Workplace loneliness, ego depletion and cyberloafing: Can leader problem-focused interpersonal emotion management help?

Abstract

Purpose: This study aims to explore whether and how workplace loneliness leads to cyberloafing and the role of leader problem-focused interpersonal emotion management in buffering this relationship.

Design/methodology/approach: Drawing on ego depletion theory, we propose that employees' workplace loneliness leads to cyberloafing via ego depletion, while leader interpersonal emotion management (i.e., leadership behavior targeted at managing employees' negative emotions) can help to alleviate the situation. To test our predictions, we collected multisource data at three time points from a sample of 219 employee-colleague dyads.

Finding: The results show that workplace loneliness is positively related to cyberloafing and that ego depletion mediates this relationship. Leader problem-focused interpersonal emotion management weakens the relationship between workplace loneliness and ego depletion and the indirect relationship between workplace loneliness and cyberloafing via ego depletion such that the above relationships are weak (versus strong) when leader problem-focused interpersonal emotion management is high (versus low).

Originality/value: The study results suggest that workplace loneliness is an important hidden danger that leads to cyberloafing because lonely employees suffer more from ego depletion. Leaders' interpersonal emotion management strategy serves as a potential buffer for such a negative effect.

Keywords: Workplace loneliness; Cyberloafing; Ego depletion; Leader interpersonal emotion management.

1. Introduction

The internet is an indispensable part of people's lives and work. It brings convenience to the daily work of employees and improves job productivity; however, it also tempts employees to engage in cyberloafing, i.e., using the internet for personal purposes during working hours (Lim, 2002). Several perspectives emerge, suggesting that cyberloafing may lead to both positive and negative effects. For example, cyberloafing has been viewed as micro-breaks that allow employees to relax and cope with job stressors (Syrek et al., 2018; Wu et al., 2020). Access to personal activities through cyberloafing also helps employees manage the boundaries between work life and private lives (König and Caner de la Guardia, 2014; Burleson and Greenbaum, 2019). However, cyberloafing may cause productivity losses (Koay et al., 2017), unpredictable liabilities (Mills et al., 2001), and potential risks such as information security breaches for the organization (Hu et al., 2015). It could also distract employees from job tasks and lead to low work engagement (Syrek et al., 2018), low job performance (Askew, 2012; Wu, et al., 2018), and increased psychological symptoms such as fatigue (Wu et al., 2020). In many organizations, cyberloafing is discouraged and even banned (Henle et al., 2009). Nevertheless, employees may still engage in cyberloafing, which has motivated many scholars to search for the reasons why cyberloafing occurs.

Scholars have suggested that employees engage in cyberloafing as a coping strategy to replenish the resources consumed by negative emotions (e.g., anger, Zhang et al., 2019) that result from unsatisfying job stressors (e.g., abusive supervision, Agarwal and Avey, 2020; Lim, et al., 2021; hindrance stressors, Zhou et al., 2021, in press). The function of cyberloafing as a coping strategy may vary when dealing with different discrete negative emotions. From the perspective of replenishing resources and temporarily eliminating negative feelings, it seems that cyberloafing helps employees cope with some negative emotions and job stressors. For example, cyberloafing activities help employees relax and have fun, negative emotions such as anger or sadness decay quickly, and employees replenish their resources through cyberloafing. However, when employees resolve cyberloafing to cope with a specific

kind of negative emotion, such as workplace loneliness, it could be maladaptive because cyberloafing seems to be harmful for employees to reconnect with other coworkers (Tandon et al., 2021). Studies in psychology also suggest that loneliness may cause the loss of self-control resources (Baumeister et al., 2005; Stavrova et al., 2022) and lead to problematic addictive behaviors (e.g., gambling, Sirola et al., 2019; internet addiction, Bian and Leung, 2015). Despite such evidence, unfortunately, whether and how workplace loneliness may lead to cyberloafing and measures to mitigate the effects remain underexplored in the extant internet research literature.

This study thus seeks to empirically test whether workplace loneliness leads to cyberloafing via ego depletion and, if so, what can be done to buffer the above-described relationship. Drawing on ego depletion theory (Muraven and Baumeister, 2000), we hypothesize that employees who experience workplace loneliness will make an effort to regulate unpleasant feelings of loneliness. Such emotion regulation efforts will consume employees' self-regulation resources, thereby leading to the weakening of employees' self-control abilities and eliciting a state of ego depletion that increases their tendency to cyberloaf. Fortunately, individuals do not simply rely on themselves to regulate their emotions, and the function of interpersonal emotion regulation inspires us to consider the buffering effect of leader emotion management. We posit that when leaders help employees regulate their negative emotions, individuals rely less on their own regulation efforts and conserve the resources required for self-emotion regulation, thus mitigating the depletion of self-regulation resources caused by workplace loneliness. Figure 1 depicts our research model.

[Insert Figure 1 about here]

2. Literature review and hypothesis development

2.1. Literature review of cyberloafing

Cyberloafing refers to employees' use of the internet for personal purposes during work hours (Lim, 2002). Many scholars refer to Lim's (2002) definition of cyberloafing and treat it as a type of counterproductive work behavior. For example, Askew et al. (2014) suggest that cyberloafing is a withdrawal behavior that reflects

that employees reduced the amount of time spent working to less than what is expected by the organization. Lowe-Calverley and Grieve (2017) view cyberloafing as a form of workplace procrastination. Nevertheless, some scholars view cyberloafing as a more neutral concept and argue for the potential positive effects of such activities. For example, König and Caner de la Guardia (2014) treat cyberloafing as boundary-crossing behaviors that allow employees to manage the boundary between work life and personal lives. Wu et al. (2020) view cyberloafing as a coping behavior in which employees engage to temporarily detach from stressed jobs and recover their resources.

Most cyberloafing studies have focused on understanding the antecedents of cyberloafing, including environmental factors, individual differences, and psychological factors. There are two perspectives regarding how environmental factors influence cyberloafing. The first perspective views cyberloafing as counterproductive and tries to examine how interventions from external environments, such as control (e.g., perceived sanctions, Henle and Blanchard, 2008; punishment, Hensel and Kacprzak, 2021) and monitoring strategies (presence and enforcement of formal internet use and monitoring policies, Ugrin and Pearson, 2013), alert employees and deter cyberloafing. The second perspective views cyberloafing as a coping strategy through which employees used to deal with unsatisfying working environments. For example, stressful work characteristics (e.g., role conflict, Henle and Blanchard, 2008; increased job demands, Elrehail et al., 2021; hindrance stressors, Zhou, et al., 2021, in press; job boredom, Pindek et al., 2018; job-person misfit, Cheng et al., 2020, Zhang, et al., 2019) and unsatisfying workplace interpersonal events (e.g., workplace ostracism, Koay, 2018, Hu et al., 2021; workplace aggression, Andel et al., 2019; abusive supervision, Agarwal and Avey, 2020, Lim et al., 2021) were found to lead to cyberloafing.

Many studies have focused on individual differences to figure out the type of employees who are inclined to cyberloaf in the organization, including the Big Five personality traits (Andreassen et al., 2014; Yildiz Durak and Saritepeci, 2019), external locus of control (Chen et al., 2011), honesty, procrastination (O'Neill et al.,

2014), emotional stability (Kim et al., 2016), and self-control ability (Zhang et al., 2015). Moreover, to reveal the underlying psychological mechanism behind cyberloafing behaviors, employees' cognition (justified cognition about cyberloafing, Betts et al., 2014; Kim et al., 2016; Lim, 2002; Khansa et al., 2017) and emotion are recognized as antecedents of cyberloafing. For example, great pleasure through cyberloafing (Stratton, 2010), anger with unfair treatment (Lim, 2002), emotional conflicts (Zoghbi Manrique de Lara et al., 2019), and exhaustion (Koay, 2018) increase cyberloafing.

Based on current studies of cyberloafing, it seems that the causes of cyberloafing largely vary based on employees' actual needs and motives. For example, some employees deliberately cyberloaf to retaliate to the organization (Agarwal and Avey, 2020); some employees cannot resist the pleasure feelings induced by cyberloafing activities (Stratton, 2010); and some employees need to recover and temporarily detach from stressful jobs through cyberloafing (Koay, 2018). Therefore, more focused studies are needed to reconcile inconsistent views among the literature. For example, when studying the effects of negative emotions on cyberloafing, we need to focus on the effect of specific discrete emotions on cyberloafing because employees with different emotions usually have different reasons to engage in cyberloafing. In this study, we will discuss how a specific kind of negative emotion, such as workplace loneliness, influences cyberloafing. The reason for such a focus will be elaborated based on the literature review of workplace loneliness.

2.2. Literature review of workplace loneliness

2.2.1.   Workplace loneliness: Concept distinctiveness from other negative emotions and job stressors.

Workplace loneliness is defined as a negative emotional feeling derived from unsatisfying workplace relationships (Wright, 2005), and it is widely recognized as a type of job stressor that employees constantly suffer in organizations (Andel et al., 2021). Since previous studies suggested that employees tend to engage in cyberloafing to cope with negative emotions or job stressors, it is necessary to explain

how workplace loneliness is different from other negative emotions or reported job stressors to highlight the necessity of conducting the present study.

