational Psychology, 2*(1), 6. <https://doi.org/10.16993/sjwop.25>
- Lanaj, K., Johnson, R. E., & Barnes, C. M. (2014). Beginning the workday yet already depleted? Consequences of late-night smartphone use and sleep. *Organizational Behavior and Human Decision Processes, 124*(1), 11–23. <https://doi.org/10.1016/j.obhdp.2014.01.001>
- Li, Y., Wang, Z., Yang, L.-Q., & Liu, S. (2016). The crossover of psychological distress from leaders to subordinates in teams: The role of abusive supervision, psychological capital, and team performance. *Journal of Occupational Health Psychology, 21*(2), 142–153. <https://doi.org/10.1037/a0039960>
- Liang, L. H., Lian, H., Brown, D. J., Ferris, D. L., Hanig, S., & Keeping, L. M. (2016). Why are abusive supervisors abusive? A dual-system self-control model. *Academy of Management Journal, 59*(4), 1385–1406. <https://doi.org/10.5465/amj.2014.0651>

- Litwiller, B., Snyder, L. A., Taylor, W. D., & Steele, L. M. (2017). The relationship between sleep and work: A meta-analysis. *Journal of Applied Psychology, 102*(4), 682–699. <https://doi.org/10.1037/apl0000169>
- Marcus, M. B. (2010). Americans of all races don't get enough sleep. *USA Today*. Retrieved from [http://www.usatoday.com/news/health/2010-03-08-sleepsurvey08\\_ST\\_N.html](http://www.usatoday.com/news/health/2010-03-08-sleepsurvey08_ST_N.html).
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*(2), 247–259. <https://doi.org/10.1037/0033-2909.126.2.247>
- Pereira, D., & Elfering, A. (2014a). Social stressors at work and sleep quality on Sunday night—The mediating role of psychological detachment. *Journal of Occupational Health Psychology, 19*, 85–95. <https://doi.org/10.1037/a0034928>
- Pereira, D., & Elfering, A. (2014b). Social stressors at work, sleep quality and psychosomatic health complaints—a longitudinal ambulatory field study. *Stress and Health, 30*(1), 43–52. <https://doi.org/10.1002/smi.2494>
- Pereira, D., Gerhardt, C., Kottwitz, M. U., & Elfering, A. (2016). Occupational sleep medicine: Role of social stressors. In S. R. Pandi-Perumal, M. Narasimhan & M. Kramer (Eds.), *Sleep and psychosomatic medicine* (2nd ed., pp. 57–84). Basingstoke, UK: Taylor & Francis (CRC Press).
- Pereira, D., Meier, L. L., & Elfering, A. (2013). Short-term effects of social exclusion at work and worries on sleep. *Stress and Health, 29*(3), 240–252. <https://doi.org/10.1002/smi.2461>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185–227. <https://doi.org/10.1080/00273170701341316>
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods, 15*(3), 209–223. <https://doi.org/10.1037/a0020141>
- Rafferty, A. E., Restubog, S. L. D., & Jimmieson, N. L. (2010). Losing sleep: Examining the cascading effects of supervisors' experience of injustice on subordinates' psychological health. *Work & Stress, 24*(1), 36–55. <https://doi.org/10.1080/02678371003715135>
- Salanova, M., López-González, A. A., Llorens, S., del Líbano, M., Vicente-Herrero, M. T., & Tomás-Salvá, M. (2016). Your work may be killing you! Workaholism, sleep problems and cardiovascular risk. *Work & Stress, 30*(3), 228–242. <https://doi.org/10.1080/02678373.2016.1203373>
- Sanz-Vergel, A. I., Rodríguez-Muñoz, A., Bakker, A. B., & Demerouti, E. (2012). The daily spillover and crossover of emotional labor: Faking emotions at work and at home. *Journal of Vocational Behavior, 81*(2), 209–217. <https://doi.org/10.1016/j.jvb.2012.07.003>
- Song, Z., Foo, M.-D., & Uy, M. A. (2008). Mood spillover and crossover among dual-earner couples: A cell phone event sampling study. *Journal of Applied Psychology, 93*(2), 443–452. <https://doi.org/10.1037/0021-9010.93.2.443>
- Sonnentag, S., & Bayer, U.-V. (2005). Switching off mentally: Predictors and consequences of psychological detachment from work during off-job time. *Journal of Occupational Health Psychology, 10*(4), 393–414. <https://doi.org/10.1037/1076-8998.10.4.393>
- Sonnentag, S., & Binnewies, C. (2013). Daily affect spillover from work to home: Detachment from work and sleep as moderators. *Journal of Vocational Behavior, 83*(2), 198–208. <https://doi.org/10.1016/j.jvb.2013.03.008>
- Sonnentag, S., Binnewies, C., & Mojza, E. J. (2008). "Did you have a nice evening?" A day-level study on recovery experiences, sleep, and affect. *Journal of Applied Psychology, 93*(3), 674–684. <https://doi.org/10.1037/0021-9010.93.3.674>
- Tariq, H., & Ding, D. (2018). Why am I still doing this job? The examination of family motivation on employees' work behaviors under abusive supervision. *Personnel Review, 47*(2), 378–402. <https://doi.org/10.1108/pr-07-2016-0162>
- Tariq, H., & Weng, Q. (2018). Accountability breeds response-ability: Instrumental contemplation of abusive supervision. *Personnel Review, 47*(5), 1019–1042. <https://doi.org/10.1108/pr-05-2017-0149>
- Ten Brummelhuis, L. L., Haar, J. M., & Roche, M. (2014). Does family life help to be a better leader? A closer look at crossover processes from leaders to followers. *Personnel Psychology, 67*(4), 917–949. <https://doi.org/10.1111/peps.12057>
- Uy, M. A., Lin, K. J., & Ilies, R. (2017). Is it better to give or receive? The role of help in buffering the depleting effects of surface acting. *Academy of Management Journal, 60*(4), 1442–1461. <https://doi.org/10.5465/amj.2015.0611>
- Wagner, D. T., Barnes, C. M., Lim, V. K., & Ferris, D. L. (2012). Lost sleep and cyberloafing: Evidence from the laboratory and a daylight saving time quasi-experiment. *Journal of Applied Psychology, 97*(5), 1068. <https://doi.org/10.1037/a0027557>
- Wang, M., Liu, S., Liao, H., Gong, Y., Kammeyer-Mueller, J., & Shi, J. (2013). Can't get it out of my mind: Employee rumination after customer mistreatment and negative mood in the next morning. *Journal of Applied Psychology, 98*(6), 989–1004. <https://doi.org/10.1037/a0033656>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. <https://doi.org/10.1037/0022-3514.54.6.1063>

