

What's the Hidden Cost of Leaders' Cyberloafing? Uncovering Its Impact on Employees' Innovative Behavior and the Mechanisms Involved

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Abstract

The widespread application of network technology in the workplace has given rise to the issue of leaders' cyberloafing, which refers to leaders engaging in non-work-related online activities during working hours. Previous studies have revealed the trickle-down effect of leaders' cyberloafing, but a comprehensive exploration of its impact on employees' innovative behavior is still lacking. Considering this, we developed a moderated mediation model based on the cognitive appraisal theory of emotions to investigate how leaders' cyberloafing affects employees' innovative behavior. This study used hierarchical regression analysis to analyze a sample of 357 employees collected at three time points. The results indicate that leaders' cyberloafing has a negative impact on employees' innovative behavior. Workplace anxiety mediates the relationship between leaders' cyberloafing and employees' innovative behavior. Power dependence positively moderates the relationship between leaders' cyberloafing and workplace anxiety, as well as the indirect effect of leaders' cyberloafing on employees' innovative behavior via workplace anxiety. This study identifies the detrimental effect of leaders' cyberloafing on employees' innovative behavior and its underlying mechanisms. It also inspires organizations to promote employees' innovative behavior by regulating leaders' cyberloafing and the exercise of power.

Keywords: Leaders' cyberloafing; Innovative behavior; Workplace anxiety; Power dependence

1. Introduction

As a core component of organizational context and a crucial bond connecting organizations with employees, leadership plays a pivotal exemplary role, and the impact of leaders' behaviors on both organizations and employees is significant (Agarwal & Avey, 2020; Bhattacharjee & Sarkar, 2024). However, negative cases of "merely holding leadership titles without taking substantive actions, or sounding the trumpet but refusing to charge" are common, with leaders' cyberloafing being a prominent manifestation. Leaders' cyberloafing refers to phenomenon where leaders engage in online

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shopping, online gambling, online games, video streaming, and social interactions with friends during work hours through communication software (Lim et al., 2021; Peng et al., 2023). Studies have demonstrated that 83% of leaders browse work-unrelated websites during office hours. Research findings indicate that leaders' cyberloafing and tacit approval of such practices can lead employees to misinterpret organizational norms, thereby inducing employee cyberloafing (Askew et al., 2019). Given the prevalence and detrimental effects of leaders' cyberloafing, the question of whether and how it influences employee behaviors has garnered significant academic attention.

This study aims to explore the impact of leaders' cyberloafing on employees' innovative behavior. First, scholars have mainly focused on the within-individual effects of cyberloafing (Tandon et al., 2022; Zhang et al., 2020), such as its impact on job performance (She & Li, 2023), creativity (Tsai et al., 2023) and innovation performance (Zhong et al., 2022), while neglecting the mechanisms of its inter-individual effects. This study seeks to respond to the call by Tandon et al. (2022) to enrich the research levels of cyberloafing. Second, understanding the downstream mechanisms of leaders' cyberloafing is still in its infancy, with only a few studies exploring its trickle-down effect. However, the consequences of leaders' cyberloafing should not be limited to this. As an essential driving force for enterprises to achieve sustainable and high-quality development, employees' innovative behavior holds great research value (Bani-Melhem et al., 2021). When leaders are immersed in cyberloafing, they may reduce resource support for employee innovation, thereby undermining the fundamental prerequisites for innovation (Perry-Smith & Mannucci, 2017). Finally, when leaders engage in cyberloafing, they may neglect employees' innovative abilities and achievements, which conflicts with the core motivation for innovation and ultimately reduces employees' innovative intentions. Therefore, examining whether leaders' cyberloafing affects employees' innovative behavior not only expands the research level of cyberloafing from an interpersonal perspective and enriches the findings on leaders' cyberloafing but also extends the antecedent exploration of employees' innovative behavior and promotes research in the field of innovation.

According to the cognitive appraisal theory of emotions, individuals can mobilize their cognitive systems to judge the nature of the stressor (Lazarus, 1991). When employees perceive leaders' cyberloafing as a potential threat, it prompts cognitive reappraisal (Lazarus & Folkman, 1987). If they feel unable to cope with this threat effectively, it leads to negative emotional responses such as worry, dissatisfaction, and disappointment (Lazarus, 1991), which result in workplace anxiety (Rodell & Judge, 2009). Workplace anxiety is the tension and worry individuals experience when facing potential threats (McCarthy et al., 2016) and encompasses feelings of unease and worry about the present and the future (McCarthy et al., 2016). Emotional responses can influence subsequent behavioral performance during the cognitive appraisal of emotions (Lazarus & Folkman, 1987). Workplace anxiety can make employees averse to innovative behavior because they are unable to focus and fear that innovation will increase job pressure, risk, and uncertainty (Korku & Kaya, 2023), thereby reducing their engagement in innovative activities. Given this, this study posits that workplace anxiety is a mediating mechanism through which leaders' cyberloafing affects employees' innovative behavior.