First, workplace loneliness differs from other negative emotions due to its relevance to two self-regulation domains (e.g., emotion regulation and self-regulation in social domains), while other negative emotions are generally relevant to the emotion regulation process but are not clearly related to self-regulation in the social domain (Finkel and Fitzsimons, 2011). Self-regulation efforts are domain-specific depending on various self-regulatory goals (e.g., to achieve personal achievement goals, to maintain positive rather than negative emotions, to gain satisfying social relationships, Vohs and Baumeister, 2016). If we consider only the emotion regulation process, cyberloafing could be helpful because such activities allow employees to have fun and relax to mitigate negative emotions such as sadness or anger. However, cyberloafing may be maladaptive when coping with negative emotions that involve different self-regulation domains. For example, when dealing with anxiety (e.g., a worrying feeling about failing to achieve challenging goals), even if cyberloafing temporarily detaches employees from anxious feelings, it might cause work procrastination and be harmful for future personal achievements; consequently, cyberloafing may represent a form of self-regulation failure that ultimately increases anxiety. In a similar vein, workplace loneliness is different from other negative emotions because it is uniquely relevant to self-regulation in social domains. For example, Qualter et al. (2015) suggest that loneliness activates individuals' motivation to regulate themselves to reconnect with others; Gardner et al. (2005) propose that loneliness triggers a belonging regulation system devoted to maintaining an acceptable level of social inclusion for individuals. In terms of reasoning, we cannot simply treat cyberloafing as a strategy to mitigate the negative emotional feeling of loneliness; we still need to consider the implications of cyberloafing for self-regulation in the social domain. In line with Tandon et al.'s (2021) opinion, cyberloafing tends to isolate employees from coworkers, consequently cutting employees off from future connections with coworkers and perpetuating lonely feelings. In summary, cyberloafing reflects the potential failure of self-regulation in

the social domain, and it is more relevant to workplace loneliness than to other negative emotions.

Second, workplace loneliness is different from the job stressors that have been reported as antecedents of cyberloafing. It is widely accepted that job stressors drive employees to engage in cyberloafing to replenish consumed resources (Wu et al., 2020, Elrehail et al., 2021, Zhou, et al., 2021, in press). However, the relationship between job stressors and cyberloafing is a very complex picture that needs to be further explored. On the one hand, the effects of job stressors on cyberloafing vary across job stressors. For example, some job stressors (e.g., role overload, Henle and Blanchard 2008; challenge stressors, Zhou et al., 2021, in press) decrease rather than increase cyberloafing. On the other hand, employees cope with various job stressors for different reasons (to recover, Henle and Blanchard 2008; to retaliate against the undesirable treatments in organizations, Lim et al., 2021). It should be further noted that workplace loneliness is a unique type of job stressor compared to previously reported job stressors. Workplace loneliness is different from job stressors such as role conflict (Henle and Blanchard, 2008), job boredom (Pindek et al., 2018), and job-person misfit (Cheng et al., 2020, Zhang, et al., 2019) because these job stressors are more relevant to unsatisfying task characteristics, while workplace loneliness is more relevant to nontask characteristics. Specifically, ambiguous and conflicting tasks tend to increase role conflicts (Henle and Blanchard, 2008); job boredom is usually attributed to inadequately stimulating job tasks (Fisherl, 1993); job-person misfit occurs when employees are assigned to job tasks that do not fit with their skills or competence (Kristof-Brown et al., 2005). However, workplace loneliness is more relevant to nontask attributes because lonely employees focus more on social environmental factors (e.g., interpersonal climate, Wright, 2005) in organizations. Workplace loneliness is also different from job stressors such as workplace ostracism (Koay, 2018), workplace aggression (Andel et al., 2019), and abusive supervision (Agarwal and Avey, 2020) because the presence/absence of these negative interpersonal events is not the key factor in predicting workplace loneliness. Essentially, workplace loneliness is a subjective feeling that captures employees'

negative emotions derived from the perception of unmet relationships at work. Employees may still feel lonely in the absence of negative interpersonal events only because they think existing workplace relationships fail to meet their expectations (e.g., cannot make friends in organizations, Wright and Silard, 2021). Furthermore, when employees suffer from negative interpersonal events (e.g., abusive supervision, workplace aggression), they may seek or receive social support from other coworkers, suggesting that experiencing negative social events does not necessarily increase loneliness.

2.2.2. *Workplace loneliness: existing empirical findings.*

Studies have indicated that workplace loneliness is detrimental for attitudinal outcomes such as low job satisfaction (Wright, 2005), low organizational commitment (Ertosun and Erdil, 2012), high turnover intention (Ertosun and Erdil, 2012) and behavioral outcomes such as low job performance (Ozcelik and Barsade, 2018), low creative behavior (Peng et al., 2017), and low organizational citizenship behavior (Lam and Lau, 2012). If lonely feelings at work are not properly addressed, they might lead to emotional exhaustion (Anand and Mishra, 2021), depression (Mushtaq et al., 2014), impairment of subjective well-being (Erdil and Ertosun, 2011), and physical symptoms, such as low sleep quality (Robinson and Marentette, 2014) and high blood pressure (Hawkley et al., 2010).

Empirical studies in general (not workplace-specific settings) suggest that loneliness is positively related to excessive internet usage (Özdemir et al., 2014), smartphone addiction (Mahapatra, 2019), and online gambling (Sirola et al., 2019). This line of research theorizes that problematic internet behaviors are maladaptive forms of coping behaviors for lonely individuals (Melodia et al., 2022). Even if the virtual internet world provides a temporary shelter for lonely individuals to avoid unsatisfying real-world interactions, such avoidance coping behaviors will perpetuate the lonely feeling since the online interaction has been viewed as superficial (Morahan-Martin and Schumacher, 2003). Considering the existing studies about the relationships between loneliness and increased internet usage, we think it is possible

that workplace loneliness also increases cyberloafing as a maladaptive coping behavior.

According to ego depletion theory (Muraven and Baumeister 2000), the resources used by individuals for self-regulation functions are essential but limited, and the process of self-regulation functions will consume these resources; consequently, individuals experience ego depletion. Emotional inhibition or exaggeration requires the consumption of limited emotion-regulation resources, which could result in ego depletion (Diestel et al., 2015). In the psychological state of ego depletion, individuals' self-control ability declines, which makes it more difficult for them to resist the temptation of cyberloafing even if such behaviors may bring potential costs (Wagner et al., 2012). In particular, cyberloafing is more likely to be a type of temptation that requires lonely workers to avoid because such behaviors may get them isolated and alienated from coworkers (Tandon et al., 2021), which causes long-term costs for their reconnections to coworkers. Therefore, it is important to investigate this issue and seek appropriate mitigation strategies.

2.3. Hypothesis development

2.3.1. The direct effect of workplace loneliness on cyberloafing

Many studies suggest that negative emotions increase self-regulation failure and trigger self-defeating behaviors, such as alcohol consumption (Witkiewitz and Villarroel, 2009) and excessive internet usage (LaRose et al., 2003). Cyberloafing brings immediate pleasures and distracts individuals' attention away from job tasks (Wagner et al., 2012) or learning activities (Wu et al., 2018; Wu et al., 2021). Lonely employees may feel a strong need to immerse themselves in cyberloafing activities. Moreover, lonely employees tend to ruminate over negative feelings, neglect to monitor their behaviors (Wagner and Heatherton, 2014), and thus succumb to the temptation of cyberloafing. Empirically, previous studies have found that loneliness is related to smartphone addiction (Bian and Leung, 2015) and online gambling (Sirola et al., 2019). These findings also imply the possibility of a positive relationship

between workplace loneliness and cyberloafing. Therefore, we propose the following hypothesis:

Hypothesis 1: Workplace loneliness is positively related to cyberloafing.

2.3.2. *The mediating role of ego depletion*

Ego depletion depicts a state wherein the self does not have sufficient self-regulation resources, and the factors that trigger the expenditure of self-control resources may cause ego depletion (Muraven and Baumeister, 2000). First, as Muraven (2012) suggests, ego depletion occurs any time an individual overrides, inhibits, stops, or changes an emotion. To cope with workplace loneliness, employees must expend self-control resources. However, it is difficult to suppress negative emotions, and attempts to do so are cognitively demanding and unlikely to be successful (Wagner and Heatherton, 2014); as a result, employees may end up with ego depletion. Second, Muraven (2012) also suggests that demanding interpersonal interactions also increase ego depletion. Lonely individuals usually feel anxious and incompetent to rebuild good relationships with others (Jones et al., 1990), and their strong desire for reconnection to others ironically makes them try too hard in interpersonal interactions, which eventually leads to ego depletion. Therefore, we infer that workplace loneliness will increase ego depletion.

When employees suffer from ego depletion because of workplace loneliness, they are more likely to become distracted from job tasks and thus engage in cyberloafing. Cyberloafing usually contains abundant stimuli that provide immediate gratification; in contrast, job tasks are mundane and require persistent efforts from employees. Ego-depleted individuals may be vulnerable to the temptation to engage in activities that bring instant pleasure because they usually underestimate the time in which they indulge in such activities (Muraven, 2012). Several studies have suggested that ego-depleted employees have low abilities to inhibit the impulse to search for immediate pleasures (e.g., through drinking alcohol, Sayre et al., 2020 and unhealthy eating, Liu et al., 2017). Thus, we infer that lonely employees tend to suffer ego depletion, which makes them less likely to resist temptation to cyberloaf despite the

expectation that they need to focus on persistence-based job tasks. We therefore propose the following:

Hypothesis 2: Ego depletion mediates the relationship between workplace loneliness and cyberloafing.

