Trapped in Time: The Impact of Electronic Communication During Non-work Time on Thriving at Work

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ABSTRACT

With the maturity of online office software and the arrival of the global mobile communication era, electronic communication between executives and employees during non-work hours has become more prevalent. Although a number of studies have looked into the negative effects of electronic communication during non-work time, there is still a gap in understanding the long-term consequences in organizations. Using the social framework of thriving at work and the Conservation of Resources Theory (COR), we investigated the relationship between electronic communication during non-work time and thriving at work. In addition, we examined the mechanism of e-communication's impact on workplace thriving, as well as the mediating function of emotional exhaustion and the moderating role of psychological resilience in this relationship. Based on the empirical analysis of 316 questionnaires collected in two stages, our research proves that electronic communication during non-work time significantly negatively affects thriving at work; emotional exhaustion has a mediating effect in the relationship between non-work time e-communication and thriving at work; the degree of e-communication's influence on emotional exhaustion will be affected by employees' psychological resilience. When employees possess high psychological resilience, the positive effects of e-communication on emotional exhaustion will be weakened. Conversely, it will be enhanced.

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The arrival of the global mobile communication era has enabled employees to access communication tools like emails and text messages anytime and anywhere (Nurmi & Hinds, 2020), promoting workplace flexibility and achieving the cross-regionalization and globalization of e-communication (Puranik et al., 2020; Sonnentag et al., 2018).

However, due to the fierce competition and high work pressure today, some organizations, considering project progress and work efficiency, encourage or imply that employees should maintain contact with colleagues and superiors even during non-work hours. This expectation leads employees to actively or passively perceive the necessity of staying in touch outside of work hours to maintain competitiveness or demonstrate their commitment to work, thus giving rise to e-communication outside of work hours. Data shows that more than 32% of American employees and 22.4% of employees in European countries continue to receive work-related electronic messages outside of working hours (Dettmers et al., 2016).

There are two completely different views in academia regarding the after-effect of electronic communication, an emerging form of work outside of working hours. Some scholars believe that its spatiotemporal breakthrough provides employees with flexible work modes and opportunities for global team collaboration, which helps to enhance individual work autonomy and job control (Van Zoonen et al., 2021), promote work engagement (Zhang et al., 2019), and thus improve organizational work efficiency. For example, Ren et al. (2023) pointed out that within a certain range, electronic communication outside of working hours can increase social network connections and help employees obtain more relationship resources.

However, many researchers disagree. Other voices believe that the on-call work state makes it difficult for employees to truly free themselves from work, and long-term accumulated stress may lead to emotional exhaustion or job burnout (Derks & Bakker, 2014). Furthermore, electronic communication during non-work time will blur the boundary between work and life and lead to work-family conflict (Hakanen et al., 2011; Schlachter et al., 2018), which may lead to the intrusion of work into private life, causing physical and mental exhaustion among employees, strained family relationships, and even negative impacts on the health of partners (Becker et al., 2021).

Combining these two points of view, the core debate about electronic communication during non-work time is whether it is a resource gain or a resource drain for employees (Holtom & Vaidyanath, 2018). In order to further analyze this problem, we introduced the theory of resource conservation (Hobfoll et al., 2018) for research. This theory holds that individuals have a tendency to protect and acquire resources and will adopt corresponding coping strategies in the face of resource threats. In the context of electronic communication during non-work time, with the help of the double helix model of COR theory, the dynamic change of resources in this process and its impact on the working state of employees can be explained more comprehensively.

Secondly, when discussing the impact of electronic communication during non-work time, most previous studies focused on a single after-effect, such as its effect on work stress (Park et al., 2020) and job satisfaction (Contreras et al., 2020). This study chooses "thriving at work" as the key variable, which has significant innovation. Thriving at work refers to the psychological state in which an individual feels active and learning at the same time in the process of work (Spreitzer et al., 2005), which covers two dimensions of learning and vitality. The selection of this variable makes the research perspective more comprehensive, focusing not only on employees' knowledge and skills acquisition at work (learning dimension) but also on employees' mental state and degree of involvement at work (vitality dimension), which effectively expands the research scope in the field of electronic communication in non-work time.

Furthermore, although some research has pointed out that individual-difference factors such as the psychological and objective environment, may play a moderating role in this process (Seidler et al., 2014), the specific moderating mechanisms and influencing pathways have not been fully verified. Therefore, the third innovative point of this study is to focus on the moderating effect of psychological resilience and deeply explore the specific mechanism of the moderating effect of psychological resilience on the relationship between electronic communication during non-work time and employees' thriving at work.

