

SLEEP, EMOTIONAL INTELLIGENCE, AND INTERPERSONAL EFFECTIVENESS: NATURAL BEDFELLOWS

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According to the National Sleep Foundation’s Sleep in America Poll, U.S. adults sleep between 6.7 to 7.3 hr every night, which has decreased by approximately 2 hr per night since the 19th century (National Sleep Foundation, 2016). Inconsistent or insufficient sleep can be costly for business, impacting leadership decision making/judgment, interpersonal relations, absenteeism, presenteeism, safety, productivity, and health (Gaultney & Collins-McNeil, 2009; Mills et al., 2007; Rosekind et al., 2010). Daytime sleepiness can be dangerous, and inadequate sleep is a known health hazard resulting in fatigue that can impair both performance and social functioning. In light of existing research on the effects of insufficient sleep on work performance, this study investigated the relationship between self-reported sleep quality and quantity (Stress Profile) of leaders with a concurrent evaluation of relationship skills by their manager and others (direct reports and peers) on a measure of emotional and social competence. Regression analyses indicated that leaders who reported poor quality and quantity of sleep were rated significantly lower on interpersonal effectiveness after controlling for gender and perceived work/life stress by their direct reports and peers but not by their manager.

Keywords: sleep, emotional intelligence, interpersonal effectiveness, 360-degree feedback, leadership effectiveness

In today’s global and competitive economy, leaders are increasingly driven to higher levels of productivity to enhance organizational effectiveness. Under challenging “always on” work demands, coupled with long and irregular work hours and travel, leaders often compensate by sacrificing sleep, which can directly lead to fatigue and impaired emotional regulation (Kao, Spitzmueller, Cigularov, & Wu, 2016). This article will start with a brief review of research of insufficient sleep and its effects on health, performance, and leadership behavior. That will be followed by a report on a study of its connection to emotional and social competence in leaders. Implications for organizations and those who consult with them will briefly be discussed.

Sleep, Health, and Performance

Lack of sleep contributes to impaired self-regulatory behaviors influencing the ability to which leaders can concentrate on task execution and regulate emotions and social behavior (Baumeister &

Vohs, 2007). In general, sleep-deprived employees demonstrate more unethical behavior (Barnes, Gunia, & Wagner, 2015; Barnes, Schaubroeck, Huth, & Ghumman, 2011), increased absenteeism (Daley, Morin, LeBlanc, Grégoire, & Savard, 2009), greater disengagement with work (Lanaj, Johnson, & Barnes, 2014), and lower job performance (Drake et al., 2001). Sufficient sleep helps decrease employee sleepiness and fatigue and reduce cortisol levels (Pejovic et al., 2013), while lack of sleep has also been linked to increased risk for a number of health-related ailments costly to organizations such as obesity, diabetes, cardiovascular disease, and other inflammatory disorders (Buxton & Marcelli, 2010).

Sleep and recovery experiences are necessary for employees to psychologically detach from work, which is increasingly challenging given the technological tethering of employees today with a wide variety of devices, smartphones, and messaging systems (Deal, 2013). For example, a recent telepressure survey of 101 employees explored associations between the number of times a smartphone was used both at work and at home (i.e., the amount of times the phone was checked throughout the day for personal and work purposes). Significant associations were observed between smartphone use at home and work use and self-reported poor quality and quantity of sleep (Balding & Nowack, 2013). Poor sleep duration and quality were significantly correlated with frequent use of smartphones for personal use ($r = -.29, p < .01$), work-related activities ($r = -.43$), and the checking of smartphones for missed text messages/calls ($r = -.43, p < .01$).

Most important for organizations is the growing recognition that inconsistent, insufficient, or shifting sleep rhythms directly impact employee accidents and safety (Rosekind et al., 1995, 2010). For example, a review of 182 major accident investigations by the National Transportation Safety Board (NTSB) between the years 2001 to 2012 found that at least 20% of these incidents identified fatigue as a probable cause, contributing factor, or a finding (Marcus & Rosekind, 2016).