2.3.3. *The moderating role of leader problem-focused interpersonal emotion management*

Leader interpersonal emotion management (IEM) refers to leaders' attempts to influence followers' undesirable emotional state as opposed to followers' internal or personal emotion regulation (Richard, 2020). Little et al. (2016) conceptualized two types of leader IEM strategies: problem-focused (situation modification, cognitive change) and emotion-focused (attention deployment, emotional response regulation). Within problem-focused strategies, situation modification refers to the leader's modification of certain aspects of a situation such that the problem causing negative emotions no longer exists. Cognitive change refers to a leader making changes such that the employee perceives the problem from a different perspective and can interpret it in a positive way (Little et al., 2016). In contrast, emotion-focused strategies cannot alleviate sources of negative emotions in the environment. For instance, attentional deployment can only distract followers from negative emotions momentarily, while the causes in the follower's environment are neither mitigated nor resolved. The usage of modulating the emotional response conveys to followers that their emotions must be suppressed, and followers may view leaders using such a strategy as apathetic regarding their situations. Little et al. (2016) found that a leader's problem-focused IEM can enhance leader-follower interaction, while emotion-focused strategies obtain less positive outcomes. Therefore, we infer that leader problem-focused IEM rather than emotion-focused IEM helps alleviate the ego depletion of lonely employees.

According to social baseline theory (Coan and Maresh, 2014), having access to social regulation resources will help individuals conserve regulation resources and return to their baseline state. This theory has been used to explain the moderating role of interpersonal emotion regulation between negative emotions and regulation efforts.

For example, Coan et al. (2006) show that when individuals suffer from threatening feelings, the presence of interpersonal regulation from a familiar partner reduces brain activation in circuits associated with effortful emotion regulation. Lougheed et al. (2016) suggest that mothers who touch and comfort their daughters will share the load derived from their daughters' efforts to deal with stressful feelings. Thiel et al. (2018) also suggest that leaders' problem-focused IEM mitigates the impacts of negative emotions (e.g., threatening) on subsequent outcomes (e.g., interpersonal cooperation). Similarly, in the context of this study, as leaders with high problem-focused IEM will share followers' emotional load and offer supporting resources to address the causes of feelings of loneliness, employees will rely less on their own resources to manage workplace loneliness and thereby avoid the loss of self-regulation resources and reduce the possibility of ego depletion. Hence, we propose the following hypothesis:

>*Hypothesis 3: Leader problem-focused IEM moderates the relationship between workplace loneliness and ego depletion such that the relationship between workplace loneliness and ego depletion is stronger when leader problem-focused IEM is low than when leader problem-focused IEM is high.*

The intervention of leader problem-focused IEM helps employees adjust their emotions from workplace loneliness and reduces the likelihood of ego depletion. Under this condition, employees will have sufficient self-regulation resources and will not feel ego-depleted; thus, they will be able to resist cyberloafing. Therefore, we hypothesize the following:

>*Hypothesis 4: Leader problem-focused IEM moderates the positive indirect effect of workplace loneliness on cyberloafing via ego depletion such that such a positive indirect effect is stronger when leader problem-focused IEM is low than when leader problem-focused IEM is high.*

3. Method

3.1. Participants

For our research, we first secured consent and support from human resources managers in three internet companies[1] and obtained lists of employees who we then contacted. We explained the purpose of our study to those employees and invited them to participate in the survey. To avoid the potential for same-source common method bias, the cyberloafing behavior of the focal employee was rated by a colleague, not by the employee herself or himself, and the data were collected at three time points, with a month interval between each time point. To avoid social desirability, we designed the data collecting materials and procedures following the suggestions of Walzenbach (2019). First, we used a self-administered survey procedure instead of personal or telephone interviews. Second, we provided a clear explanation of the survey (e.g., academic usage rather than evaluative purpose) and reassured the employees that the answers they provided would be confidential. Third, we checked all the items of the questionnaire to ensure that the wording of the questions was neutral rather than positive or negative.

Incentives were offered to participate in our study. Specifically, the participants who completed the Time 1 survey were rewarded 10 Chinese RMB yuan (approximately 1.5 US dollars). To motivate the focal employees and their colleagues to enroll in surveys at Time 2 and Time 3, they were offered an additional 10 Chinese RMB yuan each time. Due to the incentive effect of pay-for-participation, our study had a very high response rate across the three waves. At Time 1, we invited the employees to fill out paper-and-pencil questionnaires reporting their demographic information, workplace loneliness, leader IEM, and the controls (responses =292). At Time 2, we distributed ego depletion measures to the employees who finished the Time 1 survey (responses = 254). At Time 3, we collected the cyberloafing data. Before the survey, we asked the focal employee to provide a list of colleagues whose

---

[1] According to Lim and Teo (2005), to study employee internet behaviors, it is better to collect data with working adults who have access at work to the internet. Different from other industries in which internet access may not so essential (e.g., assembly line workers in the manufacturing industry), employees in the internet companies are more familiar with internet usage, they usually have easy access to the internet.

office desk was near him or her and who could observe his or her computer screen[2]. We randomly selected one of the colleagues who could observe the computer screen of the focal employee to report the cyberloafing behavior of the focal employee. As suggested by prior research (Askew et al., 2014, 2019), colleague-rated cyberloafing is an effective approach to reduce the impact of common method variance and social desirability on the results. The final sample in our study included 219 employee-colleague dyads (response rate of 61.34%). The demographic information about the focal employees is presented in Table I.

[Insert Table I about here]

3.2. Measures

All construct measures are based on the existing ones in the literature in English. They were first translated into Chinese and then back-translated into English following standard translation/back-translation procedures (Brislin 1970). Specifically, the English version of the questionnaire was first translated into Chinese by two doctoral students majoring in business administration who are not only familiar with the constructs in the field of organizational behavior research but also have high levels of English proficiency. The back-translation was conducted by two bilingual (English, Chinese) postgraduate students. Finally, the translation team made iterative adaptations to resolve any inconsistencies between the translated Chinese version and the original English version questionnaire.

Workplace loneliness: Workplace loneliness was measured using Lam and Lau's (2012) 4-item scale. The sample items included "At work, people are around me but not with me" (1=strongly disagree to 5=strongly agree; Cronbach's α =0.87).

---

2 Three procedures were designed to avoid colleagues' underestimation of the focal employees' cyberloafing due to their hiding of cyberloafing. First, the focal employees were informed of the general purpose of our study (e.g., academic usage rather than evaluative purpose), and the measurement of cyberloafing was not mentioned. Second, researchers directly contacted the colleague of the focal employee to complete questionnaires to decrease the focal employees' awareness of the evaluation. Third, the guidance for cyberloafing items pertains to previous daily observation before the survey time (when focal employees selected the colleagues). To be noted, if the focal employees' hiding of cyberloafing inevitably causes colleagues' lower evaluation for cyberloafing, our data can be seen as a conservative test of the hypothesized relationships, because when employees are not deliberately hiding their cyberloafing, the effect may be stronger.

Cyberloafing: Cyberloafing was measured using Lim and Teo's (2005) 13-item scale. The sample items included "visit general news websites" and "check nonwork-related e-mail" (1= never, 5= always; Cronbach's α = 0.92).

Ego depletion: Ego depletion was measured using Lanaj, Johnson and Barnes' (2014) 5-item scale. The sample items included "it would take much effort for me to concentrate on something" (1=strongly disagree to 7=strongly agree; Cronbach's α = 0.93).

Leader problem-focused IEM: Leader problem-focused IEM was measured using Little et al.'s (2016) 10-item scale. The sample items included "My supervisor removes the negative aspects of situations that are negatively impacting me" (1=strongly disagree to 5=strongly agree; Cronbach's α = 0.93).

Control variables: We included gender, age, education, organizational tenure, and dyadic tenure as control variables following Lim and Chen (2012). In addition, we controlled for sleep quality (e.g., "During the past 30 days, how would you rate your sleep quality overall?"; Hammer et al., 2020) because it can predict cyberloafing, and such an effect can also be explained by ego-depletion theory (Wagner et al., 2012). We also controlled for workplace ostracism (e.g., "My coworkers ignore me at work"; Cronbach's α= 0.87; Peng and Zeng, 2016), as it may be related to loneliness such that employees who suffer ostracism may feel isolated in the workplace. Finally, since leader problem-focused IEM is a dimension of leader IEM, to rule out alternative explanations, we controlled for the effect of leader emotion-focused IEM (e.g., "My supervisor distracts my attention from the aspects of problems causing undesired negative emotions in me"; Cronbach's α= 0.89; Little et al., 2016). We also controlled for the moderating effect of emotion-focused IEM while testing the moderating effect of problem-focused IEM.

3.3. Analytic approach

We first used SPSS 23.0 for descriptive analysis and correlation analysis of the main variables. Next, Amos 23.0 was used for confirmatory factor analysis (Agarwal and Avey, 2020; Cheng et al., 2020). For hypothesis testing, we used structural

equation modeling techniques in Mplus 8.3 and combined them with the

bootstrapping method to estimate the significance of the proposed relationships.

4. Results

4.1. Descriptive statistics

Table II shows the means, standard deviations, correlation coefficients, and reliability of the variables. Workplace loneliness was significantly positively correlated with ego depletion ($r = 0.28$, $p< 0.001$) and cyberloafing ($r = 0.31$, $p< 0.001$). Ego depletion was positively correlated with cyberloafing ($r = 0.34$, $p< 0.001$).

[Insert Table II about here]

The results of confirmatory factor analyses showed that the six-factor model including workplace ostracism, workplace loneliness, ego depletion, cyberloafing, leader problem-focused IEM and leader emotion-focused IEM ($\chi^2 = 193.06$, $df = 124$, RMSEA = 0.05, SRMR = 0.05, CFI = 0.97, TLI=0.96, NFI=0.92) fit the data better than the five-factor models and the single-factor model ($\Delta\chi^2$ s $\geq$53.65, Δdf s $\geq$5, $p <$ 0.001). These results provide support for the validity of the study variables. The detailed results are available upon request.