Moreover, the cognitive appraisal theory of emotions emphasizes that individual differences in cognition can significantly impact emotional events during the appraisal process (Lazarus, 1991). Leaders dominate and allocate resources, such as production factors, information, and guidance, and play a crucial role in influencing employees' achievement of career goals (Agarwal & Avey, 2020). Power dependence represents the extent to which employees are attached to their leaders' authority (Wu et al., 2024). The greater the power dependence of employees on their leaders, the more

vulnerable and sensitive they feel (Magee et al., 2013). They tend to pay more intense attention to leaders' behaviors, viewing them as important signals for decision-making and direction (Wee et al., 2017; Zhang et al., 2020). They may interpret leaders' cyberloafing as a neglect of work and themselves, worrying that such behavior will affect the team's work quality and efficiency, increase job pressure and uncertainty (She et al., 2025; Zhang et al., 2024). Thus, employees are likely to make more negative cognitive appraisals of leaders' cyberloafing and further promote workplace anxiety. By contrast, employees with low power dependence have a self-leadership orientation and pay relatively less attention to leaders. They will seek to meet their needs through other means (Houghton & Yoho, 2005). Therefore, when facing leaders' cyberloafing, employees with low power dependence experience milder emotional reactions and are less likely to trigger workplace anxiety. Based on this, this study proposes that power dependence is an important boundary condition that influences the impact of leaders' cyberloafing on employees' workplace anxiety and subsequent behavioral reactions.

In summary, this paper aims to explore the impact of leaders' cyberloafing on employees' innovative behavior from the perspective of the cognitive appraisal theory of emotions, and examine the mediating role of workplace anxiety and the moderating role of power dependence. It is expected to deepen the understanding of the negative impacts of leaders' cyberloafing and expand the research on antecedents of employees' innovative behavior, thereby providing a theoretical basis for organizations to understand cyberloafing behavior in the workplace better. The theoretical model of this study is shown in Figure 1.

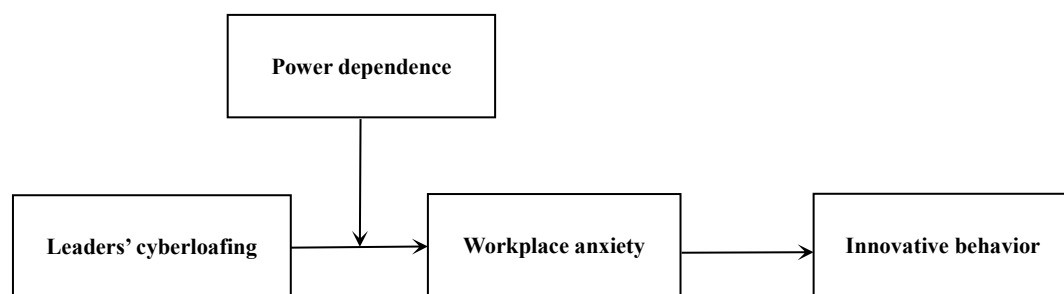


Figure 1. Research Model

2. Theoretical background and hypotheses

2.1 Leaders' cyberloafing and employees' innovative behavior

Innovative behavior is regarded as a complex and spontaneous proactive behavior, involving a series of activities related to the generation and implementation of new ideas (Parker & Collins, 2010). Specifically, innovation refers to employees proposing insights utterly different from traditional or common thinking, beyond the existing mindset (Yan et al., 2025). By leveraging existing knowledge and resources, employees create or improve new things in a specific environment, guided by the principle of meeting ideal or societal needs (Malibari & Bajaba, 2022). Innovative behavior is not only full of challenges and uncertainties but also often accompanied by the risk of failure. It requires employees to invest substantial resources and efforts, without the guarantee of satisfactory outcomes (Korku & Kaya, 2023). Previous research has found that leaders play a crucial role within organizations, and their behaviors directly influence employees' innovative behavior. For example,

authentic leadership can inspire employees' innovative behavior (Gelaidan et al., 2024), while leaders' self-serving behavior can inhibit employees' innovative behavior (Jiang et al., 2020).

First, in the innovation process, employees typically rely on leaders' positive feedback, encouragement, and guidance (Malibari & Bajaba, 2022). Leaders' cyberloafing leads to the absence of these crucial supports, making subordinates feel isolated and at a loss. They are unable to accurately understand the organization's goals and future development direction, and are more inclined to maintain the status quo rather than take risks to innovate (Peng et al., 2023). Second, leaders' cyberloafing increases the work pressure on subordinates. As leaders fail to fulfill their duties, subordinates have to take on more tasks and responsibilities, which restricts their investment and energy in innovation (Li et al., 2020). Moreover, when leaders focus their attention on personal online entertainment, they neglect subordinates' innovative achievements, leaving their efforts unrecognized and unrewarded. In this situation, subordinates lose the motivation to move forward, lack enthusiasm for proactively solving problems and improving work processes, and thus reduce their investment in innovation. Finally, leaders' cyberloafing inhibits communication and collaboration with subordinates. Employees perceive leaders as unworthy of confiding in, leading to information blockages and hindering the exchange and collaboration of innovative ideas (Lui et al., 2023). Thus, we propose the following hypothesis:

H1: Leaders' cyberloafing has a negative impact on employees' innovative behavior.