In fact, even two hours less sleep than one needs is enough to impair job performance, and a single night of sleep loss is equivalent to being legally drunk in most states (.10 blood alcohol level) on mood, cognitive, and psychomotor vigilance tests (Roehrs, Burduvali, Bonahoom, Drake, & Roth, 2003; Williamson & Feyer, 2000). A review of the literature suggests that deficits of sleep (e.g., duration or quality), excessive daytime sleepiness, and fatigue are all negatively associated with a wide variety of executive skills, abilities, interpersonal behaviors, and health essential for work performance (Barnes & Spreitzer, 2015; Daley et al., 2009). Table 1 summarizes examples of poor sleep, diminished work performance and adverse health relationships.

Sleep and Leadership Behavior

Sleep deprivation, in general, has also been shown to be associated with diminished emotional expressivity and impaired emotion recognition in others (Beattie, Kyle, Espie, & Biello, 2015). As a result, leaders who obtain poor quality or quantity of sleep at night experience more difficulty with both social and emotional self-control behaviors (e.g., interpersonal relations) and cognitive functions (e.g., attention, working memory, and self-control). Conversely, adequate amounts of high-quality sleep in leaders could strengthen emotion regulation, enhancing overall leadership effectiveness (Goldstein & Walker, 2014; Ong et al., 2013).

Mullins, Cortina, Drake, and Dalal (2014) and Barnes (2012b) have both presented conceptual models of work-related consequences of sleep loss and poor sleep quality that are driven by self-regulation. These researchers have proposed that goal striving, incivility, and workplace social interactions are all impacted directly by sleep loss or reduced sleep quality through self-regulatory processes. From a neurobiological perspective, the prefrontal cortex (which plays a critical role in executive functioning, decision making, and self-control) is particularly vulnerable to poor sleep (Barnes, 2011; Baumeister & Vohs, 2007; Harrison & Horne, 2000).

Poor leadership practices are directly tied to creating a psychological climate where employees are more actively disengaged, stressed, less committed to their jobs, and less productive (Nowack & Zak, 2017). In fact, results of recent meta-analyses suggest that lack of social and emotional competence in leaders is negatively associated with job performance and satisfaction at least as strongly as any other personality construct (Joseph, Jin, Newman, & O'Boyle, 2015). Ineffective

Table 1

Examples of Poor Sleep, Diminished Work Performance, and Adverse Health Relationships

Work performance
Impaired emotional recognition and reactivity (Beattie et al., 2015)
Diminished information-processing skills (Maddox et al., 2009)
Poor conflict resolution (Gordon & Chen, 2014)
Impaired attention (Doran, Van Dongen, & Dinges, 2001)
Reduced productivity (Hossain & Shapiro, 2002)
Impaired safety (Mellor & St John, 2012)
Increased illness-related absenteeism (Daley et al., 2009)
Compromised decision making/judgement (Harrison & Horne, 2000; Whitney, Hinson, Jackson, & Van Dongen, 2015)
Decreased empathy (American Academy of Sleep Medicine, 2015)
Workplace injuries (Kao et al., 2016; Uehli et al., 2014)
Workplace incivility (Bayne & Jex, 2016; Yamada, 2000)
Health/well-being
Impaired immune functioning (Lange, Perras, Fehm, & Born, 2003)
Susceptibility to infectious illness (Cohen, Doyle, Alper, Janicki-Deverts, & Turner, 2009)
Weight management (Nedelcheva et al., 2008; Patel & Hu, 2008)
Inflammation (Irwin et al., 2008; Mills et al., 2007)
Musculoskeletal disorders (Manville, El Akremi, Niezborala, & Mignonac, 2016)
Coronary artery calcification (King et al., 2008)
All-cause mortality (Dew et al., 2003; Gallicchio & Kalesan, 2009)

leaders who lack emotional intelligence (EI) and also experience poor sleep quality and quantity while at work (presenteeism) are even more likely to experience the most adverse mood, affect, and personal-performance deficits than those getting adequate sleep (Williams, Cribbet, Rau, Gunn, & Czajkowski, 2013).

In summary, research demonstrates a significant association between poor sleep and aggression, irritability, and hostility directed at others (Kamphuis, Meerlo, Koolhaas, & Lancel, 2012; Scott & Judge, 2006). Other studies have demonstrated a direct relationship between sleep quantity and quality to both positive and negative affect (Bower, Bylisma, Morris, & Rottenberg, 2010; Franzen, Siegle, & Buysse, 2008; Sonnentag, Binnewies, & Mojza, 2008). These findings suggest that leaders who come to work after a poor night of sleep will likely experience significant negative affect, which will potentially influence interpersonal interactions and lowered expectancies for success on work goals (Barnes, Jiang, & Lepak, 2016). However, there is a paucity of published studies that have directly explored the effects of insufficient quality or quantity of sleep in leaders.