4.2. Common method variance

We utilized multiwave and multisource data collection methods to reduce common method bias. However, given that some variables were still self-reported by the focal employee (e.g., workplace loneliness, leader problem-focused IEM, leader emotion-focused IEM, ego depletion, sleep quality, workplace ostracism), it was necessary to check whether common method bias was present. Therefore, we conducted two procedures to ensure that common method bias was not a serious concern (Podsakoff et al., 2003). First, we performed Harman's single-factor test (Harman, 1976). The results showed that the highest value among the factors that accounted for the variance in the data were 24.15% (less than 50%), which suggests that common method variance is not a concern. Second, we used a partial correlation procedure described by Podsakoff et al. (2003) and partialled out a general method

factor, which is the first unrotated factor generated from the exploratory factor analysis of the self-reported items. If the partial correlations between those relevant variables remain significant, then the observed relationships are less likely to be contaminated by common method variance. The partial correlation results are quite similar to those of correlations, and they share the same pattern of significance, which suggests that common method variance is not a significant problem. The detailed results are available upon request.

4.3. Hypothesis testing

4.2.1. Main Effects and Mediating Effects

Hypothesis 1 proposed a positive relationship between workplace loneliness and cyberloafing. The overall fit of the main effects model was acceptable ($\chi^2 = 267.69$, $df = 134$, RMSEA = 0.07, SRMR = 0.06, CFI = 0.91, TLI = 0.90). As shown in Figure 2a, the path coefficient from workplace loneliness to cyberloafing was positive and significant ($\beta = 0.30$, $p < 0.01$), supporting Hypothesis 1[3].

[Insert Figure 2a and Figure 2b about here]

Hypothesis 2 posited that ego depletion mediates the relationship between workplace loneliness and cyberloafing. The overall fit of the mediating effects model was acceptable ($\chi^2 = 400.79$, $df = 225$, RMSEA = 0.06, SRMR = 0.06, CFI = 0.92, TLI = 0.91). As shown in Figure 2b, the indirect effect between workplace loneliness and cyberloafing via ego depletion was significant ($\beta = 0.08$, $p < 0.05$). To check the robustness of mediating effects, we followed the suggestion by Nitzl et al. (2016) by using PLS-SEM techniques to test the mediating effects in Smart PLS software (Wong, 2013). The results indicated that ego depletion has a significant indirect effect

---

[3] Despite not being the focus of our study, we also included some other types of negative emotions (e.g., anger, anxiety, and depression) in the empirical model to test the incremental predictive effect of workplace loneliness on cyberloafing. In addition, the results showed that workplace loneliness still significantly predicted cyberloafing ($\beta = 0.21$, $p < 0.01$) while controlling the effects of anger, anxiety and depression.

between workplace loneliness and cyberloafing ($\beta = 0.07$, $p < 0.05$), thus confirming Hypothesis 2.

4.2.2 Moderating Effects and Moderated Mediation Effects

Hypothesis 3 proposed that leader problem-focused IEM moderates the relationship between workplace loneliness and ego depletion. As shown in Figure 3a, the moderating effect of leader problem-focused IEM was significant ($\beta = -0.62$, $p < 0.01$). The results of the simple slope analysis indicated that workplace loneliness was positively related to ego depletion when leader problem-focused IEM was low ($\beta = 0.44$, $p < 0.001$), whereas workplace loneliness was not significantly related to ego depletion when leader problem-focused IEM was high ($\beta = 0.05$, $p = 0.62$). Similar to the simple slope analysis results, as shown in Figure 3b, the positive relationship between workplace loneliness and ego-depletion was stronger at low levels of leader problem-focused IEM, and this positive relationship between workplace loneliness and ego-depletion seemed to disappear when leader problem-focused IEM was high. Therefore, Hypothesis 3 was supported.

[Insert Figure 3a and Figure 3b about here]

Hypothesis 4 predicted that the positive indirect effect of workplace loneliness on employees' cyberloafing via ego depletion is moderated by leader problem-focused IEM. Specifically, the indirect effect of ego depletion between workplace loneliness and cyberloafing is stronger when leader problem-focused IEM is low than when leader problem-focused IEM is high. Using the path difference analysis method, we calculated the total indirect effects and differences of "workplace loneliness -> ego depletion -> cyberloafing" at high and low levels of leader problem-focused IEM. The results presented in Table III show that when leader problem-focused IEM is high, the indirect effect of ego depletion between workplace loneliness and cyberloafing is not significant ($\beta = -0.01$; 95% CI = -0.06, 0.03, including zero), whereas when leader problem-focused IEM is low, the indirect effect of ego depletion between workplace loneliness and cyberloafing is significant ($\beta = 0.22$; 95% CI = 0.06, 0.38, excluding zero); the difference is also significant ($\beta = 0.23$; 95% CI = 0.06, 0.41, excluding

zero). These results indicate that the indirect effect of ego depletion between workplace loneliness and cyberloafing is stronger when leader problem-focused IEM is low than when leader problem-focused IEM is high. Thus, Hypothesis 4 was supported.

[Insert Table III about here]

5. Discussion

This study examines the effects of workplace loneliness and employee cyberloafing with ego depletion as a mediator and leader problem-focused IEM as a moderator. The results support the research model and its hypotheses, which have significant implications for both theory and practice.

5.1. Theoretical implications

The study has several important theoretical implications. First, it contributes to the cyberloafing literature by identifying a new antecedent of cyberloafing behaviors. Previous research has found that personal factors such as demographic and trait variables and situational factors such as job characteristics are the major antecedents of employees' cyberloafing (Lim and Chen, 2012; Jia and Jia, 2013). The present study explores the issue of cyberloafing from the perspective of employee negative emotion and reveals that workplace loneliness can be one of the reasons for employee cyberloafing. This finding corroborates several previous studies that suggest that unsatisfying working experiences trigger increased cyberloafing (Pindek et al., 2018; Andel et al., 2019). Furthermore, as workplace loneliness depicts employees' negative feelings about unsatisfying social relationships at work, our study provides further evidence to support that unsatisfying social interaction in organizations, such as workplace ostracism and workplace aggression, may trigger cyberloafing (Koay, 2018; Andel et al., 2019).

Second, the study advances our understanding of employee cyberloafing by integrating the perspectives of emotion regulation and ego depletion. Our findings provide further evidence that when individuals lack self-control resources or abilities,

they find it difficult to resist temptation to cyberloaf (Mercado et al., 2017). Different from previous studies that emphasize self-control as a personality trait (Restubog et al., 2011) or the replenishment of self-control resources by sleeping well at night (Wagner et al., 2012), our study reveals a different situation in which employees are more susceptible to the temptation of cyberloafing, i.e., when employees experience lonely feelings in the workplace, they invest self-control resources to regulate those negative feelings, resulting in ego depletion. Moreover, the present study also adds new findings to the line of research about negative emotions and self-regulation failure for employees. Previous studies suggest that workplace negative emotions trigger increased self-regulation failure after work (overeating Liu et al., 2017 and drinking alcohol, Sayre et al., 2020), and the present study suggests that negative emotions may also trigger cyberloafing as a form of self-regulation failure during work time, which is worthy of more management attention.

Finally, by revealing the moderating role of leader problem-focused IEM, the present study also contributes to the fledgling leader interpersonal emotion management literature. Prior studies have revealed several effects of leader problem-focused IEM for promoting positive interpersonal outcomes, such as enhancing leader-member exchange and trust in dyadic leader-follower relationships (Little et al., 2012), reducing conflict and facilitating cooperation among group members (Thiel et al., 2018). In contrast with previous studies, the present study suggests that leader problem-focused IEM helps employees reduce negative feelings (e.g., workplace loneliness), benefit from better self-regulation, avoid ego depletion and reduce cyberloafing. This result adds new evidence to support the idea that the function of effective leader IEM is to help employees prevent resource drain and burnout in organizations (Martínez-Íñigo et al., 2015; Kaplan et al., 2014).

5.2. Practical implications

Our findings have several important practical implications. First, workplace loneliness is an important hidden danger that leads to cyberloafing. Organizations should pay attention to the potential harm caused by employees' workplace loneliness

and apply certain interventions to avoid negative outcomes for workplace loneliness. For example, organizations should pay special attention to the times when lonely feelings may easily occur (e.g., when employees have recently entered the organization, Nelson, 1987). Organizations should conduct more team-building activities to build an inclusive organization to reduce employees' loneliness (Basit et al., 2019). When employees suffer from feelings of loneliness, organizations can also engage in interventions to help lonely employees. Such interventions may include establishing employee assistance programs to help lonely workers change the maladaptive social cognitions to which lonelier people are prone, offering social support for lonely employees, and seeking opinions from lonely employees to help improve the interpersonal environment around them (Ozcelik and Barsade, 2018).

Second, given that ego depletion is a vital internal mechanism of workplace loneliness in inducing cyberloafing behavior, organizations should try to conduct activities to mitigate employees' ego depletion, such as tea breaks, relaxation training, and entertainment (Scheel et al., 2017). As such activities can to a certain extent help prevent the loss of resources and promote the recovery of resources, it is suggested that organizations organize relaxation activities during work breaks such as tea breaks, relaxation training, and entertainment.

Finally, compared with low leader IEM, employees under high leader IEM conditions are less likely to engage in cyberloafing behaviors resulting from workplace loneliness and ego depletion. Our study thus suggests a more positive and productive approach to managing and preventing potential cyberloafing behavior by helping employees resolve their negative emotional issues. Most organizations treat cyberloafing as a form of counterproductive behavior. In terms of reasoning, many management practitioners often focus on how to design policies to stop cyberloafing by imposing harsh punishments or using sophisticated monitoring systems (Henle et al., 2009). Our findings imply that one of the fundamental solutions for preventing cyberloafing is for organization leaders to help their employees deal with the potential negative events that drive them to cyberloaf. For example, if leaders can help alleviate employees' negative emotions such as loneliness, employees can easily return their

focus to their tasks (Little et al., 2016). Leaders could attempt to modify certain aspects of a work situation to mitigate employees' loneliness; they could also help employees perceive those problems in positive ways.