2.2 *The mediating role of workplace anxiety*

The cognitive appraisal theory of emotions posits that when employees face stress, they go through a two-stage cognitive and evaluative process to cope (Lazarus, 1991; Lazarus & Folkman, 1984). During the initial appraisal stage, individuals assess the events they experience. If they perceive potential harm or threat, they may experience high autonomic nervous system activation, which can lead to impulsive behavior and avoidance of potential threats (Lazarus & Folkman, 1987). In the secondary appraisal stage, if individuals judge that they are unable to cope with the stress successfully, anxiety is generated (Smith & Lazarus, 1993). Workplace anxiety refers to individuals' negative emotional responses to tension and worry when facing work pressure (Cheng & McCarthy, 2018). Research has shown that workplace anxiety plays an important "bridge" role in the relationship between organizational contexts and subordinate behaviors. For example, workplace anxiety mediates the relationship between transformational leadership and employees' burnout (Kloutsiniotis et al., 2022).

Leaders' cyberloafing may trigger negative evaluations from subordinates, thereby inducing workplace anxiety. First, as authoritative figures in the organization, leaders are typically the primary supporters for subordinates in the work environment, and their involvement can make employees feel secure and stable (Fan et al., 2023). When leaders immerse themselves in online entertainment, subordinates may feel a lack of sufficient resource support and become more isolated and anxious when facing work challenges (Kloutsiniotis et al., 2022). Additionally, the absence of leader guidance can leave employees unclear about the work environment, future development, their positioning, and prospects within the organization, increasing role ambiguity and job uncertainty, and this further induces workplace anxiety (Yin et al., 2023). Second, leaders' cyberloafing conveys a sense of unprofessionalism and irresponsibility, influencing the overall team and organizational values and behavioral norms (Jeong et al., 2020; Lim et al., 2021). This can reduce employees' confidence in their leaders and their sense of identification with the organization, thereby generating workplace anxiety. Finally, subordinates generally expect leaders to set fair and equal work standards (Li et al., 2024).

However, when leaders engage in cyberloafing, subordinates may feel it is unfair, leading to workplace anxiety.

The anxiety generated during the cognitive appraisal of emotions process can influence subsequent behavioral responses (Lazarus & Folkman, 1987). First, workplace anxiety causes individuals to allocate more attention and cognitive resources toward coping with anxiety, thereby interfering with their cognitive and decision-making processes (Gao et al., 2024). It affects their innovative thinking and problem-solving abilities, limiting their ability to focus on creative thinking and suppressing the generation of ideas. Second, workplace anxiety makes individuals doubt their creativity and capabilities, resulting in self-imposed limitations (Samma et al., 2020). This psychological state causes individuals to lack confidence in their ability to innovate, thereby avoiding participation in innovative behaviors. Finally, since innovation is inherently risky, individuals experiencing workplace anxiety are more concerned about making mistakes or failing during the innovation process (McCarthy et al., 2016). They fear criticism or rejection from leaders, colleagues, or the organization, and are therefore less willing to take these risks, reducing their engagement in innovative activities. In summary, leaders' cyberloafing can trigger workplace anxiety and reduce innovative behavior. Therefore, this study proposes the following hypothesis:

H2: Workplace anxiety mediates the relationship between leaders' cyberloafing and employees' innovative behavior.

2.3 The moderating role of power dependence

The cognitive appraisal theory of emotions emphasizes that individual differences determine how different individuals cognitively process and evaluate stress-related information (Lazarus, 1991; Lazarus & Folkman, 1987). Power dependence refers to the extent to which employees rely on resources and information from their superiors to achieve their work goals (Wee et al., 2017). If employees must obtain the necessary resources to accomplish their goals through the help of their leaders, they will have a higher level of power dependence (Wee et al., 2017). Research has found that employees with different levels of power dependence exhibit varying attitudes and behaviors toward leadership styles and behaviors (Zhang et al., 2020). For example, power dependence moderates the relationship between abusive supervision and leaders' reconciliation (Wee et al., 2017).

When employees' power dependence is high, they are more inclined to seek support and recognition from their leaders and regard leaders' feedback as an important basis for self-evaluation (Zhang et al., 2020). When leaders engage in cyberloafing, employees with high power dependence are unable to receive attention and positive feedback from their leaders. They are more likely to feel neglected and unimportant, which in turn affects their self-esteem and confidence, thereby increasing workplace anxiety. Second, employees with high power dependence rely more on information and resources provided by leaders to clarify their work goals and role responsibilities within the organization and to engage in task-related activities (Wee et al., 2017). However, when leaders engage in cyberloafing, the lack of effective communication and guidance leads to more significant uncertainty for employees with high power dependence in their work. They do not know how best to fulfill their duties, which poses a serious threat to their goal achievement and consequently exacerbates workplace anxiety.