#### AUTHOR BIOGRAPHIES

**Hussain Tariq** is an assistant professor in management at NUST Business School, National University of Sciences and Technology, Islamabad, Pakistan. He also currently joined the University of Science and Technology of China as a post doc fellow. He received his PhD from in organizational behavior and human resource management from Department of Business Administration, University of Science & Technology of China. His current research focuses on the root of destructive leader behaviors, structures and practices that enhance teamwork and collective motivations in organizations.

**Qingxiong (Derek) Weng** is a professor in management at University of Science and Technology of China. He received his Ph.D. in Business Management in Huazhong University of Science and Technology. He has over 50 publications in journals such as *Journal of Vocational Behavior*, *Journal of Organizational Behavior*, *Journal of Career Development* and *Australian Journal of Management*. His research interest mainly focuses on vocational behavior and psychology, leadership, personnel assessment, and selection. He is an associate editor of the *Journal of Vocational Behavior*. He also services as the editorial board member of *Journal of Managerial Psychology* and *Journal of Career Development*, and as an ad-hoc reviewer of leading journals, such as *Academy of Management Review*, *Journal of Applied Psychology*, *Journal of Organizational Behavior*, *Journal of Occupational and Organizational Psychology*, *Human Relations* and so on.

**Thomas Noel Garavan** is research professor-leadership at Edinburgh Napier Business School. He has authored or co-authored 14 books and more than 100 refereed journal articles and book chapters. He is Editor-in-Chief of European Journal of Training and Development and Associate Editor of Personnel Review. He is a member of the editorial board of Human Resource Development Review, Advances in Developing Human Resources, Human Resource Management Journal, Human Resource Development International, and Human Resource Development Quarterly.

**Asfia Obaid** is an assistant professor in management and Head of Department of Management and Human Resource at NUST Business School, National University of Sciences and Technology, Islamabad, Pakistan. She received her PhD in Business Administration from Manchester Business School, University of Manchester, UK. She has made contribution to knowledge through various avenues that include delivering training sessions, consulting with organizations on industry-specific problems, publishing of research articles, conducting research grant projects. Her core areas of interest include Strategic HR, Compensation and Performance Management.

**Waseem Hassan** is an assistant professor in marketing and Head of Department of International Business & Marketing at NUST Business School, National University of Sciences and Technology, Islamabad, Pakistan. He received his PhD in Management Sciences from School of Economics and Management, China University of Geosciences, China. His research interests include Consumer Behavior and Changes in Consumer Behavior due to different environmental, social and behavioral factors at different point of time. Similarly, he has conducted research to find out effect of these factors on Customer pre-purchase dissonance, customer satisfaction and customer's trust towards a brand. Different companies from the household appliances industry in China and Pakistan were taken in the study to find difference in customer experience in both markets.

**How to cite this article:** Tariq H, Weng Q(D), Garavan TN, Obaid A, Hassan W. Another sleepless night: Does a leader's poor sleep lead to subordinate's poor sleep? A spillover/crossover perspective. *J Sleep Res.* 2020;29:e12904.  
<https://doi.org/10.1111/jsr.12904>