5.3. Limitations and future directions

This study has a few limitations. First, the sample of the present study comes from China, and it is not clear whether our findings can be generalized to other cultures. Cross-cultural studies suggest that individuals from Eastern cultures have higher levels of dependent self-construal and tend to place greater weight on workplace relationship satisfaction. However, individuals in Western cultural contexts have higher independent self-construal, and the quality of workplace relationships may be less important. Therefore, future studies should also examine whether the results can be generalized to Western cultures. Second, in the current study, we focus only on the moderating role of leaders' problem-focused IEM; however, leaders can also help employees mitigate unpleasant emotional feelings and evoke positive emotions from employees by exhibiting positive behaviors and expressing positive emotions. Therefore, future studies may investigate the moderating effects of different positive leadership modes (e.g., humble leadership, D'Errico and Poggi, 2019; benevolent leadership). Third, our study shows that loneliness, as a type of negative emotion derived from poor workplace relationships, could trigger ego depletion and cyberloafing. Future research may examine other types of discrete negative emotions (e.g., hatred, fear, anxiety) that are generated from negative interpersonal interactions such as bullying and ridiculization (D'Errico and Poggi, 2016). Finally, although we use a multisource, time-lagged survey design to reduce common method variance, we encourage future research to adopt experimental designs to draw causal conclusions. In particular, we think it will be very insightful to investigate the dynamic causal relationship between workplace loneliness and cyberloafing, as it is possible that when employees immerse themselves on the internet, they will be less likely to improve their relationships with their coworkers; in turn, feelings of loneliness will be further strengthened.

6. Conclusion

Workplace loneliness could lead to cyberloafing because it increases ego depletion, which could reduce individuals' subsequent behavioral control. However, the ego-depleting implications of workplace loneliness can be mitigated by leaders' problem-focused IEM strategies. To prevent employees from resorting to cyberloafing, leaders can help employees adjust their negative emotions proactively through cognitive change and situation modification.

References

Agarwal, U.A. and Avey, J.B. (2020), "Abusive supervisors and employees who cyberloaf: examining the roles of psychological capital and contract breach", *Internet Research,* Vol. 30 No. 3, pp. 789-809. https://doi.org/10.1108/INTR-05-2019-0208.

Anand, P. and Mishra, S.K. (2021), "Linking core self-evaluation and emotional exhaustion with workplace loneliness: does high LMX make the consequence worse?", *The International Journal of Human Resource Management,* Vol. 32 No.10, pp.2124-2149. https://doi.org/10.1080/09585192.2019.1570308.

Andreassen, C., Torsheim, T. and Pallesen, S. (2014), "Predictors of Use of Social Network Sites at Work - A Specific Type of Cyberloafing", *Journal of Computer-Mediated Communication,* Vol. 19 No. 4, pp. 906-921. https://doi.org/10.1111/jcc4.12085.

Andel, S.A., Kessler, S.R., Pindek, S., Kleinman, G. and Spector, P.E. (2019), "Is cyberloafing more complex than we originally thought? Cyberloafing as a coping response to workplace aggression exposure", *Computers in Human Behavior,* Vol.101, pp. 124-130. https://doi.org/10.1016/j.chb.2019.07.013.

Andel, S.A., Shen, W. and Arvan, M.L. (2021), "Depending on your own kindness: The moderating role of self-compassion on the within-person consequences of work loneliness during the COVID-19 pandemic", *Journal of Occupational Health Psychology.* Vol. 26 No. 4, pp. 276–290. https://doi.org/10.1037/ocp00.

Askew, K. (2012), "*The relationship between cyberloafing and task performance and an examination of the theory of planned behavior as a model of cyberloafing*", (Unpublished doctoral dissertation), University of South Florida

Askew, K., Buckner, J.E., Taing, M.U., Ilie, A., Bauer, J.A. and Coovert, M.D. (2014), "Explaining cyberloafing: the role of the theory of planned behavior", *Computers in Human Behaviour,* Vol. 36 No. 7, pp. 510-519. https://doi.org/10.1016/j.chb.2014.04.006

Askew, K.L., Ilie, A., Bauer, J.A., Simonet, D.V., Buckner, J.E. and Robertson, T.A. (2019), "Disentangling how coworkers and supervisors influence employee

cyberloafing: what normative information are employees attending to?", *Journal of Leadership & Organizational Studies,* Vol.26 No. 4, pp. 526-544. https://doi.org/10.1177/1548051818813091

Basit, A.A., Azeem, M.U. and Haq, I. (2019), "Towards making inclusive organizations: a conditional process analysis of workplace loneliness", *In Academy of Management Proceedings* (Vol. 2019, No. 1, p. 16463). Briarcliff Manor, NY 10510: Academy of Management.

Baumeister, R.F., DeWall, C.N., Ciarocco, N.J. and Twenge, J.M. (2005), "Social exclusion impairs self-regulation", *Journal of Personality and Social Psychology,* Vol. 88 No.4, pp.589–604. https://doi.org/10.1037/0022-3514.88.4.589.

Betts, T.K., Setterstrom, A.J., Pearson, J.M. and Totty, S. (2014), "Explaining cyberloafing through a theoretical integration of theory of interpersonal behavior and theory of organizational justice", *Journal of Organizational and End User Computing,* Vol. 26 No. 4, pp. 23-42. http://doi.org/10.4018/joeuc.2014100102.

Bian, M. and Leung, L. (2015), "Linking loneliness, shyness, smartphone addiction symptoms, and patterns of smartphone use to social capital", *Social Science Computer Review,* Vol. 33 No.1, pp. 61-79. https://doi.org/10.1177/0894439314528779

Brislin, R.W. (1970), "Back-translation for cross-cultural research", *Journal of Cross-Cultural Psychology,* Vol.1 No. 3, pp.185-216. https://doi.org/10.1177/135910457000100301.

Burleson, J. and Greenbaum, B.E. (2019), "When spheres collide: a refocused research framework for personal use of technology at work", *Communications of the Association for Information Systems,* Vol. 45 No. 1, pp. 411-432. https://doi.org/10.17705/1CAIS.04523.

Chen, J.V., Ross, W.H. and Yang, H.H. (2011), "Personality and motivational factors predicting internet abuse at work", *Cyberpsychology,* Vol. 5 No. 1, pp. 1-11. https://cyberpsychology.eu/article/view/4240.

Cheng, B., Zhou, X., Guo, G. and Yang, K. (2020), "Perceived overqualification and cyberloafing: A moderated-mediation model based on equity theory", *Journal of Business Ethics,* Vol. 164 No. 3, pp. 565-577. https://doi.org/10.1007/s10551-018-4026-8.

Coan, J.A., Schaefer, H.S. and Davidson, R.J. (2006), "Lending a hand: Social regulation of the neural response to threat", *Psychological Science,* Vol. 17 No.12, pp.1032-1039. https://doi.org/10.1111/j.1467-9280.2006.01832.x

Coan, J.A. and Maresh, E.L. (2014), "Social baseline theory and the social regulation of emotion", J.J. Gross (Ed.), *The Handbook of Emotion Regulation (2nd Ed.),* New York, NY: Guilford Press, pp. 221-238.

D'Errico, F. and Poggi, I. (2016), "The bitter laughter". When parody is a moral and affective priming in political persuasion", *Frontiers in Psychology,* Vol. 7, 1144. https://doi.org/10.3389/fpsyg.2016.01144

D'Errico, F. and Poggi, I. (2019), "Tracking a leader's humility and its emotions from body, face and voice", *Web Intelligence*, Vol. 17 No. 1, pp. 63-74. IOS Press. https://doi.org/10.3233/WEB-190401

Diestel, S., Rivkin, W. and Schmidt, K.H. (2015), "Sleep quality and self-control capacity as protective resources in the daily emotional labor process: Results from two diary studies", *Journal of Applied Psychology,* Vol. 100 No. 3, pp. 809-827. https://doi.org/10.1037/a0038373.

Erdil, O. and Ertosun, Ö.G. (2011), "The relationship between social climate and loneliness in the workplace and effects on employee well-being", *Procedia-Social and Behavioral Sciences,* Vol. 24, pp. 505-525. https://doi.org/10.1016/j.sbspro.2012.04.057.

Elrehail, H., Rehman, S.U., Chaudhry, N.I. and Alzghoul, A. (2021), "Nexus among cyberloafing behavior, job demands and job resources: a mediated-moderated model", *Education and Information Technologies*, Vol. 26 No. 4, pp. 4731–4749. https://doi.org/10.1007/s10639-021-10496-1.

Finkel, E.J. and Fitzsimons, G.M. (2011), "The effects of social relationships on self-regulation" K.D. Vohs and R.F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications,* Guilford Publications, pp. 390-406.

Fisherl, C.D. (1993), "Boredom at work: A neglected concept", *Human Relations,* Vol. 46 No. 3, pp. 395-417. https://doi.org/10.1177/001872679304600305.

Gardner, W.L., Pickett, C.L., Jefferis, V. and Knowles, M. (2005), "On the outside looking in: Loneliness and social monitoring", *Personality and Social Psychology Bulletin,* Vol. 31 No.11, pp.1549-1560. https://doi.org/10.1177/0146167205277208.

Harman, H.H. (1976), *Modern factor analysis,* University of Chicago Press, Chicago.

Hammer, L.B., Brady, J.M. and Perry, M.L. (2020), "Training supervisors to support veterans at work: Effects on supervisor attitudes and employee sleep and stress", *Journal of Occupational and Organizational Psychology,* Vol. 93 No. 2, pp. 273-301.