By contrast, individuals with low power dependence do not overly rely on leaders for resources and information (Schaerer et al., 2018). On the one hand, employees with low power dependence tend to solve problems independently and handle work matters autonomously, trusting their abilities and judgment. They also enjoy greater decision-making power and autonomy in their work (Wu et al.,

2024). Moreover, they engage in career planning independently, without over-relying on leaders' support, guidance, or recognition. These characteristics enable them to maintain a certain level of self-confidence when leaders engage in cyberloafing. They can proactively adjust, complete tasks independently, and address issues on their own, thereby reducing workplace anxiety. On the other hand, employees with low power dependence are more willing to actively seek out alternative resources and support, rather than being confined to their immediate leaders (Magee et al., 2013). They choose to collaborate with colleagues, seek advice from other leaders, and rely on multiple channels to obtain the necessary information. As a result, they can mitigate the stress caused by leaders' cyberloafing, thereby reducing workplace anxiety. In summary, employees with different levels of power dependence have different perceptions and understandings of leaders' cyberloafing, leading to different emotions and attitudes. So, we propose the following hypothesis:

H3: Power dependence moderates the relationship between leaders' cyberloafing and workplace anxiety, such that the positive relationship is stronger when power dependence is higher.

Based on analyses, we propose that power dependence moderates the indirect relationship between leaders' cyberloafing and innovation behavior through workplace anxiety. When employees have a high level of power dependence, leaders' cyberloafing leads to the failure of timely resource allocation, inducing employees' workplace anxiety and blocking innovation projects. Moreover, employees with high power dependence regard leaders' opinions and expectations as important references for decision-making. Leaders' cyberloafing results in a lack of guidance and decision-making from leaders regarding innovative projects. This leaves employees facing more significant decision-making pressure and workplace anxiety during innovation, making them hesitant to attempt innovative behaviors. In contrast, employees with low power dependence are less reliant on leaders' guidance and recognition and are less concerned about potential opposition or criticism from leaders. Under conditions of high autonomy, they are less likely to experience workplace anxiety and suppress the generation of innovation. Therefore, we propose the following hypothesis:

H4: Power dependence moderates the indirect effect of leaders' cyberloafing on employees' innovative behavior through workplace anxiety, such that the indirect effect is stronger when power dependence is higher.

3. Method

3.1 Participants and procedures

The data were collected between June and July 2023 from multiple companies in Guizhou Province, China, which covered industries such as technology and finance. The researchers explained the purpose of the survey to the human resources managers of these companies and, with their assistance, randomly selected employees to participate in the survey. Before distributing the questionnaires, the researchers explained the instructions for filling out the questionnaires to the employees. They assured them that the survey data would be used solely for academic research and would be strictly confidential. After employees had completed the questionnaires on-site, the researchers collected them. To encourage participation, the researchers provided each employee with a small gift. A three-wave longitudinal design with two-week intervals between each phase was implemented to minimize common method bias. At Time 1, employees completed questionnaires on their demographic information, leaders' cyberloafing, and power dependence. At Time 2, they were invited to complete the questionnaire on workplace anxiety. At Time 3, they completed the questionnaire on innovative behavior. A total of 400 questionnaires were distributed, and after excluding invalid responses due to random or incomplete

filling, 357 valid questionnaires were obtained, resulting in an effective response rate of 89.25%. Among them, there were 187 female employees (52.4%), 108 employees aged 36-45 (30.3%), 134 employees holding a bachelor's degree (37.5%), and 114 employees with a tenure of 13-24 months with their leader (31.9%).

3.2 Measures

The measurement tools of this study were derived from well-established foreign scales and adapted through a standard translation-back-translation procedure. All scales employed a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

The 3-item scale developed by Lim et al. (2021) was adopted to measure leaders' cyberloafing. A sample item is "In general, my leader uses the internet at work for non-work-related purposes." The Cronbach's α coefficient was 0.834.

The 8-item scale developed by McCarthy et al. (2016) was utilized to measure workplace anxiety. A sample item is "I worry about not receiving a positive job performance evaluation." The Cronbach's α coefficient was 0.911.

The 3-item scale developed by Wee et al. (2017) was employed to measure power dependence. A sample item is "My career goals (e.g., promotion, development) depend on my leader." The Cronbach's α coefficient was 0.826.

The 6-item scale developed by Scott and Bruce (1994) was adopted to measure innovative behavior. A sample item is "In general, I am an innovative person." The Cronbach's α coefficient was 0.805.

This study selected standard demographic variables such as gender, age, education level, and tenure with leader as control variables (Zhou & Wu, 2018).

4. Results

4.1 Confirmatory factor analyses

We used Amos 26 to conduct confirmatory factor analyses to examine the discriminant validity of leaders' cyberloafing, workplace anxiety, power dependence, and innovative behavior, with the results shown in Table 1. According to Table 1, the fit indices of the four-factor model ($\chi^2/df = 2.675$, CFI = 0.947, TLI = 0.938, RMSEA = 0.069) were significantly better than those of the other nested models. This analysis indicates that the measures used in this study can effectively distinguish between the variables.