All in all, our research has certain value both in theory and practice. At the theoretical level, we expand the application of COR theory in the field of electronic communication during non-work time, enrich the after-effect research from a multi-dimensional perspective, and explore the boundary of the impact of electronic communication during non-work time on employee burnout. From the practical level, we provide a practical basis for enterprise management, guide employees to correctly handle non-work-hour electronic communication, promote them to achieve work prosperity, and then improve the overall performance of enterprises. Specifically, the model proposed in this study is shown in Figure 1.

Figure 1
The Conceptual Model
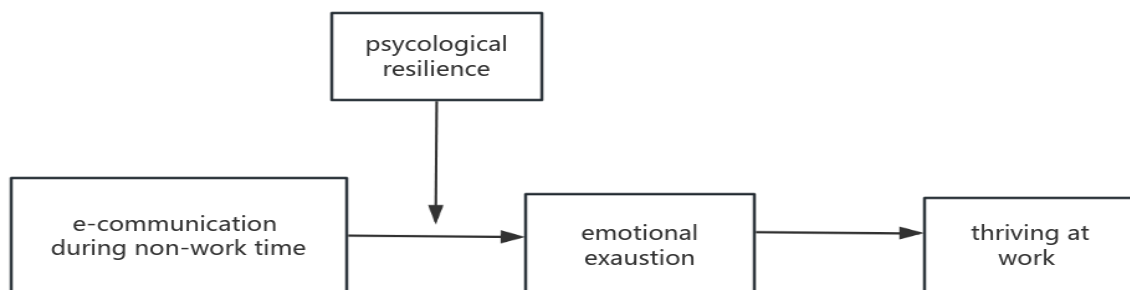
Literature Review
Electronic Communication During Non-work Time
E-communication during non-work time refers to the phenomenon where employees use electronic devices to handle work-related matters outside of regular working hours. In recent years, this behavior has become increasingly common in the workplace, and its antecedents and consequences have received extensive attention.

From the perspective of antecedents affecting electronic communication in non-work hours, many factors interweave. Organizational culture is a crucial factor influencing e-communication during non-work hours. A high-demand work environment and an "always-on" culture encourage employees to stay online outside work hours (Ferguson et al., 2016). The nature of the work and the urgency of tasks also drive employees to communicate during non-work hours to meet job requirements (Gajendran & Harrison, 2018). Personal traits such as work engagement and career commitment can influence employees' willingness to communicate as well (Diaz et al., 2012).

Electronic communication during non-work time is double-edged. On the positive side, it offers work flexibility and autonomy, which contributes to improving work efficiency (Chen & Casterella, 2018). At the same time, it strengthens the connection among leaders and

promotes team cooperation (Ragsdale & Hoover, 2016). However, the negative aspects are more prominent. This type of communication exacerbates work-family conflict (WFC)(Diaz et al., 2012), reduces employee life satisfaction and well-being (Butts et al., 2015), and even leads to a decline in marital satisfaction and life happiness of spouses (Wu & Chen, 2023).

Although existing research has explored both positive and negative consequences of e-communication during non-work time, the negative effects are mainly concentrated in the areas of employee life and family, and there is still little research on the areas of work and organization. Therefore, starting from the negative consequences of employees' work field, this paper studies the impact on work prosperity and enriches the research at the organizational level.

Thriving at Work

"Thriving" is more typically used in psychology to describe psychological development. Job prosperity has recently become a research focus in organizational behavior and human resource management. Spreitzer et al. (2005) were the first to propose the concept of "thriving at work", defining it as a psychological state in which employees experience an integration of a sense of vitality and learning during the work process.

Researchers have extensively explored the antecedents of thriving at work. Regarding individual traits, studies have shown that prosocial motivation (Nawaz et al., 2020) and high-core self-evaluation (Walumbwa et al., 2018) can significantly enhance the likelihood of individuals achieving job prosperity. At the level of workplace interpersonal relationships, Dimitrova (2020) believes that good workplace interpersonal relationships play a positive role in promoting employees' thriving at work. In terms of comprehensive factors, Jiang et al. (2020) pointed out that job prosperity is comprehensively affected by multiple factors such as task characteristics and guidance, and is closely related to job satisfaction.

However, most existing studies are confined to the traditional organizational level and overlook the dynamic changes in the workplace environment. Nowadays, new work forms like telecommuting, flexible employment, and the gig economy are emerging. These new work models differ significantly from traditional work in working hours, space, and organization. Thus, from the perspective of after-hours e-communication, our paper fills the gap in researching the impact of new work modes on thriving at work.

Emotional Exhaustion

Emotional exhaustion, a core dimension of job burnout, refers to the emotional and psychological fatigue employees experience under continuous work pressure (Wright & Cropanzano, 1998). It is closely tied to the imbalance between work demands and resources and is often regarded as having a negative impact on employees' job performance. Moreover, in the long run, it may trigger psychological issues like anxiety and depression, as noted by Jahanzeb et al. (2020).