Hawkley, L.C., Thisted, R.A., Masi, C.M. and Cacioppo, J.T. (2010), "Loneliness predicts increased blood pressure: 5-year cross-lagged analyses in middle-aged and older adults", *Psychology and Aging,* Vol.25 No.1, pp.132-141. https://doi.org/10.1037/a0017805.

Henle, C.A. and Blanchard, A.L. (2008), "The interaction of work stressors and organizational sanctions on cyberloafing", *Journal of Managerial Issues,* Vol. 20 No. 3, pp. 383-400. https://www.jstor.org/stable/40604617.

Henle, C.A., Kohut, G. and Booth, R. (2009), "Designing electronic use policies to enhance employee perceptions of fairness and to reduce cyberloafing: An empirical test of justice theory", *Computers in Human Behavior,* Vol. 25 No. 4, pp. 902-910. https://doi.org/10.1016/j.chb.2009.03.005.

Hensel, P.G. and Kacprzak, A. (2021), "Curbing cyberloafing: studying general and specific deterrence effects with field evidence", *European Journal of Information Systems,* Vol. 30 No. 2, pp. 219-235. https://doi.org/10.1080/0960085X.2020.1756701.

Hu, Y., Chen, Y. and Ye, M. (2021), "Eager to belong: social cyberloafing as a coping response to workplace ostracism", *Current Psychology,* pp. 1-10. https://doi.org/10.1007/s12144-021-01690-y.

Hu, Q., West, R. and Smarandescu, L. (2015), "The role of self-control in information security violations: Insights from a cognitive neuroscience perspective", *Journal of Management Information Systems,* Vol. 31 No.4, pp.6-48. https://doi.org/10.1080/07421222.2014.1001255.

Jia, H. and Jia, R., Karau, S. (2013), "Cyberloafing and personality: The impact of the big five traits and workplace situational factors", *Journal of Leadership & Organizational Studies,* Vol. 20 No. 3, pp. 358-365. https://doi.org/10.1177/1548051813488208.

Jones, W.H., Rose, J. and Russell, D. (1990), "Loneliness and social anxiety", H. Leitenberg (Ed.), *Handbook of social and evaluation anxiety*. Springer, Boston, MA, pp. 247-266.

Kaplan, S., Cortina, J., Ruark, G., Laport, K. and Nicolaides, V. (2014), "The role of organizational leaders in employee emotion management: a theoretical model", *The Leadership Quarterly,* Vol. 25 No. 3, pp. 563-580. https://doi.org/10.1016/j.leaqua.2013.11.015.

Khansa, L., Kuem, J., Siponen, M. and Kim, S.S. (2017), "To cyberloaf or not to cyberloaf: the impact of the announcement of formal organizational controls", *Journal of Management Information Systems,* Vol. 34 No. 1, pp. 141-176. https://doi.org/10.1080/07421222.2017.1297173.

Kim, K., Trianadel, M.C., Chng, K. and Oh, N. (2016), "When do employees cyberloaf? An interactionist perspective examining personality, justice and empowerment", *Human Resource Management,* Vol. 55 No. 6, pp. 1041-1058. https://doi.org/10.1002/hrm.21699.

König, C.J. and Caner de la Guardia, M.E. (2014), "Exploring the positive side of personal internet use at work: does it help in managing the border between work and nonwork?", *Computers in Human Behavior*, Vol. 30, pp. 355-360. https://doi.org/10.1016/j.chb.2013.09.021.

Kristof-Brown, A.L., Zimmerman, R.D. and Johnson, E.C. (2005), "Consequences of individuals' fit at work: A meta‑analysis of person–job, person–organization, person–group, and person–supervisor fit", *Personnel Psychology,* Vol. 58 No.2, pp. 281-342. https://doi.org/10.1111/j.1744-6570.2005.00672.x.

Koay, K.Y. (2018), "Workplace ostracism and cyberloafing: a moderated–mediation model", *Internet Research,* Vol. 28 No. 4, pp. 1122-1141. https://doi.org/10.1108/IntR-07-2017-0268.

Koay, K.Y., Soh, P.C.H. and Chew, K.W. (2017), "Do employees' private demands lead to cyberloafing? The mediating role of job stress", *Management Research Review,* Vol.40 No. 9, pp. 1025-1038. https://doi.org/10.1108/MRR-11-2016-0252

Lam, L.W. and Lau, D.C. (2012), "Feeling lonely at work: investigating the consequences of unsatisfactory workplace relationships", *International Journal of Human Resource Management,* Vol. 23 No. 20, pp. 4265-4282. https://doi.org/10.1080/09585192.2012.665070.

Lanaj, K., Johnson, R.E. and Barnes, C.M. (2014), "Beginning the workday yet already depleted? Consequences of late-night smartphone use and sleep", *Organizational Behavior and Human Decision Processes,* Vol. 124 No. 1, pp. 11-23. https://doi.org/10.1016/j.obhdp.2014.01.001.

LaRose, R., Lin, C.A. and Eastin, M.S. (2003), "Unregulated Internet usage: Addiction, habit, or deficient self-regulation?" *Media Psychology,* Vol. 5 No.3, pp. 225-253.

Lim, P.K., Koay, K.Y. and Chong, W.Y. (2021), "The effects of abusive supervision, emotional exhaustion and organizational commitment on cyberloafing: a moderated-mediation examination", *Internet Research,* Vol. 31 No. 2, pp. 497-518. https://doi.org/10.1108/INTR-03-2020-0165

Lim, V.K. (2002), "The IT way of loafing on the job: Cyberloafing, neutralizing and organizational justice", *Journal of Organizational Behavior,* Vol. 23 No. 5, pp. 675-694. https://doi.org/10.1002/job.161.

Lim, V.K. and Teo, T.S. (2005). Prevalence, perceived seriousness, justification and regulation of cyberloafing in Singapore: An exploratory study. *Information & Management*, Vol. 42 No. 8, pp. 1081-1093.

Lim, V.K. and Chen, D.J. (2012), "Cyberloafing at the workplace: gain or drain on work?" *Behaviour & Information Technology,* Vol. 31 No. 4, pp.343-353. https://doi.org/10.1080/01449290903353054.

Little, L.M., Gooty, J. and Williams, M. (2016), "The role of leader emotion management in leader-member exchange and follower outcomes", *The Leadership quarterly,* Vol. 27 No. 1, pp. 85-97. https://doi.org/10.1016/j.leaqua.2015.08.007.

Liu, Y., Song, Y., Koopmann, J., Wang, M., Chang, C.H.D. and Shi, J. (2017), "Eating your feelings? Testing a model of employees' work-related stressors, sleep quality, and unhealthy eating", *Journal of Applied Psychology,* Vol. 102 No.8, pp. 1237–1258. https://doi.org/10.1037/apl0000209.

Lougheed, J.P., Koval, P. and Hollenstein, T. (2016), "Sharing the burden: The interpersonal regulation of emotional arousal in mother− daughter dyads", *Emotion,* Vol. 16 No.1, pp. 83-93. https://doi.org/10.1037/emo0000105.

Lowe-Calverley, E. and Grieve, R. (2017), "Web of deceit: relationships between the dark triad, perceived ability to deceive and cyberloafing", *Cyberpsychology,* Vol. 11 No. 2, p.5. https://doi.org/10.5817/CP2017-2-5.

Mahapatra, S. (2019). "Smartphone addiction and associated consequences: Role of loneliness and self-regulation." *Behaviour & Information Technology*, Vol. 38 No.8, pp.833-844. https://doi.org/10.1080/0144929X.2018.1560499.

Martínez-Íñigo, D., Mercado, F. and Totterdell, P. (2015), "Using interpersonal affect regulation in simulated healthcare consultations: an experimental investigation of self-control resource depletion", *Frontiers in Psychology,* Vol. 6, 1485. https://doi.org/10.3389/fpsyg.2015.01485.

Melodia, F., Canale, N. and Griffiths, M.D. (2022). "The role of avoidance coping and escape motives in problematic online gaming: A systematic literature

review." *International Journal of Mental Health and Addiction*, Vol. 20, pp. 996–1022. https://doi.org/10.1007/s11469-020-00422-w.

Mercado, B.K., Giordano, C. and Dilchert, S. (2017), "A meta-analytic investigation of cyberloafing", *Career Development International,* Vol. 22 No. 5, pp. 546-564. https://doi.org/10.1108/CDI-08-2017-0142.

Mills, J.E., Hu, B., Beldona, S. and Clay, J. (2001), "Cyberslacking! A liability issue for wired workplaces", *Cornell Hotel and Restaurant Administration Quarterly,* Vol.42, pp. 34–47.

Morahan-Martin, J. and Schumacher, P. (2003), "Loneliness and social uses of the Internet", *Computers in Human Behavior,* Vol.19 No.6, pp.659-671. https://doi.org/10.1016/S0747-5632(03)00040-2.

Muraven, M. and Baumeister, R.F. (2000),"Self-regulation and depletion of limited resources: does self -control resemble a muscle", *Psychological Bulletin,* Vol. 126 No. 2, pp. 247-259. https://psycnet.apa.org/doi/10.1037/0033-2909.126.2.247.

Muraven, M. (2012), "Ego depletion: Theory and evidence", Ryan, R.M. (Ed.), *The Oxford handbook of human motivation*. New York, NY: Oxford University Press, pp. 111–126. https://doi.org /10.1093/oxfordhb/9780195399820.013.0007.

Mushtaq, R., Shoib, S., Shah, T. and Mushtaq, S. (2014) "Relationship between loneliness, psychiatric disorders, and physical health? A review on the psychological aspects of loneliness", *Journal of Clinical and Diagnostic Research,* Vol. 8 No. 9, WE01-WE04.