Table 1. Results of Confirmatory Factor Analysis

Model	χ^2	df	χ^2/df	$\Delta\chi^2(\Delta df)$	CFI	TLI	RMSEA
Four-factor model	438.680	164	2.675	-	0.947	0.938	0.069
Three-factor model	932.426	167	5.583	493.746*** (3)	0.852	0.831	0.113
Two-factor model	1151.894	169	6.816	713.214*** (5)	0.810	0.786	0.128
One-factor model	2177.969	170	12.812	1739.289*** (6)	0.611	0.566	0.182

Note: *** $p < 0.001$. Four-factor model: Leaders' cyberloafing, innovative behavior, workplace anxiety, power dependence; Three-factor model: Leaders' cyberloafing, innovative behavior, workplace anxiety + power dependence; Two-factor model: Leaders' cyberloafing + innovative behavior, workplace

anxiety + power dependence; One-factor model: Leaders' cyberloafing + innovative behavior + workplace anxiety + power dependence; "+" combining the factors.

4.2 Descriptive statistical analysis

The mean, standard deviation, and correlation coefficients of the research variables are presented in Table 2. As shown in Table 2, workplace anxiety is significantly negatively correlated with innovative behavior ($r = -0.550$, $p < 0.01$).

Table 2. Mean, Standard Deviation and Correlation Coefficient of All Variables

Variables	1	2	3	4	5	6	7	8
1. Gender								
2. Age	0.090							
3. Education level	0.010	-0.214**						
4. Tenure with leader	0.123*	0.486**	-0.189**					
5. Leaders' cyberloafing	0.054	0.286**	0.062	0.318**				
6. Power dependence	0.006	-0.014	0.084	0.068	0.243**			
7. Workplace anxiety	-0.007	-0.189**	0.037	-0.035	0.395**	0.356**		
8. Innovative behavior	0.001	-0.152**	-0.047	-0.264**	-0.703**	-0.407**	-0.550**	
Mean	1.524	2.350	2.569	2.569	3.612	2.542	2.389	2.565
SD	0.500	1.029	0.896	0.988	1.171	1.264	1.029	1.083

Note: * $p < 0.05$, ** $p < 0.01$. Gender: Male (1), female (2); Age: ≤ 25 years (1), 26-35 years (2), 36-45 years (3), ≥ 46 years (4); Education level: High school (1), junior college (2), bachelor's degree (3), graduate degree (4); Tenure with leader: ≤ 6 months (1), 7-12 months (2), 13-24 months (3), ≥ 25 months (4).

4.3 Hypothesis testing

This study utilized SPSS 23.0 and employed linear modeling for hypothesis testing, with the results shown in Table 3. Control variables and leaders' cyberloafing were simultaneously entered into the regression equation to test the main effect with innovative behavior as the dependent variable. According to Model 5, leaders' cyberloafing has a significant negative impact on innovative behavior ($\beta = -0.650$, $p < 0.001$), thus supporting H1.

Control variables, leaders' cyberloafing, and workplace anxiety were simultaneously entered into the regression equation with innovative behavior as the dependent variable to test the mediating effect. According to Model 7, workplace anxiety has a negative impact on innovative behavior ($\beta = -0.370$, $p < 0.001$), and leaders' cyberloafing negatively impacts employees' innovative behavior ($\beta = -0.484$, $p < 0.001$). This indicates that workplace anxiety mediates the relationship between leaders' cyberloafing

and employees' innovative behavior, providing preliminary support for H2. Using the Bootstrap method, we further tested the significance of the mediating role of workplace anxiety between leaders' cyberloafing and innovative behavior (Preacher & Selig, 2012). The results show that the mediating effect of leaders' cyberloafing on employees' innovative behavior via workplace anxiety is -0.166 (95% CI = [-0.212, -0.124], excluding 0). This demonstrates that the mediating effect of workplace anxiety is significant, thus fully supporting H2.

Control variables, leaders' cyberloafing, power dependence, and their interaction term were simultaneously entered into the regression equation with workplace anxiety as the dependent variable to test the moderating effect. According to Model 3, the interaction term between leaders' cyberloafing and power dependence has a significant positive impact on workplace anxiety ($\beta = 0.341$, $p < 0.001$). This indicates that power dependence positively moderates the relationship between leaders' cyberloafing and workplace anxiety, providing preliminary support for H3. Additionally, this study plotted the moderating effect of power dependence and conducted a simple slope analysis, as shown in Figure 2. The results indicate that the higher the employees' power dependence, the stronger the positive association between leaders' cyberloafing and workplace anxiety ($b = 0.789$, $p < 0.001$). Conversely, the lower the employees' power dependence, the weaker the positive association between leaders' cyberloafing and workplace anxiety ($b = 0.107$, ns). Thus, H3 is fully supported.