Previous research on job burnout mainly centered on job burnout itself or its outcome variables. In contrast, this study chooses emotional exhaustion as a mediating variable instead of an outcome variable. It explores the mediating path between e-communication during non-work time and thriving at work from a new angle. This offers a fresh perspective for studying

the relationship between e-communication and thriving at work and enriches the research on emotional exhaustion as a mediating variable.

Psychological Resilience

Psychological resilience refers to the individual ability to maintain good mental health or recover quickly when facing stress or adversity (Kalisch et al., 2017). In recent years, as global environmental and socio-economic challenges escalate, the significance of psychological resilience has become more pronounced, especially given the negative impact of major events like geopolitical conflicts on mental health (Blackmore et al., 2020; Santomauro et al., 2021). Research shows that psychological resilience can not only help individuals maintain mental health under stress but also promote rapid recovery after adversity (Kunzler et al., 2020; Liu et al., 2020; Southwick et al., 2014).

The formation of psychological resilience is linked to multiple factors, such as individual traits, social support, and intervention measures (Schäfer et al., 2023). Psychological resilience positively impacts mental health and behavioral performance. Research indicates that individuals with high psychological resilience experience less psychological distress and greater life satisfaction when under stress (Wang et al., 2022). In the workplace, it can reduce job burnout and boost job performance. In summary, psychological resilience is vital for an individual's mental well-being and offers an essential psychological basis for society to confront future challenges.

Currently, psychological resilience research mainly lies in the fields of psychology and education. Our study brings it into management research and explores how psychological resilience impacts the relationship between e-communication during non-work time and employees' work status in enterprise management. This enriches its application in enterprise management and expands the theoretical scope of management research.

Theoretical Background and Hypothesis Development
The Conservation of Resources Theory (COR)

The Conservation of Resources theory (COR) was first proposed by Hobfoll in 1989. Initially, this theory was applied to stress research in the medical field, reflecting the dynamic interaction process between the objective environment and individuals.

The COR theory's basic premise is that individuals strive to maintain cognitive resource stability during cognitive tasks, using minimal resources to complete them. It also posits the resource cycle effect, where resource loss and gain create a spiral-shaped dynamic (Hobfoll, 2001). In organizations, the gain spiral occurs when employees facing high job demands receive enough support and resources, leading to greater job engagement and performance (Bakker et al., 2007). Conversely, the loss spiral means that individuals experience stress when facing or expecting resource loss. These resources mainly consist of four types: material, conditional, characteristic, and energy resources.

In recent years, the application of the COR theory in organizational behavior has gradually increased, especially in research on job burnout, job engagement, and employee health. Research has shown that organizational support, job stability, and job security are important factors in maintaining employees' resources (Hobfoll et al., 2018).

In summary, the COR theory explains the generation mechanism of stress based on the resource flow between the environment and individuals. We take this theory as the theoretical basis, which can well explain the causes of emotional exhaustion, the core dimension of employee job burnout. It can also infer employees' behaviors and work performance according to the loss and flow of resources.

Electronic Communication During Non-work Time and Thriving at Work

With the maturity of online office software and the arrival of the global mobile communication era, the impact of information technology on employees has become a hot topic. Derks et al. (2015) defined electronic communication during non-work time as the use of electronic devices for work-related communication outside of normal working hours. In this article, the concept is explained as "sending or receiving work-related information through digital tools such as email, WeChat, Tencent Meeting, etc., outside of normal working hours. As Schlachter et al. (2018) pointed out, this explanation emphasizes the blurring of non-work-hour e-communication between the work and family domains.

Numerous empirical studies have confirmed a series of outcomes triggered by work thriving, covering aspects such as job satisfaction, high performance, and a low absenteeism rate (Goh et al., 2022; Kleine et al., 2019). According to Boswell et al. (2016), electronic communication during non-work time may increase employees' social isolation, negatively impacting teamwork and relationship building. In line with this, Schlachter et al. (2018) demonstrated that good colleague relationships and team support are critical components in promoting job prosperity; however, electronic communication during non-work time could hinder the development of these relationships.

Based on the research findings of existing scholars, this study holds that although electronic communication during non-work hours may improve work efficiency in the short term, from a long-term perspective, the resulting consumption of employees' resources seriously hinders their psychological detachment. This will have a negative impact on employees' vitality and learning state the next day and may thus impede their work thriving. Therefore, hypothesis 1 is proposed in this study:

H1: Electronic communication during non-work time negatively affects thriving at work.