Nelson, D.L. (1987). "Organizational socialization: A stress perspective", *Journal of Organizational Behavior,* Vol. 8 No.4, pp.311-324. https://doi.org/10.1002/job.4030080404.

Nitzl, C., Roldan, J.L. and Cepeda, G. (2016), "Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models", *Industrial Management & Data Systems,* Vol. 116 No. 9, pp. 1849-1864. https://doi.org/10.1108/IMDS-07-2015-0302

O'Neill, T.A., Hambley, L.A., and Chatellier, G.S. (2014), "Cyberslacking, engagement, and personality in distributed work environments", *Computers in Human Behavior,* Vol. 40 No. 11, pp. 152-160. https://doi.org/10.1016/j.chb.2014.08.005.

Ozcelik, H. and Barsade, S.G. (2018), "No employee an island: Workplace loneliness and job performance", *Academy of Management Journal,* Vol.61 No.6, pp. 2343-2366. https://doi.org/10.5465/amj.2015.1066.

Özdemir, Y., Kuzucu, Y. and Ak, Ş. (2014). "Depression, loneliness and Internet addiction: How important is low self-control?", *Computers in Human Behavior*, 34, 284-290. https://doi.org/10.1016/j.chb.2014.02.009.

Peng, J., Chen, Y., Xia, Y. and Ran, Y. (2017), "Workplace loneliness, leader-member exchange and creativity: The cross-level moderating role of leader compassion", *Personality and Individual Differences,* Vol.104, pp.510-515.

Peng, A.C. and Zeng, W. (2017), "Workplace ostracism and deviant and helping behaviors: The moderating role of 360 degree feedback", *Journal of Organizational Behavior,* Vol.38 No.6, pp.833-855.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology,* Vol. 88 No.5, pp. 879-903. https://doi.org/ 10.1037/0021-9010.88.5.879

Pindek, S., Krajcevska, A. and Spector, P.E. (2018), "Cyberloafing as a coping mechanism: Dealing with workplace boredom", *Computers in Human Behavior,* Vol. 86, pp. 147-152. https://doi.org/10.1016/j.chb.2018.04.040

Qualter, P., Vanhalst, J., Harris, R., Van Roekel, E., Lodder, G., Bangee, M., Maes, M. and Verhagen, M. (2015), "Loneliness across the life span", *Perspectives on Psychological Science*, Vol. 10 No. 2, pp. 250-264. https://doi.org/10.1177/1745691615568999.

Restubog, S.L., Garcis, P.R., Toledano, L.S., Amarnani, R.K., Tolendino, L.R. and Tang, R.L (2011), "Yielding to (cyber)-temptation: Exploring the buffering role of self-control in the relationship between organizational justice and cyberloafing

behavior in the workplace", *Journal of Research in Personality,* Vol. 45 No. 2, pp. 247-251. https://doi.org/10.1016/j.jrp.2011.01.006.

Richard, E.M. (2020), "Developing employee resilience: The role of leader-facilitated emotion management", *Advances in Developing Human Resources,* Vol. 22 No. 4, pp. 387-403. https://doi.org/10.1177/1523422320949143.

Robinson, A. and Marentette, D. (2014), "The lonely leader", *Leadership Excellence Essentials,* Vol. 31 No.4, pp.36-37.

Sayre, G.M., Grandey, A.A. and Chi, N.W. (2020), "From cheery to "cheers"? Regulating emotions at work and alcohol consumption after work", *Journal of Applied Psychology,* Vol. 105 No.6, pp. 597-618. https://doi.org/10.1037/apl0000452.

Scheel, T.E., Putz, D. and Kurzawa, C. (2017), "Give me a break: Laughing with colleagues guards against ego depletion", *The European Journal of Humour Research,* Vol.5 No.1, pp.36-51.

Sirola, A., Kaakinen, M., Savolainen, I. and Oksanen, A. (2019), "Loneliness and online gambling-community participation of young social media users"*, Computers in Human Behavior,* Vol. 95, 136-145. https://doi.org/10.1016/j.chb.2019.01.023.

Stavrova, O., Ren, D. and Pronk, T. (2022), "Low self-control: A hidden cause of loneliness?", *Personality and Social Psychology Bulletin,* Vol. 48 No. 3, pp. 347-362. https://doi.org/10.1177/01461672211007228

Stratton, M.T. (2010), "Uncovering a new guilty pleasure: a qualitative study of the emotions of personal web usage at work", *Journal of Leadership and Organizational Studies*, Vol. 17 No. 4, pp. 392-410. https://doi.org/10.1177/1548051809350893.

Syrek, C.J., Kühnel, J., Vahle-Hinz, T. and De Bloom, J. (2018), "Share, like, twitter, and connect: Ecological momentary assessment to examine the relationship between non-work social media use at work and work engagement", *Work & Stress,* Vol. 32 No. 3, pp. 209-227. https://doi.org/10.1080/02678373.2017.1367736

Tandon, A., Kaur, P., Ruparel, N., Islam, J.U. and Dhir, A. (2022), "Cyberloafing and cyberslacking in the workplace: systematic literature review of past achievements and future promises", *Internet Research,* Vol. 32 No. 1, pp. 55-89. https://doi.org/10.1108/INTR-06-2020-0332.

Thiel, C.E., Griffith, J.A., Hardy III, J.H., Peterson, D.R. and Connelly, S. (2018), "Let's look at this another way: How supervisors can help subordinates manage the threat of relationship conflict", *Journal of Leadership & Organizational Studies,* Vol. 25 No.3, pp. 368-380. https://doi.org/10.1177/1548051817750545

Ugrin, J.C. and Pearson, J.M. (2013), "The effects of sanctions and stigmas on cyberloafing", *Computers in Human Behavior*, Vol. 29 No. 3, pp. 812-820. https://doi.org/10.1016/j.chb.2012.11.005.

Vohs, K.D. and Baumeister, R.F. (Eds.). (2016), "*Handbook of self-regulation: Research, theory, and applications (2nd Ed.)*", New York: Guilford Press.

Walzenbach, S. (2019), "Hiding Sensitive Topics by Design? An Experiment on the Reduction of Social Desirability Bias in Factorial Surveys", *Survey Research Methods,* Vol. 13 No. 1, pp. 103-121. https://dx.doi.org/10.18148/srm/2019.v1i1.7243

Wagner, D.T., Barnes, C.M., Lim, V.K., and Ferris, D.L. (2012), "Lost sleep and cyberloafing: Evidence from the laboratory and a daylight saving time quasi-experiment", *Journal of Applied Psychology,* Vol. 97 No. 5, pp. 1068-1076. https://doi.org/10.1037/a0027557

Wagner, D.D. and Heatherton, T.F. (2014), "Emotion and self-regulation failure", J.J. Gross (Ed.), *The Handbook of Emotion Regulation (2nd Ed.),* pp. 613–628. New York, NY: Guilford Press

Witkiewitz, K. and Villarroel, N.A. (2009), "Dynamic association between negative affect and alcohol lapses following alcohol treatment", *Journal of Consulting and Clinical Psychology,* Vol. 77 No. 4, pp. 633-644. https://dx.doi.org/10.1037/a0015647

Wong, K.K.K. (2013), "Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS", *Marketing Bulletin,* Vol. 24 No.1, pp.1-32.

Wright, S.L. (2005), "Loneliness in the workplace", (Unpublished doctoral dissertation). University of Canterbury, New Zealand.

Wright, S.L., Burt, C.D. and Strongman, K.T. (2006), "Loneliness in the workplace: Construct definition and scale development", *New Zealand Journal of Psychology,* Vol. 35 No. 2, 59-68. http://hdl.handle.net/10092/2751.

Wright, S. and Silard, A. (2021), "Unravelling the antecedents of loneliness in the workplace", *Human Relations,* Vol. 74 No. 7, pp. 1060-1081. https://doi.org/10.1177/0018726720906013.

Wu, J., Mei, W. and Ugrin, J.C. (2018), "Student cyberloafing in and out of the classroom in China and the relationship with student performance", *Cyberpsychology, Behavior, and Social Networking,* Vol. 21 No.3, pp.199-204.

Wu, J., Mei, W., Liu, L., and Ugrin, J. C. (2020), "The bright and dark sides of social cyberloafing: Effects on employee mental health in China", *Journal of Business Research,* Vol. 112, pp. 56-64. https://doi.org/10.1016/j.jbusres.2020.02.043

Wu, J., Mei, W., Ugrin, J., Liu, L. and Wang, F. (2021), "Curvilinear performance effects of social cyberloafing out of class: the mediating role as a recovery experience", *Information Technology & People,* Vol. 34 No. 2, pp. 581-598. https://doi.org/10.1108/ITP-03-2019-0105

Yildiz Durak, H. and Saritepeci, M. (2019), "Occupational burnout and cyberloafing among teachers: analysis of personality traits, individual and occupational status variables as predictors", *Social Science Journal,* Vol. 56 No. 1, pp. 69-87. https://doi.org/10.1016/j.soscij.2018.10.011.

Zhang, H., Zhao, H., Liu, J., Xu, Y. and Lu, H. (2015), "The dampening effect of employees' future orientation on cyberloafing behaviors: the mediating role of self-control", *Frontiers in Psychology*, Vol. 6, pp. 1-10

Zhang, J., Akhtar, M.N., Zhang, Y. and Sun, S. (2019), "Are overqualified employees bad apples? A dual-pathway model of cyberloafing", *Internet Research*, Vol. 30 No. 1, pp. 289-313.

Zhou, B., Li, Y., Hai, M., Wang, W. and Niu, B. (2021, in press), "Challenge-hindrance stressors and cyberloafing: A perspective of resource conservation versus resource acquisition", *Current Psychology,* https://doi.org/10.1007/s12144-021-01505-0.