Table 3. Results of Hierarchical Regression Analysis

	Workplace anxiety				Innovative behavior		
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	2.696*** (0.288)	1.889*** (0.265)	1.109*** (0.248)	3.640*** (0.297)	4.810*** (0.229)	5.310*** (0.265)	5.508*** (0.222)
Gender	0.008 (0.108)	0.004 (0.095)	0.073 (0.085)	0.084 (0.112)	0.090 (0.082)	0.089 (0.089)	0.092 (0.074)
Age	-0.225*** (0.060)	-0.325 (0.054)	-0.270*** (0.048)	-0.053*** (0.062)	0.093 (0.047)	-0.192 (0.051)	-0.028 (0.044)
Education level	0.004 (0.062)	-0.085 (0.055)	-0.091 (0.049)	-0.130 (0.064)	-0.002 (0.047)	-0.128 (0.051)	-0.033 (0.043)
Tenure with leader	0.078 (0.063)	-0.055 (0.057)	-0.069 (0.050)	-0.290*** (0.065)	-0.097* (0.049)	-0.242*** (0.052)	-0.118** (0.044)
Leaders' cyberloafing		0.448*** (0.044)	0.448*** (0.041)		-0.650*** (0.038)		-0.484*** (0.039)

(Table 3. continued)

Model	Workplace anxiety				Innovative behavior		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Power dependence			0.202*** (0.034)				
Workplace anxiety						-0.620*** (0.044)	-0.370*** (0.042)
Leaders' cyberloafing × Power dependence			0.341*** (0.044)				
R^2	0.040	0.262	0.422	0.082	0.503	0.415	0.594
ΔR^2	-	0.222	0.382	-	0.421	0.333	0.512
F	3.673**	24.934***	36.358***	7.890***	71.099***	49.722***	85.407***

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

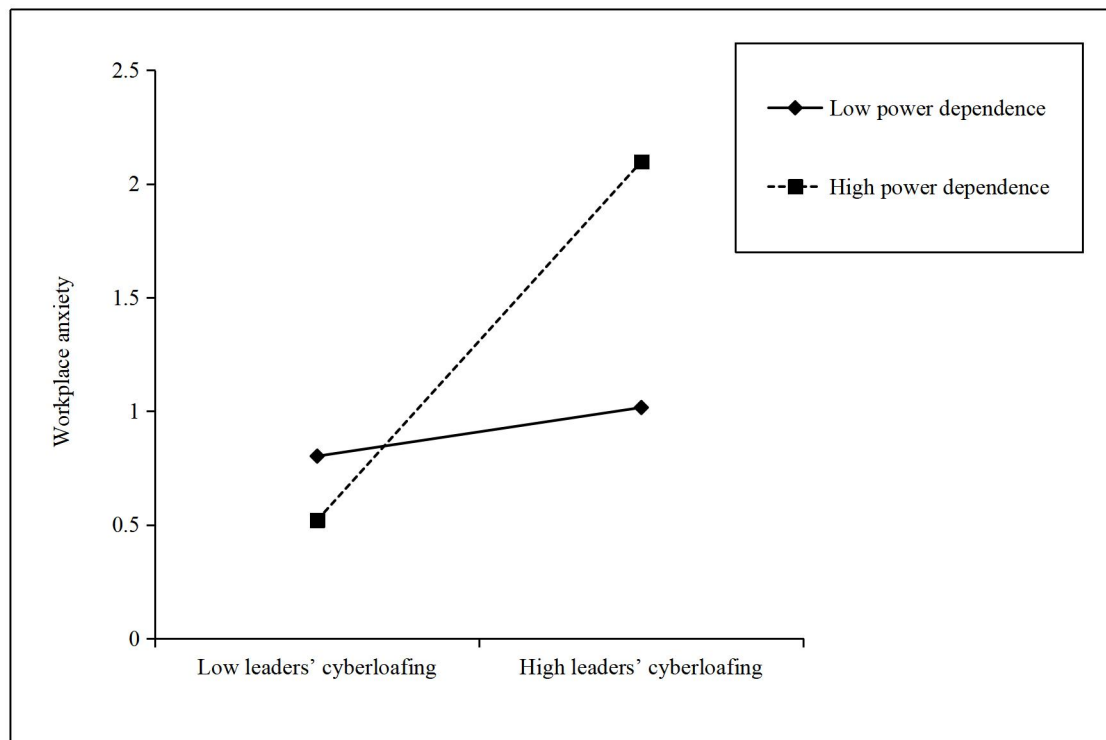


Figure 2. The Moderating Effect of Power Dependence on Leaders' Cyberloafing and Workplace Anxiety

The moderated mediation effect was tested using the Bootstrap method, with the results shown in Table 4. According to Table 4, the indirect effect of workplace anxiety between leaders' cyberloafing and innovative behavior is significant at high levels of power dependence ($\gamma = -0.318$, 95% CI = $[-0.398, -0.245]$), but not significant at low levels of power dependence ($\gamma = -0.034$, 95% CI = $[-0.072, 0.004]$). And the index of moderated mediation is significant ($\gamma = -0.085$, 95% CI = $[-0.112, -0.061]$), thus supporting H4.