For example, Gaultney (2014) explored weekend-to-weekday sleep differences in 379 business leaders and whether it predicted performance ratings from supervisors and peers. A 1-hr or more weekend-weekday sleep discrepancy (a proxy for coming to work with sleep loss) was reported by 50% of the participants. Performance was measured using a validated 360-degree feedback assessment measuring 16 executive competencies and three broader competency groups (leading the business, leading others, and leading by example). Leaders with greater weekend-to-weeknight change in sleep duration received significantly lower performance ratings from peers, but not supervisors, across all leadership competencies after controlling for age, health, commute, and average sleep during the week.

Barnes, Lucianetti, Bhave, and Christian (2015) examined daily leader sleep as an antecedent to daily abusive supervisory behavior. In a field study of 88 leaders, direct reports completed surveys at the beginning of each work day for a 2-week period as well as rating their manager on leadership practices and their own daily level of engagement. Daily sleep quality, but not quantity, influenced the leader's self-control and abusive supervision behavior. The level of engagement reported by

direct reports was significantly lower when leader's sleep quality was poor. This is the first known study to show that a supervisor's sleep quality is associated with daily ratings of employee engagement based on perceptions of abusive communication and interpersonal interactions on the part of the leader.

Finally, Barnes, Guarana, Nauman, & Kong, (2016) recently demonstrated that leaders deprived of sleep were significantly rated as less inspiring, competent, and charismatic relative to those who received adequate rest and sleep in two separate studies. This relationship was mediated by the lack of experience and display of positive affect (i.e., emotional labor) toward direct reports by the leaders. Interestingly, Barnes et al. (2016) also found that sleep deprivation of the follower significantly contributed to low follower perceptions of leader charisma. These findings are also consistent with research suggesting that sleep-deprived leaders are more likely to use passive-avoidant leadership styles versus more positive transformational or even transactional styles with direct reports (Olsen, Pallesen, Torsheim, & Espevik, 2016).

To date, no study has directly investigated self-reported sleep and evaluation of a leader's social and emotional competence (EI). The current study was an attempt to build on prior research by focusing specifically on how sleep might affect perceptions of social relationships and emotional competence in leaders using a validated measure of sleep and a social skills-based multirater feedback assessment of senior leaders. Given the existing relationship between lack of sleep and interpersonal effectiveness, we expected to find significant associations between sleep quantity/quality and evaluations of social and emotional competence by those working with leaders (i.e., the leader's direct reports, peers, and supervisor). Specifically, two hypotheses were tested:

Hypothesis 1: Supervisor ratings on social and emotional competence of leaders will be significantly and negatively associated with sleep quality/quantity.

Hypothesis 2: Other ratings on social and emotional competence of leaders will be significantly and negatively associated with sleep quality/quantity.

Method

Participants

Participants were 109 full-time employed leaders within diverse industries who were attending a 2-year executive MBA program. The sample included 70% males and 30% females, with 92% between the ages of 31 and 50 (4% were between 20 and 30 years old, and 6% were between 51 and 60 years old).

Procedure

Leaders taking a leadership class as part of an executive MBA program at several local universities were contacted and asked to complete a number of assessment tools, including a personality inventory, a 360-degree-feedback assessment that targets social and emotional competence (Emotional Intelligence View 360, EIV360; Nowack, 2013a, 2013b), and an executive stress/health-risk appraisal (Stress Profile; Nowack, 2013a); these were completed on a voluntary basis for career and professional development. Each student was asked to invite all direct reports and his or her current manager to provide feedback as part of the 360-degree-feedback assessment. The assessments were completed online, and students were told that their results would be confidential and not shared with the university they were attending. Informed consent was obtained by their acknowledgment before beginning the online assessments.

Measures

Sleep quality/quantity. Sleep quality and rest/fatigue was measured using the 5-item scale from the Stress Profile (Nowack, 1999). This risk appraisal of stress/health is a reliable and valid

123-item questionnaire that measures important psychosocial factors, and its psychometric properties have been described previously (Nowack, 2013a).