Anxiety as a Response to E-Communication during non-work time: insights from COR

The Conservation of Resources theory (COR) states that to process information as efficiently as possible, people will try to keep their cognitive resources stable during cognitive activities and distribute them based on the complexity of the tasks and each person's level of ability. However, when these resources face potential or actual losses or when individuals invest resources but do not receive the expected returns, it will impose psychological burdens and stress on people.

Emotional exhaustion refers to the state in which an individual feels his energy gradually exhausted after a long period of emotional labor (Maslach et al., 2001). From the perspective of COR, receiving work-related electronic communication anytime and anywhere may blur the boundary between work and life, making it harder for employees to unwind and recharge their

resources. There is already some research in academia on the impact of electronic communication outside of working hours on emotional exhaustion. In the model of investigating the influence of non-work electronic communication on employees' time encroachment behavior, He and Yu (2020) examined the mediating effect of the variable emotional tiredness and discovered that such connection behavior would result in employees' emotional weariness. The following hypothesis is put forward in this study based on the research mentioned above:

H2: Electronic communication during non-work hours positively affects emotional exhaustion.

Emotional Exhaustion as a Mediator

From the perspective of the vitality dimension, emotional exhaustion leaves individuals completely drained. Excessive emotional labor prevents the restoration of vitality, making it impossible for employees to continue to engage in work with high levels of vitality. And from the learning dimension, emotional exhaustion may give rise to physical and mental health problems, such as anxiety, depression, and physical fatigue. These issues can affect employees' overall work status and efficiency, thus hindering their ability to further acquire job-related knowledge and skills.

Research has shown that there is a negative correlation between emotional exhaustion and job engagement. The higher the level of emotional exhaustion, the lower the work engagement (Saputri & Prahara, 2023). In line with the idea of thriving, Braukmann et al. (2018) noted that electronic communication during non-work time would take up employees' free time, consume their psychological and temporal resources, and ultimately result in a decrease in their sense of learning and vitality at work. There is also proof that employees who experience emotional exhaustion tend to show lower job satisfaction and a sense of accomplishment, which is directly related to a decline in thriving at work (Chou et al., 2020).

What's more, the negative effects of emotional exhaustion are not limited to the individual level. Mao et al. (2018) pointed out that employees in a state of emotional exhaustion tend to show lower willingness to cooperate and less team spirit, which is undoubtedly a major challenge for enterprises that rely on teamwork to complete projects. The team atmosphere deteriorates and trust decreases, which in turn affects the overall performance of the team and its ability to innovate. Furthermore, it was confirmed by Kim et al. (2020) that emotional exhaustion and turnover intention have a significant positive correlation.

In particular, electronic communication during non-work time generates mental exhaustion, blurs the line between work and life, and diminishes psychological detachment, making it challenging for workers to regain their personal resources and continue to work smoothly. Combined with the research of Aboramadan and Karatepe (2021), emotional exhaustion is thought to have a mediating effect between electronic communication during non-work time and thriving at work. This study hypothesizes that emotional exhaustion acts as a mediator in this causal chain:

H3: Emotional exhaustion mediates the relationship between electronic communication during non-work time and employees' thriving at work.

Psychological Resilience as a Moderator

Resilience refers to an individual's ability to cope effectively and recover in the face of stress and adversity (Schäfer et al., 2024), which has also been suggested as a protective factor against burnout (Rushton et al., 2015). In recent years, psychological resilience has received increasing attention in mental health and burnout research. Researchers have found that positive emotions help those with resilience recover from negative experiences. Kalisch et al. (2017) proposed a resilience framework as a strategy for coping with stress-related disorders, emphasizing the importance of resilience in maintaining mental health. Xu et al. (2024) found that self-esteem and hardiness may play a role in buffering or protecting against exhaustion. Psychological resilience can significantly reduce the risk of emotional exhaustion, especially in high-stress work environments (Rink et al., 2023). Seidler et al. (2014) pointed out that individuals with high psychological resilience can better cope with emotional distress and mitigate the manifestations of emotional exhaustion.

It can be inferred that electronic communication outside working hours encroaches on employees' rest time, causing resource depletion. Moreover, the level of psychological resilience may affect the speed and condition of their resource recovery. When facing high-stress situations, people with high psychological resilience are more likely to quickly replenish psychological resources, maintain a more proactive state, and reduce emotional exhaustion. In contrast, people with low psychological resilience may experience more severe emotional exhaustion due to delayed and prolonged replenishment of psychological resources. Based on the above research and deduction, this paper proposes the following hypothesis:

H4: The relationship between electronic communication and emotional exhaustion will be moderated by psychological resilience. When employees possess high psychological resilience, the positive effects of e-communication on emotional exhaustion will be weakened. Conversely, it will be enhanced.