Table 4. Test of Moderated Mediating Effect

Path	Moderate Variable	Effect	Boot SE	95% CI
Leaders' cyberloafing →Workplace anxiety →Innovative behavior	High power dependence(+1 SD)	-0.318	0.040	$[-0.398, -0.245]$
	Low power dependence(-1 SD)	-0.034	0.019	$[-0.072, 0.004]$
	Differences	-0.085	0.013	$[-0.112, -0.061]$

5. Discussion and implications

5.1 Discussion

Based on the cognitive appraisal theory of emotions, this study analyzes and examines the impact, process mechanisms, and boundary conditions of leaders' cyberloafing on innovative behavior. The findings of this study are as follows: First, leaders' cyberloafing negatively impacts organizations, significantly reducing employees' innovative behavior. Second, leaders' cyberloafing negatively affects employees' innovative behavior through the mediating role of workplace anxiety. Finally, the positive impact of leaders' cyberloafing on workplace anxiety is moderated by power dependence, and the indirect impact of leaders' cyberloafing on employees' innovative behavior is also moderated by power dependence. This impact is strengthened when employees have a higher level of power dependence.

5.2 Theoretical implications

First, this study provides a better understanding of the relationship between leaders' cyberloafing and employees' innovative behavior, enriching research in cyberloafing. Although progress has been made in cyberloafing, existing research has primarily focused on its causes. For example, factors such as gender, the Big Five personality traits, stressors, abusive supervision, and workplace loneliness have all been shown to influence employees' cyberloafing (Agarwal & Avey, 2020; Cheng et al., 2020; Zhou et al., 2021; Bhattacharjee & Sarkar, 2024; Yang et al., 2023). However, the outcomes of cyberloafing have not been thoroughly explored (Tsai, 2023). While some studies have empirically analyzed the effects of cyberloafing on job performance and creativity (She & Li, 2023; Tsai, 2023), little attention has been paid to proactive behaviors that drive organizational and societal development, such as innovative behavior. Research on the relationship between leaders' cyberloafing and employees' innovative behavior is of more significant theoretical and practical value, as it can enhance organizational competitiveness. In this regard, this study responds to scholars' calls for exploring the

consequences of cyberloafing (Tandon et al., 2022), and enriches the research on antecedents of employees' innovative behavior.

Second, this study focuses on the impact of leaders' cyberloafing on subordinate behavior. Regarding research subjects, the current studies have primarily focused on employees' cyberloafing (Tsai, 2023), neglecting other hierarchical levels and roles within organizations, such as leaders. A literature review reveals that only a few studies have examined the impact of leaders' cyberloafing on employees' behavior (Askew et al., 2019). By focusing on leaders' cyberloafing, this study enriches the research population in the field of cyberloafing and provides valuable insights. Regarding research levels, scholars have mainly explored the intrapersonal processes of cyberloafing (Henle, 2024), while neglecting its interpersonal mechanisms. By examining the impact of leaders' cyberloafing on employees' behavior, this study is consistent with the ideas of scholars like Bhattacharjee and Sarkar (2024), who have explored the impact of leader behavior on employees, and responds to calls from scholars like Zhang et al. (2024) to investigate the interpersonal implications of cyberloafing. In this way, this study provides a more comprehensive and multi-level investigation of cyberloafing, focusing on leaders and exploring the impact of leaders' cyberloafing on employee behavior from an interpersonal perspective.

Third, this study analyzes and tests how leaders' cyberloafing affects employees' innovative behavior, revealing the role of employees' emotional cognitive appraisal processes in this mechanism. Current scholars have mainly explored the post-effect mechanisms of cyberloafing from perspectives such as effort-recovery, self-depletion, and relative deprivation, neglecting the key role of the cognitive appraisal theory of emotions. For example, previous studies have mainly explored the relationship between psychological detachment and fatigue in employees' cyberloafing and mental health through the effort-recovery model and self-depletion theory (Wu et al., 2020). Additionally, scholars have discussed the mediating mechanisms of relaxation in cyberloafing and task performance from the perspective of the effort-recovery model (She & Li, 2023). Studies also focus on relative deprivation theory, examining the bridging role of daily relative deprivation in the relationship between daily observation of colleagues' cyberloafing and daily work effort and daily badmouthing behavior (She et al., 2025). Based on the cognitive appraisal theory of emotions, this study opens the "black box" of how leaders' cyberloafing induces workplace anxiety in employees, affecting their innovative behavior. It responds to researchers' calls for exploring cyberloafing's consequence mechanisms and theoretical frameworks (Tandon et al., 2022). It expands the scope of application of the cognitive appraisal theory of emotions. Moreover, by identifying leaders' cyberloafing as a precursor to employees' negative attitudes and behaviors, our findings help organizations understand the negative impact of cyberloafing in the workplace.