The sleep/rest scale has shown adequate internal consistency reliability (α .71), with test–retest reliability of .72 in a 2-week period (Nowack, 1990). It has demonstrated significant associations with measures of depression (POMS) and independence with well-established measures of fatigue such as the Modified Fatigue Impact Scale (MFIS; Fisk et al., 1994; Giesser et al., 2005, 2013).

Evidence for construct validity has been seen in a cross-sectional design demonstrating an association between high scores on the Stress Profile sleep/rest scale, and the presence/absence of sleep difficulties was assessed by three items from the Symptom Check List (Tafuya, Jurado, Yepez, Fouilloux, & Lara, 2013). A sample statement from the sleep/rest scale is: “Received less sleep than you require because you stayed up too late or had to get up too early.”

EI. The scale on relationship skills from the EIV360 assessment was used to specifically measure social and interpersonal competence of leaders (Nowack, 2013a, 2013b). The EIV360 is composed of 74 questions and measures 17 competencies derived from the conceptualization of EI popularized by Goleman (1998). It has shown strong internal consistency reliability (alphas ranging from .81 to .92), construct validity with transformational leadership scales in several studies, and criterion-related validity with organizational commitment and job performance (Nowack, 2013a, 2013b).

The EIV360 has also demonstrated independence from an ability-based measure of EI (MSCEIT; Mayer & Salovey, 1997; Mayer-Salovey-Caruso, 2002) for 110 subjects (Nowack, 2013a, 2013b). Correlations between the EIV360 composite score and MSCEIT overall, emotional experiencing, and emotional reasoning subscores were .12, .07, and .12, respectively (all p values > .05). Only the EIV360 competency of trust/empathy was significantly correlated with the *managing emotions/using emotions* branches of the MSCEIT as well as with the total score ($r = .25$ and $.27$, respectively, $p < .01$).

The 29-item relationship scale of the EIV360 is composed of six specific competencies combined into one scale (building strategic relationships; conflict management; leadership; interpersonal sensitivity/empathy; team/interpersonal support; and collaboration/agreeableness). For this study, the scale on relationship skills demonstrated adequate internal consistency reliability (α .89).

Analysis

Data were analyzed in IBM Statistical Package for the Social Sciences (SPSS) version 22 using linear regression with ratings by managers and others as the dependent variable and sleep quality/quantity, stress, and gender entered as independent variables in a stepwise manner. Both stress and gender have been associated with differences in sleep quantity and quality so were entered in the regression analysis for this study (Burgard & Ailshire, 2013; Williams et al., 2013). Separate regression analyses were run for managers and all other raters (combined group of direct reports and invited peers).

Results

Although sleep duration was not specifically measured in this study, 40.9% of the full-time working adults also attending a 2-year executive MBA program reported receiving less sleep because they stayed up too late or woke up too early, and 33% reported receiving less sleep than required either because they had difficulty falling asleep or staying asleep. These results are consistent with data from the National Health Interview Survey where nearly 30% of adults reported getting inadequate sleep, defined as ≤ 6 hours of sleep per day (Schoenborn & Adams, 2010). Additionally, analysis of sleep from the 2014 Behavioral Risk Factor Surveillance System (BRFSS) by the Centers for Disease Control and Prevention of 444,306 adults in all 50 states found that more than one third of the U.S. population is getting less than the recommended 7 total hours per day (Liu et al., 2016).

Table 2 reports the bivariate correlations. There was no association between reported stress, sleep quality/quantity, and perceptions of emotional and social competence. Stress was significantly

Table 2
Means, SDs, and Intercorrelations for Study Variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Gender ^a	1.33	.475	—			
2. Stress	16.48	3.62	-.106	—		
3. Sleep	16.07	2.03	-.026	-.385**	—	
4. EI Peers	5.54	.434	-.021	.096	-.203*	—
5. EI Manager	5.47	.64	-.089	.0064	-.079	.408**

Note. *N* = 109.

^a Gender: 1 = male, 2 = female.

* *p* < .05. ** *p* < .01.

and negatively associated with sleep ($r = -.39, p < .01$), and this correlation might be bidirectional given the cross-sectional nature of this study. Manager ratings of emotional and social competence were not significantly associated with sleep but were related significantly to other ratings by peers and direct reports ($r = .41, p < .01$). Other ratings were significantly correlated with sleep ($r = -.20, p < .05$).