Method

Participants and Procedure

Data were collected in March 2024 from workers of different positions, ages, and industry regions in China, specifically in provincial capitals of China and cities with relatively high economic development level such as the Yangtze River Delta. These regions feature a fast-paced lifestyle and high work pressure, leading to a relatively high probability of electronic communication during non-work hours. Therefore, the sample selection is highly representative. Meanwhile, multiple industries are covered, including manufacturing, construction, IT, and finance, ensuring the wide industry scope of the sample. In addition, the survey respondents mainly consist of ordinary employees and grassroots managers. These two groups are generally in the initial or ascending stage of their career development, facing relatively high work pressure, which further enhances the representativeness of the sample.

The research was mainly conducted online. Respondents were invited to complete an online survey within a week. They were informed that the purpose of this study was to understand their situations regarding work-related communication during non-work hours. Meanwhile, their anonymity was guaranteed. The questionnaire is distributed and collected in two stages, with a two-month interval in between. The first measurement mainly focused on two variables:

electronic communication during non-work time and emotional exhaustion, while the second focused on the other two variables: work prosperity and psychological resilience. Through strict data screening and cleaning, 43 obviously unqualified samples were eliminated to ensure the authenticity and validity of the data. Finally, a total of 316 valid questionnaires were obtained.

In terms of demographics of the sample, women accounted for 59.3% of the participants, and those aged 25-45 accounted for 64.35%. Regarding the educational distribution, the number of undergraduates was 117, accounting for 54.17%, which was more than half of the sample. It shows that workers are generally highly educated at present. In terms of the respondents' years of work, those with 1-5 years of work experience accounted for the largest proportion, reaching 45.37%; next were those with one year or less of work experience, at 24.07%. Overall, 89.81% of the total sample had worked for 1-10 years. Regarding the distribution of respondents' job levels, the majority of respondents were ordinary employees and grassroots managers, accounting for over 90%.

Instruments

This study used the maturity scale, in which some items were added or subtracted from the scale to apply to the Chinese context. All items were measured using 5-point Likert-type scales, where "1" indicates "strongly disagree" and "5" indicates "strongly agree".

Electronic Communication during non-work time Scale. This study referred to the Electronic Communication Frequency during non-work Hours Scale developed by He and Yu (2020). This scale consists of three questions, namely "Colleagues contact me for work-related matters", "I proactively contact colleagues about work-related matters", and "I check work-related messages through electronic communication media", aiming to evaluate employees' passive reception, active sending, and self-initiated checking of electronic communication information during non-work hours. This study specifically defines that the scope of colleagues includes multiple meanings such as "leader, colleague and subordinate," and the scope of electronic communication media includes telephone, SMS, QQ, Wechat, Tencent, Dingding, etc.

Thriving at Work Scale. This study refers to the two-dimensional model scale designed by Porath et al. (2012) for measuring job prosperity, with 5 questions measuring the learning dimension and 5 questions measuring the vitality dimension. Representative questions include "I often learn knowledge and skills related to work" and "I feel energetic in a team".

Emotional Exhaustion Scale. This study selects the Maslach Emotional Exhaustion Scale, then modifies it according to the specific situation in China, which contains five questions, such as "working all day is really stressful for me" and "working makes me feel on the brink of collapse".

Psychological Resilience Scale. This study synthesized previous research and selected the 9-question single-factor scale adapted by Siu et al. (2009) based on the Chinese context. Some of the more representative questions include "I have confidence in overcoming difficulties" and "I can still remain calm when facing immense pressure".

Control for the selection of variables. Based on previous studies, the control variables selected in this study mainly included gender, age, educational background, industry, nature of

work unit, working years, and job rank. To facilitate further research, these variables are assigned uniformly, and the processing results are represented by numbers 1, 2, 3, etc.

Results

Since this questionnaire was self-assessed by the same group of participants, it is necessary to conduct a common method bias test (Podsakoff et al., 2003). In this paper, Harman's Single-Factor Test was used for the examination. After conducting factor analysis on the independent variables, dependent variables, mediating variables, and moderating variables and extracting one factor, the obtained data showed that the variance explained by this factor was 36.17%, which was less than 50%. Therefore, it was determined that there was no serious common-source error in this study.

Confirmatory Factor Analyses and Correlation Analysis

Next, confirmatory factor analyses (CFAs) were conducted to assess the convergent and discriminant validity of the variables studied.

Convergent Validity refers to the correlation of a questionnaire or scale with other known measurements of the same or similar concepts, assessing whether a measurement tool can accurately capture the concept it is intended to measure. Amos 26.0 was used to calculate the factor load, AVE value and CR value, respectively. After calculation, the factor load value corresponding to each latent variable was greater than .7, the AVE value corresponding to each latent variable was greater than .5, and CR was also above .8, indicating that the convergent validity of each scale has passed the test.