Zoghbi Manrique de Lara, P. (2006), "Fear in organizations: does intimidation by formal punishment mediate the relationship between interactional justice and workplace internet deviance?", *Journal of Managerial Psychology,* Vol. 21 No. 6, pp. 580-592. https://doi.org/10.1108/02683940610684418.

Table I. Demographic information about the focal employees.

Focal employee information		Frequency	Percentage
Gender	Male	96	43.84%
	Female	123	56.16%
Education	Junior college students or below	79	36.07%
	Undergraduate students	131	59.82%
	Postgraduates or above	4	1.83%
	Others	5	2.28%
Organizational Tenure	less than 1 year	2	0.91%
	1–5 years	142	64.84%
	6–10 years	29	13.24%
	more than 10 years	46	21.01%
Dyadic Tenure	less than 1 year	18	8.22%
	1–5 years	155	70.77%
	6–10 years	30	13.70%
	more than 10 years	16	7.31%

Table II. Means, standard deviations, and correlations among the study variables.

Variable	1	2	3	4	5	6	7	8	9	10
1. Education										
2. Organizational tenure	-0.15*									
3. Dyadic tenure	0.09	0.19**								
4. Sleep quality	0.04	0.15*	0.05							
5. Workplace ostracism	-0.03	-0.13*	-0.05	-0.11	-0.87					
6. Workplace loneliness	-0.04	-0.10	-0.07	-0.07	0.21**	-0.90				
7. Ego depletion	-0.02	-0.16*	-0.08	-0.14*	0.17*	0.28***	-0.90			
8. Cyberloafing	-0.05	-0.23***	-0.04	-0.12	0.33***	0.31***	0.34***	-0.95		
9. Leader problem-focused IEM	0.04	0.13	0.11	0.03	0.01	-0.141*	-0.01	-0.26***	-0.95	
10. Leader emotion-focused IEM	-0.12	0.09	0.07	0.06	0.04	-0.09	0.06	-0.05	0.42***	-0.89
Mean	1.68	7.27	4.07	3.32	2.34	1.97	2.60	2.35	3.65	3.22
SD	0.55	9.06	4.76	0.96	0.89	0.94	0.71	0.92	0.71	0.72

Note: $N = 219$, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

SD = standard deviation. Reliability coefficients are reported along the diagonal.

Table III Results of the moderated mediating effect analysis.

	Indirect effect	SE	95% Confidence Interval
Low leader problem-focused *IEM* (−*1*SD)	0.22	0.08	[0.06, 0.38]
High leader problem-focused *IEM* (+*1*SD)	-0.01	0.02	[-0.06, 0.03]
Difference	0.23	0.09	[0.06, 0.41]

Notes: $N = 219$, bootstrap samples =1,000.
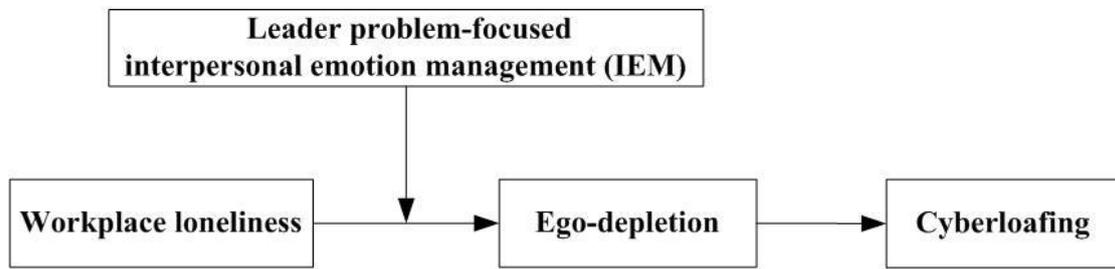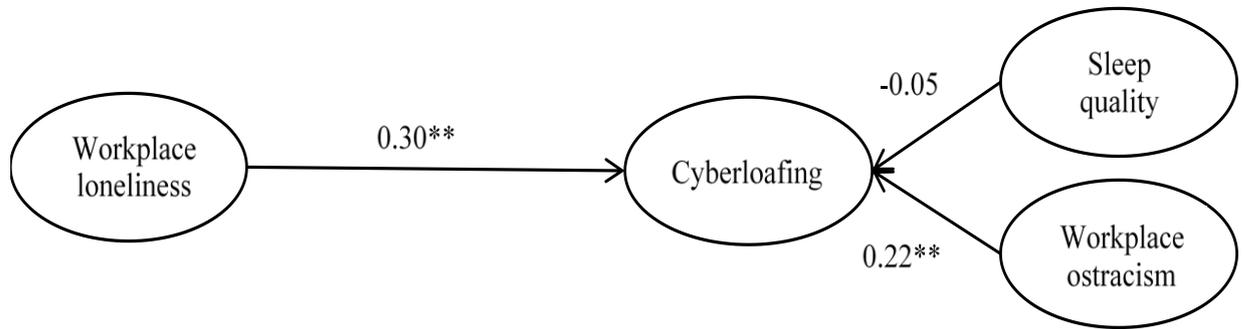
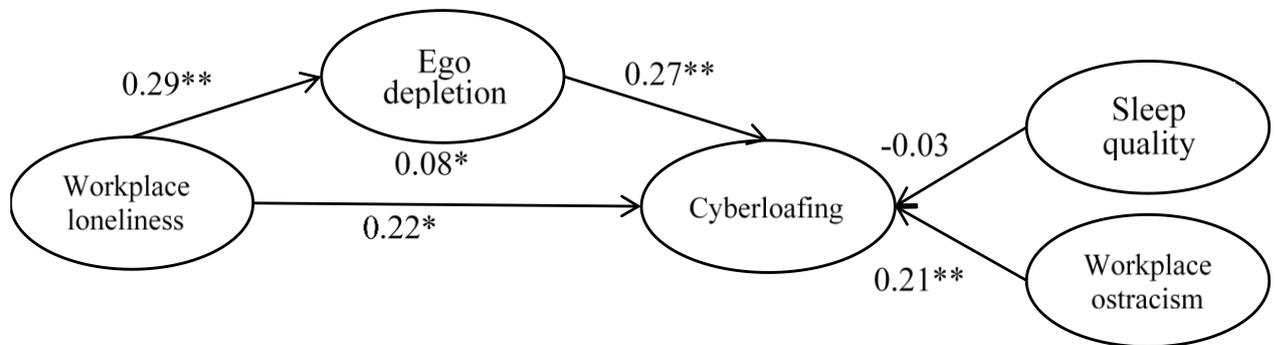**Figure 1.** Theoretical model.

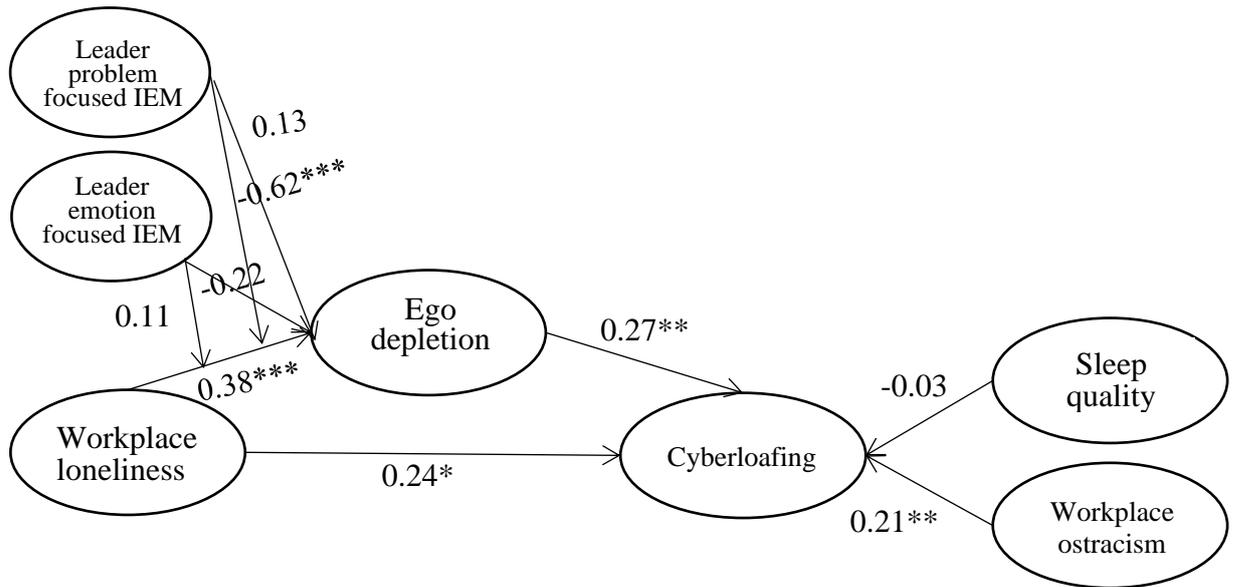**Figure 2a.** The SEM results for the main effect model

Note: The path coefficients of gender, age, education, organizational tenure, and dyadic tenure were omitted for presentation parsimony. $N = 219$, $** p < 0.01$.

Figure 2b. The SEM results for the mediating effect model

Note: The path coefficients of gender, age, education, organizational tenure, and dyadic tenure were omitted for presentation parsimony. $N = 219$, $** p < 0.01$, $*p < 0.05$.

Figure 3a. The SEM results for the moderated mediating effect model

Note: The path coefficients of gender, age, education, organizational tenure, and dyadic tenure were omitted for presentation parsimony. $N = 219$, $*** p < 0.001$, $** p < 0.01$, $* p < 0.05$.

Figure 3b. The interactive effect of workplace loneliness and leader problem-focused IEM on ego depletion