Regression analyses (see Table 3) indicated that after controlling for gender and stress, sleep quantity and quality did not predict overall interpersonal effectiveness by the leader's manager (Hypothesis 1). However, Hypothesis 2 was supported as sleep quantity/quality was significantly associated with ratings of emotional and social competence by peers and direct reports.

Discussion

Effective leadership requires some degree of social/emotional regulation and competence to facilitate a climate where employees are engaged and flourish (Joseph et al., 2015; Riggio & Reichard, 2008). Results from this study support a significant relationship between poor quality and quantity of sleep in leaders with lower ratings of EI behavior as evaluated by direct reports and other team members.

In this study, ratings by direct reports and peers, but not managers, did significantly contribute to predictions of EI behaviors after controlling for self-reported stress and gender (see Table 2). This

Table 3
Summary of Hierarchical Regression Analysis Using Sleep Quantity/Quality to Predict Social and Emotional Competence by Others (*N* = 109)

Interpersonal effectiveness	<i>R</i> ²	<i>B</i>	<i>SE</i>	β	95% confidence interval	
Other ratings						
Gender	.00	-.02	-.02	.88	-.19	.15
Stress	.01	.00	.01	.018	-.02	.03
Sleep	.04*	6.23	.33	-.20	5.58	6.88
Supervisor ratings						
Gender	.00	-.11	.15	-.08	-.40	.18
Stress	.00	.01	.03	.03	-.04	.05
Sleep	.00	-.02	.04	-.06	-.09	.05

Note. Interpersonal effectiveness = Emotional Intelligence View 360 Relationship Effectiveness Scale (Nowack, 2013a, 2013b); Overall Sleep Quality = StressScan sleep Scale (Nowack, 1990).

* *p* < .05.

finding is consistent with prior research that demonstrated that leaders with greater weekend-to-weeknight change in sleep duration were rated significantly lower on an overall leadership evaluation by peers but not by supervisors (Gaultney, 2014).

Research in 360-degree feedback provides one possible explanation for why supervisor ratings on social and emotional competence were not significant but those of others (direct reports and peers) were. In general, only a moderate correlation exists between rater groups in 360-degree feedback, and each group appears to utilize perceptual filters corresponding to greater task focus by supervisors, greater interpersonal focus by direct reports, and greater focus on future leadership potential by peers (Nowack & Mashihi, 2012). Additionally, other raters such as peers and direct reports might actually have greater interaction or observe leadership behavior more frequently, leading to differential perspectives of interpersonal and task competence (Conway & Huffcutt, 1997).

Another study on 200 managers revealed a significant positive correlation between managers' overall leadership effectiveness and EI also based on ratings from direct reports but not from supervisors (Dabke, 2016). This finding supports the argument that the social and emotional competence of a leader has a greater impact on direct reports and colleagues who are likely to interact on a more frequent basis than the leader's supervisor. As such, direct reports and others might be much more sensitive to social behavior and treatment on a day-to-day basis or the impaired emotional regulation imparted by lack of sleep on the part of a leader.

Evidence also exists to suggest that sleep deprivation dulls the ability to accurately read facial expressions in others. For example, a study with 18 healthy young adults who viewed 70 facial expressions that ranged from friendly to threatening, once after a full night of sleep and once after 24 hr of being awake, revealed that the sleep-deprived brains could not distinguish between threatening and friendly faces, specifically in the emotion-sensing regions of the brain's anterior insula and anterior cingulate cortex (Goldstein-Piekarski, Greer, Saletin, & Walker, 2015).

Using functional magnetic resonance imaging (fMRI), research by Yoo, Gujar, Hu, Jolesz, and Walker (2007) found that the amygdala (which plays a key role in the processing and managing of emotions) became hyperactive in response to negative visual stimuli in study participants who stayed awake for 35 hr straight. However, brain scans of those who got a full night's sleep in their own beds showed normal activity in the amygdala.

Indeed, loss of sleep in leaders seems to confer a neurobiological handicap that can contribute to lack of social and emotional effectiveness consistent with what direct reports and colleagues observed in leaders in this study (e.g., 16.4% of the leaders in our sample reported missing an entire night of sleep or large proportion over a 3-month period either "often" or "always"). Taken together, these studies support the argument that sleep-compromised leaders may behave in ways that lead to poorly interpreting the emotions and reactions of direct reports. As a result, they may react in a manner that causes them to be perceived as less empathetic, caring, and sensitive by others (Anderson & Dickinson, 2010; Beattie, Walsh, McLaren, Biello, & White, 2016; Beattie et al., 2015; Mullins et al., 2014).