Discriminant Validity refers to the evaluation of the relationship between a measurement tool and other measurement tools of different concepts. In terms of discriminating validity, the fitting indexes X^2/df, CFI, NFI, TLI, and RMSEA were selected in this study, and the fitting effect of the above four latent variables was tested by AMOS 26.0 software. It can be seen from Table 1 that the four-factor model meets the evaluation criteria and has a good fitting effect.

Table 1
The Result of Model Fitting Effect Test

Fitting index	Evaluation criteria	Data of this study
X^2/df	Between 1 and 3, the closer you get to 1, the better	1.18
GFI	> .9, the closer to 1 the better	.91
CFI	> .9, the closer to 1 the better	.99
NFI	> .9, the closer to 1 the better	.91
TLI	> .9, the closer to 1 the better	.94
RMSEA	< .08, the closer to 0 the better	.03

For further discrimination validity test, it can be seen from Table 2 that absolute values of correlation coefficients are all less than .5 and less than the square root of the corresponding AVE. This indicates that there is a certain degree of differentiation among all latent variables on the basis of correlation, and the discrimination validity is ideal. At the same time, this study conducted Pearson correlation analysis on the relationships among the four research variables of non-work-hour electronic communication, thriving at work, emotional exhaustion, and psychological resilience. The results showed that Electronic communication during non-work time is significantly negatively correlated with thriving at work ($r = -.43, p < .01$) and positively

correlated with emotional exhaustion ($r = .42$, $p < .01$). There is a significant negative correlation between emotional exhaustion and thriving at work ($r = -.50$, $p < .01$), as well as a significant negative correlation between psychological resilience and emotional exhaustion ($r = -.38$, $p < .01$).

Table 2

Means, Standard Deviations, and Correlations

Variables	M	SD	CR	AVE	8	9	10	11
1 Gender	1.6	0.49						
2 Age	2.82	1.15						
3 Educational background	2.75	0.65						
4 Profession	6.38	3.55						
5 Nature of enterprise	2.31	0.81						
6 Years of work	2.63	1.05						
7 Job rank	1.28	0.62						
8 Electronic communication during non-work time	2.75	1.01	.83	.62	1			
9 Thriving at work	3.38	0.78	.87	.58	-.43**	1		
10 Emotional exhaustion	2.74	0.95	.88	.61	.42**	-.50**	1	
11 Psychological resilience	3.40	0.99	.90	.63	-.44**	.49**	-.39**	1

Note. N = 316, *$p < .05$; **$p < .01$, *** $p < .001$

Regression Analysis

In order to further examine the relationship between the variables, hierarchical linear regression was performed. As can be seen from Table 3, electronic communication during non-work time has a significant negative impact on employees' thriving at work (M4, $\beta = -.42$, $p < .001$). Therefore, hypothesis 1 is verified. Additionally, electronic communication during non-work time has a significant positive effect on employee emotional exhaustion (M4, $\beta = .41$, $p < .001$), supporting hypothesis.

Table 3

Results of Regression Analysis

Variables	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
1 Gender	.09	1.56	-.04	-.69	-.08	-1.25
2 Age	-.09	-.83	.06	.58	.09	.86
3 Educational background	.06	.98	.05	.82	.02	.37
4 Profession	-.08	-1.20	-.04	-.64	-.01	-.13
5 Nature of enterprise	.01	.10	.02	.32	.02	.26
6 Years of work	.04	.35	-.07	-.71	-.09	-.80
7 Job rank	.07	1.04	.06	.94	.03	.46
8 Electronic communication during non-work time	.41	6.43***	-.26	-3.93**	-.42	-6.49***
9 Emotional exhaustion			-.39	-6.10***		
R²	.20		.32		.19	
F	6.45**		10.51***		6.12***	

Note. N = 316 (1) All variables in the model are substituted into the regression equation with standardized data. (2) Model 1 - the influence of independent variables on intermediary variables. (3) Model 2 - The influence of both independent and intermediary variables in the regression model on the dependent variables. (4) Model 3 - Total effect of independent variable on dependent variable. (5) *$p < .05$; **$p < .01$, *** $p < .001$

In this study, model 4 of the PROCESS macro program in SPSS was used (model 4 was a simple mediation model), and non-parametric percentile Bootstrap method with deviation

correction was adopted to conduct 5000 self-sampling tests and test the mediation effect. As can be seen from Table 4, the 95% CI value of Bootstrap for direct effect is (-.30, -.10), excluding 0. The Bootstrap 95% CI value of the indirect effect was (-.19, -.07), excluding 0. Therefore, emotional exhaustion plays a partial mediating role in the influence of electronic communication during non-work time on thriving at work, and the mediating effect accounts for 38.63% of the total effect.