Fourth, this study further examines and reveals the moderating role of power dependence in the process mechanism through which leaders' cyberloafing affects employees' innovative behavior via workplace anxiety, further defining the boundary conditions of the impact of leaders' cyberloafing. Although this study reveals the negative effects of leaders' cyberloafing, exploring boundary conditions helps further understand the amplification and attenuation processes of its impact. Previous studies have explored the moderating roles of individual traits and organizational factors in the outcomes of cyberloafing research, such as time management skills (She & Li, 2023), task interdependence (Zhang et al., 2024), colleagues' relative performance (She et al., 2025) and work environment (Tsai, 2023), but have neglected the role of employees' power dependence. Based on the cognitive appraisal theory of emotions, this study proposes and confirms that power dependence

positively moderates the relationship between leaders' cyberloafing and workplace anxiety and the indirect effect of leaders' cyberloafing on employees' innovative behavior via workplace anxiety. This expands the existing research on moderators in the impact of leaders' cyberloafing and deepens the understanding of the relationship between leaders' cyberloafing and employees' innovative behavior.

5.3 Practical implications

First, this study reveals the outcome effect of cyberloafing, specifically that leaders' cyberloafing can inhibit employees' innovative behavior. Organizations should set clear work objectives and expectations for leaders, ensuring they are fully aware of their responsibilities and tasks. Additionally, organizations should provide leaders with the necessary resources, training, and support, and establish monitoring mechanisms to enable them to complete their work more effectively and reduce the likelihood of cyberloafing. Leaders, for their part, need to recognize the impact of their behavior on employees' innovation. They should actively engage in their work, demonstrate a positive attitude, and lead by example to minimize cyberloafing in the workplace. They should encourage employee participation in innovation and establish good leadership role models. Leaders can create open communication channels, listen to employees' opinions promptly, provide positive feedback, and encourage employees to share their ideas and suggestions to leverage their innovative potential fully.

Second, this study identifies the mediating mechanism of workplace anxiety between leaders' cyberloafing and employees' innovative behavior. Organizations should establish a positive and supportive organizational culture that encourages employees to share their difficulties and feelings, reducing hidden anxiety. Designing reasonable work processes and task assignments to avoid overloading and unreasonable work demands can help reduce employee stress. Providing clear communication channels to keep employees informed about the organization's goals, strategies, and changes can also reduce uncertainty caused by a lack of information. Additionally, leaders should help employees set clear and realistic work goals, ensuring they are achievable and challenging. It is essential to provide employees with the necessary resources and support and offer regular positive feedback to help them adjust their work methods. Leaders should encourage employees to share their concerns and problems, building trust and empathy. Recognizing and rewarding outstanding employee performance can enhance their self-confidence and motivation. Meanwhile, employees should develop skills in time management, emotional regulation, and maintaining diverse interests to better cope with workplace stress and anxiety.

Third, this study reveals the buffering role of power dependence in the relationship between leaders' cyberloafing and workplace anxiety and innovative behavior. This suggests that organizations should pay attention to individual differences among employees and treat employees with different levels of power dependence differently. Organizations should emphasize employees' autonomy and responsibility at work, encouraging them to participate independently in decision-making and problem-solving processes, and fostering an organizational culture that encourages employee autonomy and innovation. Promoting collaboration and knowledge sharing can make employees more willing to share knowledge and experience and seek help from colleagues, reducing over-reliance on leaders. Then, leaders should gradually delegate more responsibilities and decision-making power to employees, making them feel valued and influential in their work. Helping employees develop problem-solving skills, encouraging them to actively seek solutions when facing challenges, and providing positive feedback to help them understand their performance while offering necessary support and guidance (rather than over-reliance) is crucial.

5.4 Limitations and future research directions

First, based on the cognitive appraisal theory of emotions, this study only examined the mediating role of workplace anxiety between leaders' cyberloafing and employees' innovative behavior. Future research could employ new theoretical perspectives (such as attribution, social exchange, and social identity theory) to explore whether leaders' cyberloafing can trigger employees' innovative behavior. For example, based on attribution theory, employees may attribute leaders' cyberloafing behavior differently, leading to different employee behaviors.

Second, this study only explored the moderating role of employees' power dependence in the relationship between leaders' cyberloafing and employees' workplace anxiety and innovative behavior. In addition to power dependence, there are other individual differences, such as a sense of responsibility and psychological entitlement. For example, employees with a higher sense of responsibility may react more intensely to leaders' cyberloafing. Moreover, employee behavior is influenced by individual differences and environmental factors, such as perceived leader fairness. For example, when employees perceive unfair treatment from their leaders, they may become more sensitive to leaders' cyberloafing, thereby more easily triggering workplace anxiety.

Finally, since the data for this study were collected from Guizhou, China, they may be influenced by the characteristics of Chinese collectivist culture. However, employees' tolerance for leaders' cyberloafing varies across different cultural backgrounds. For example, employees in cultures with lower power distance may react more sensitively and negatively to leaders' cyberloafing, thereby generating stronger attitudinal and behavioral responses.

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Data availability

Data will be made available on request.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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