Study Limitations and Strengths

This study is one of the first to directly explore the association between self-reported sleep quality/quantity with how leader's emotional and social effectiveness is experienced by others using a validated measure of EI controlling for work/life stress. In general, the key empirical findings of this study add to the literature supporting the argument that sleep is directly related to emotional regulation, positive affect, and interpersonal effectiveness of leaders.

Despite the significant findings between leader's sleep and perceptions of social and emotional competence, the study should be considered in light of its limitations. First, the sleep behaviors assessed in this study are self-report (Stress Profile sleep/rest scale) and are not confirmed with objective measures of daily or weekly sleepiness or impairment. However, self-report sleep measures are significantly associated with objective measures of both duration and quality of sleep (Lauderdale, Knutson, Yan, Liu, & Rathouz, 2008). The sleep scale used in this study has shown a

significant association with other self-report sleep items (Tafuya et al., 2013) as well as independence from a measure of general fatigue (Giesser et al., 2005).

A second limitation is that the measure of social and emotional competence used in this study combined peers and direct reports into one rater group, and research suggests these rater categories are only moderately correlated with each other (Nowack & Mashih, 2012). Future research should replicate the basic design of the current study and compare ratings of social and emotional competence separately by supervisor, direct report, peer, and other relevant rater categories such as internal and external customers.

A third limitation is that the social and emotional competence measure used in this study might also reflect both state and trait components as a “mixed measure,” and each might have different associations with sleep duration and quality. Additionally, current research suggests mixed measures of EI appear to assess a combination of ability EI and self-perceptions (e.g., self-efficacy, self-rated performance) in addition to personality (e.g., conscientiousness, extraversion, emotional stability) and cognitive ability (Joseph et al., 2015; Nowack, 2012). Future studies should explore the association between sleep and diverse approaches to the measurement of EI in leaders (e.g., personality-based, ability-based, and other mixed measures) given established validity with job performance and satisfaction outcomes.

Finally, the small sample size and inadequate number of women to directly test gender effects limits greater generalizability of the findings in light of findings suggesting that women require and get more sleep than their male counterparts (Burgard & Ailshire, 2013). Replication of this type of study with multiple measures of social and emotional competence with more objective indicators of sleep quality and quantity would be required before firm conclusions can be reached about workplace behaviors associated with sleep loss.

Implications for Organizations

This study explores two variables, the level of EI and sleep in leaders; this issue is important to organizations and can be positively addressed through practical interventions. The first is identifying, selecting, and onboarding leaders who possess higher levels of emotional and social competence as well as providing coaching and training programs for those who demonstrate deficits in EI. A number of validated and successful organizational and individually based programs and interventions are available to review at the Consortium for Research on Emotional Intelligence in Organizations (www.eiconsortium.org). Such interventions can successfully and simultaneously address deficits in both emotional regulation and social skills leading to enhanced leadership practices and important outcomes such as increased engagement, productivity, and retention of talent within organizations (Riggio & Reichard, 2008).

The second variable explored in this study surrounds the important aspect of sleep and fatigue in leaders. Especially for organizations, it is challenging to directly influence employees' sleep behaviors since sleep primarily occurs outside work hours and is not easily affected by specific interventions. Companies should recognize the impact of poor sleep quality and quantity (including shift-work sleep disorders estimated to affect up to 10% of U.S. shift workers, according to the National Sleep Foundation) on a number of important business outcomes affecting both employee health (e.g., fatigue-related injuries and accidents) and job performance (e.g., customer relations and leadership effectiveness).

Leaders who are sleep-deprived have also been found to experience impaired emotional regulation and social skills impacting employee morale and engagement (Barnes, Wagner, & Ghumman, 2012; Gaultney, 2016). Minimally, organizations should review and implement strategies to reduce and manage sleep loss and fatigue among employees at all levels (e.g., nonpunitive programs for employees to self-report being tired or providing the ability to decline work assignments due to fatigue).