Table 4

Bootstrapping Analysis for the Indirect Effects of Simple Mediating Effects

	Effects	SE	Bootstrap 95%CI		Ratio of total effect
			LLCI	ULCI	
Total effect	-.32	.05	-.42	-.22	
Direct effect	-.20	.05	-.30	-.10	61.37%
Indirect effect	-.12	.03	-.19	-.07	38.63%

Note. The bias-corrected confidence intervals were based on 5000 re-samples at the 95% level of confidence.

Next, the moderating influence of psychological resilience was examined (see Table 5). The data items of the independent variable (non-work-hour electronic communication), the moderating variable (psychological resilience), and their interactions were centralized using the SPSS 24.0 program. Subsequently, hierarchical regression analysis was conducted. The first step is to enter control variables, the second step is to enter independent variables (electronic communication during non-work time), the third step is to enter regulatory variables (psychological resilience), and the fourth step is to enter the interaction terms between independent variables and regulatory variables.

Table 5

The Moderating Effect of Psychological Resilience

| Variables	Emotional exhaustion							
	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
1 Gender	.13	1.88	.10	1.56	.12	1.90	.08	1.28
2 Age	-.12	-1.03	-.09	-.83	-.06	-.59	.04	-.37
3 Educational background	.08	1.14	.06	.98	.07	1.16	.09	1.60
4 Profession	-.04	-.58	-.08	-1.20	-.05	-.76	-.08	-1.28
5 Nature of enterprise	.01	.18	.01	.10	-.01	-.13	-.00	-.01
6 Years of work	.00	.02	.04	.35	.02	.19	.02	.21
7 Job rank	.05	.74	.07	1.04	.08	1.30	.07	1.21
8 Electronic communication during non-work time			.41	6.43**	.29	4.28***	.28	3.63***
9 Psychological resilience					-.26	-3.85***	-.25	-3.86***
Interaction term							-.24	4.56***
R²	.04		.20		.25		.32	
ΔR²	.04		.16		.05		.07	
F	1.23		6.45**		7.77***		9.75***	

Note. (1) All variables in the model are substituted into the regression equation with standardized data. (2) * means significant at the level of .05, ** means significant at the level of .01, *** means significant at the level of .00.

In order to show more clearly how the relationship between the independent variable and the dependent variable is affected by other variables (regulating variables), the moderating effects are plotted in this paper. As shown in Figure 2, the positive effect of electronic

communication during non-work time on emotional exhaustion is weakened when psychological resilience is at a higher level (mean above one standard deviation). Thus, hypothesis 5 is verified.

Figure 2

Simple Slope Test (N=316)
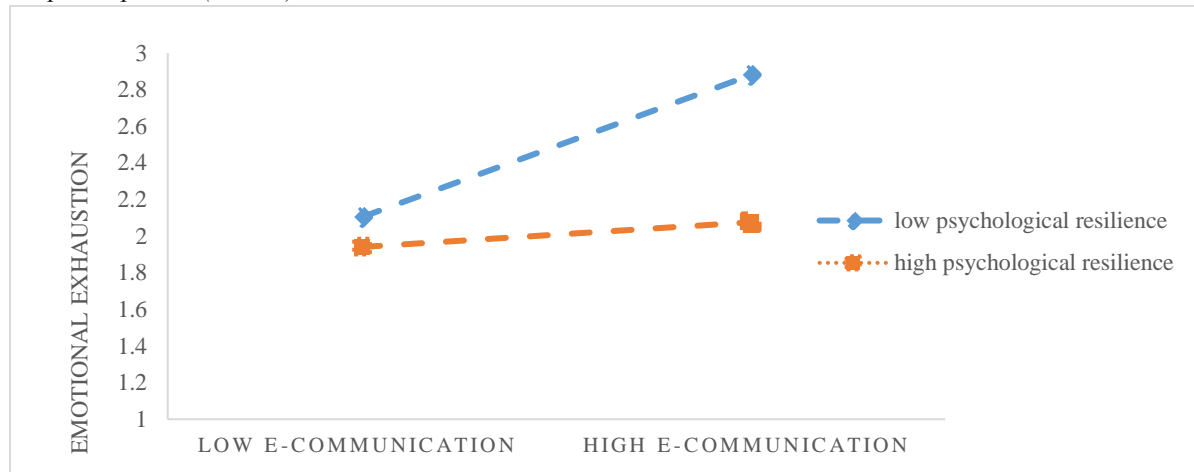
Disscussion

Theoretical Implications

Our study has certain theoretical significance. We advance understanding of the COR theory and thriving at work through three key insights:

Firstly, we demonstrate the negative impact of electronic communication during non-work time on thriving at work. Our findings have shown that electronic communication during non-work time reduces employee thriving by depleting time and emotional resources. This aligns with the COR theory, which predicts that continuous resource loss creates a downward spiral (Hobfoll et al., 2018). Specifically, frequent work-related messages reduce employees' ability to feel energetic (vitality) and develop skills (learning), as defined by Spreitzer et al. (2005). This matches earlier research linking after-hours communication to stress (Derks & Bakker, 2014) and work-life conflicts (Schlachter et al., 2018). However, unlike studies suggesting limited benefits of connectivity (Ren et al., 2023), our results highlight long-term harm in high-pressure contexts, likely due to cultural expectations for constant availability in Chinese workplaces.

Secondly, our study demonstrates that emotional exhaustion acts as a critical link between after-hours communication and reduced thriving, connecting burnout research to proactive well-being (He & Yu, 2020; Xu et al., 2024). Emotional exhaustion explains why after-hours communication harms thriving. This aligns with the COR theory, where resource loss leads to stress responses (Maslach et al., 2001). Employees experiencing emotional exhaustion feel drained, making it harder to stay motivated and learn new things. This extends previous work showing emotional exhaustion's role in stress (He & Yu, 2020) to the broader concept of thriving.

Finally, we clarify the moderating role of psychological resilience in the relationship between electronic communication during non-work time and emotional exhaustion. This conclusion is consistent with the theory of "psychological resilience as a stress buffer"

proposed by Kalisch et al. (2017). It complements the research gap in the application of psychological resilience in the field of management. This is also in line with reality. In our life, employees with higher psychological resilience are better able to handle the stress from after-hours communication. Resilience acts as a protective resource, helping individuals recover faster and reduce emotional exhaustion (Rink et al., 2023). This supports COR theory, which emphasizes how personal resources can counteract resource loss.

It is worth mentioning that psychological resilience research mainly lies in the psychology and education fields currently (Rink et al., 2023; Schäfer et al., 2024). However, this study brings it into management research. This enriches its application in enterprise management and expands the theoretical scope of management research.

Management Implication

Based on the conclusions, this paper puts forward the following enlightenment and suggestions. When enterprises are faced with the management of electronic communication, they can take a series of measures to promote employees' health, well-being, and job performance.

Firstly, there should be reasonable control over electronic communication during non-work time. Enterprises are advised to formulate clear communication policies, distinctly defining working and non-work hours, and stipulate that work-related electronic communication should be avoided or controlled during non-work hours. Additionally, the introduction of specialized work communication tools can be considered. This allows employees to easily distinguish between work and personal communication, effectively demarcating the boundary between their personal lives and work duties. At the same time, enterprises must carefully select the most suitable hierarchical and communication systems, analyzing whether there are inefficiencies due to poor communication channels between different levels.

Secondly, creating an "emotional supply station" for employees is crucial. This involves providing mental health support, such as setting up counseling services or making mental health resources accessible. These offerings can assist employees in handling work stress and emotions. Offering emotional management training is also beneficial, equipping employees with the skills to better face challenges, manage stress, and maintain emotional stability. In terms of the company environment, fostering a positive atmosphere is the key. A culture that is positive, supportive, and cooperative should be cultivated. Recognizing and rewarding employees' efforts and achievements can help replenish their psychological and emotional resources.

Finally, a correct understanding and cultivation of psychological resilience are essential. From the enterprise perspective, resilience training should be provided to teach employees how to adapt to change, remain flexible, and actively confront challenges. Encouraging employees to spot opportunities within challenges can help them maintain a positive mindset and enhance their mental toughness. On the employee side, they should take the initiative to cultivate their own mental fortitude to better handle stress and adversity. They should learn self-control, manage their emotions effectively, and not be swayed by negative emotions.

Limitations and Future study

This study has several limitations due to methodological constraints. First, the online data collection process may have resulted in an uneven sample distribution. For example, a large

proportion of participants worked in the financial industry, which could reduce the generalizability of findings to other sectors.

Second, while the measurement scales used were validated in prior studies, their application in different cultural contexts may introduce cultural biases or misunderstandings, potentially affecting the accuracy of results.

Third, the research focused primarily on the negative effects of e-communication during non-work time (e.g., resource depletion leading to emotional exhaustion and reduced thriving). It did not explore potential positive effects, such as how electronic communication during non-work time might enhance thriving by increasing perceived job autonomy (Zhang et al., 2022). Future studies could examine these dual effects to provide a more balanced perspective.

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