Companies should also offer training programs to leaders to increase knowledge related to sleep and circadian rhythms with specific actions to counteract the effects of fatigue (e.g., jet lag, safety). In addition to educational interventions, Nowack (2016) offers several suggestions to improve sleep within organizations. Finally, companies could consider offering leaders smart technology to

monitor and improve quality of sleep (e.g., versions of application software, often referred to as *apps*, that provide tips and calculate jet-lag schedules and those that eliminate blue light from tablets and smartphones, which reduces the sleep hormone melatonin).

Implications for Coaches/Consultants

It is not uncommon for consultants to address in their skill-based leadership coaching and training programs key elements of EI such as increasing self-awareness, emotional self-regulation, and interpersonal effectiveness essential for career success (Goleman, 1998; Nowack, 2012). For example, coaches can utilize 360-degree-feedback assessments as a way to help leaders compare and contrast their own perceptions of strengths and potential development areas focused on social skills and emotional regulation relative to their managers, direct reports, and team members (Nowack & Mashihhi, 2012). Although the request to convert “competent jerks” to “lovable stars” in coaching interventions is fairly common, coaches should be cognizant of the inherent challenges in producing large behavioral changes in the EI of clients who have sizable deficits in social or emotional skills (Mashihhi & Nowack, 2013).

Work/life integration issues are also not unusual within coaching engagements today (Deal, 2013). As this study suggests, sleep deficits in employees can strongly impact both interpersonal functioning and leadership behavior. As such, coaches should continue developing basic knowledge and continuing education around the topics of lifestyle habits, sleep, circadian-rhythm disorders, and fatigue countermeasures to best support their clients when presenting issues are raised around stress management, job burnout, physical health, and psychological well-being (Nowack, 2007).

For example, coaches who identify clients who tend to fall asleep later at night (evening chronotype) might be aware such individuals could be at greater risk for increased emotional lability and moodiness (Gau & Merikangas, 2004) and making riskier financial decisions (Wang & Chartrand, 2015). Additionally, current research suggests that many leaders and executives have a “warrior mentality” and believe, incorrectly, that sacrificing sleep will not negatively impact performance and decision making. In a recent study, respondents reported the belief that a typical high-performing executive gets an average of 45 min less sleep than an average employee, with the majority of the sample (68%) reporting they slept for only 6 or fewer hours each night (Svetieva, Clerkin, & Ruderman, 2017).

To address sleep and fatigue issues, coaches should become familiar with internal and external organizational resources for wellness and illness prevention that are available to their clients (e.g., EAP programs, sleep clinics/specialists, and other allied health professionals such as registered dietitians to address important lifestyle behaviors). They should also be familiar with a wide array of empirically based sleep resources available such as the National Sleep Foundation (sleepfoundation.org) and the American Academy of Sleep Medicine (www.aasmnet.org). Finally, coaches who typically use assessments as part of their engagement (e.g., personality, 360-degree feedback) might become more familiar with and consider using validated occupational stress, resilience, job burnout, coping, and health-risk appraisals, as well as psychological well-being measures (Nowack, 2013a).

Conclusions

This study supports several prior studies that suggest that poor quality and quantity of sleep in leaders results in significantly lower ratings of charisma and social and emotional competence by direct reports and colleagues (Barnes et al., 2016; Gaultney, 2014). Although based on self-report, the study builds on the literature suggesting the lack of quantity or quality of sleep can impair interpersonal effectiveness on the job and can affect levels of engagement, commitment to the job/organization, and perceived levels of stress.

A growing body of literature supports the association between emotional regulation and sleep (Gruber & Cassoff, 2014) as well as its importance for leading others (Gaultney, 2016; Haver, Akerjordet, & Furunes, 2013). Leaders and employees who get inadequate quality or quantity of

sleep report more impulsive reactions to negative experiences (Anderson & Platten, 2011) and are less accurate identifying emotional expressions of others (van der Helm, Gjar, & Walker, 2010).

Given the association between sleep, performance, emotional regulation, safety, and alertness on the job, it is imperative for companies to focus more on addressing sleep-related issues with all employees and leaders in particular. For coaches and consultants, enhancing knowledge about sleep/rhythm disorder and identifying resources to support work/life integration issues of their clients would be beneficial—particularly in light of the blurring of the boundaries between being electronically “on” at and away from work (Deal, 2013).

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