Instant Reply? Workplace Communication Pressure in the Information and Communication Technology (ICT) Era

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Abstract

Workplace communication pressure refers to the sense of urgency employees experience in wanting to quickly respond to ICT-based work messages. Existing research on its antecedents and impact pathways has been relatively fragmented and lacks systematic understanding. Based on the Job Demands-Resources model and combined with the Effort-Recovery model, this study discusses the antecedent effects of ICT use as a job demand and individual factors as personal demands/resources on workplace communication pressure; it also explores the negative effects of workplace communication pressure on employees' physical and mental health as well as work and family domains due to hindering recovery activities, with the aim of enhancing comprehensive understanding of workplace communication pressure, enriching existing research' s understanding of the consequences of ICT use, and providing references for the development of future research and intervention practices for employees' occupational mental health.

Full Text

Prompt Reply? Workplace Telepressure in the Information and Communications Technology (ICT) Era

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Abstract: Workplace telepressure refers to the urgency employees experience when striving to respond to ICT-based work messages as quickly as possible. Existing research has examined its antecedents and influence pathways in a fragmented manner, lacking systematic understanding. Grounded in the Job Demands-Resources (JD-R) model and integrated with the Effort-Recovery Model, this paper discusses how ICT use—as a job demand—and individual factors—as personal demands/resources—contribute to workplace telepressure. It

further explores the negative effects of telepressure on employee physical and mental health, as well as work and family domains, through its interference with recovery activities. This synthesis aims to provide a comprehensive understanding of workplace telepressure, enrich current knowledge about the consequences of ICT use, and offer insights for future research and occupational mental health interventions.

Keywords: workplace telepressure, information and communication technology (ICT), Job Demands-Resources (JD-R) model, Effort-Recovery Model

1. Introduction

The digital era has transformed how people exchange information and maintain workplace relationships. In recent years, new work arrangements such as remote work and virtual teams have become increasingly prevalent, requiring employees to rely on information and communication technology (ICT) to accomplish their tasks. The COVID-19 pandemic in 2020 further accelerated this trend, making remote work a long-term strategic reality. Consequently, ICT-mediated communication has become an inevitable and integral component of modern work. While ICT-enabled workplace interactions offer productivity benefits—such as enhanced communication efficiency and increased employee autonomy and control—they also raise expectations for productivity and connectivity. Under these heightened expectations, employees increasingly feel compelled to remain constantly connected to their organizations to make favorable impressions on supervisors, colleagues, and clients, viewing this connectivity as a marker of good performance. However, this excessive focus on work-related information may yield negative rather than positive outcomes.

To better understand this psychological state of needing to stay perpetually connected to work activities, Barber and Santuzzi (2015) introduced the concept of *workplace telepressure*, defining it as the preoccupation and impulse to respond quickly to work messages via ICT. This represents a unique psychological experience accompanying increasingly frequent ICT interactions.

Recent research on the antecedents of telepressure has advanced our understanding of why employees prioritize ICT messages during work hours and even feel inclined to stay connected through ICT during non-work hours. Studies on its consequences have revealed telepressure' s detrimental effects on employee psychological health, work performance, and personal life domains. Given that occupational health plays a crucial role in maintaining positive organizational outcomes (e.g., job performance) and that employees experiencing high telepressure may sacrifice work quality to achieve rapid response times, examining workplace telepressure is essential for helping managers improve work design in ICT-mediated environments, safeguard employee health and well-being, and enable organizations to achieve high-quality work outcomes.

Currently, ICT has been widely adopted across Chinese organizations, with employees using mobile office platforms such as WeChat Work, DingTalk, and Lark to handle work tasks anytime and anywhere. This suggests that Chinese employees may be facing significant workplace telepressure and occupational health challenges. However, academic attention to this phenomenon has been insufficient. Against this backdrop of widespread ICT adoption, when do employees experience telepressure? Why does telepressure negatively affect occupational health? Might positive outcomes also emerge during these processes? Existing research has addressed these questions in a piecemeal fashion, lacking systematic understanding of telepressure' s antecedents and influence pathways. Moreover, workplace telepressure represents a crucial psychological mechanism linking ICT use to negative occupational health outcomes, and a systematic review of this research will enrich our understanding of ICT use consequences.

This paper reviews recent domestic and international literature to provide a comprehensive framework. Based on the conceptual definition of workplace telepressure, we employ the Job Demands-Resources (JD-R) model (Demerouti et al., 2001) as our theoretical lens to differentiate types of ICT use—as job demands versus resources—and discuss employees' tendency to perceive ICT-related job demands as either challenging or hindering. We also examine how individual factors function as personal demands/resources influencing telepressure. Regarding outcomes, we integrate the Effort-Recovery Model (Meijman & Mulder, 1998) to explore how telepressure experienced during both work and non-work hours affects employee well-being and work-family domains. This synthesis will help researchers fully understand telepressure as an emerging psychological mechanism in discussions of ICT use consequences and promote evidence-based interventions to reduce telepressure or mitigate its negative effects, ultimately improving employees' work environments.

2.1 Conceptual Origins of Workplace Telepressure

Workplace telepressure emerged alongside the widespread application of ICT in the workplace. ICT-mediated workplace interactions are unrestricted by time or location, granting employees greater flexibility and control over when and where they work. However, the autonomy paradox suggests that while this flexibility enhances employee autonomy, the convenience of ICT has fostered a pervasive norm: employees are expected to remain continuously connected to work-related activities via ICT to meet supervisors' , colleagues' , and clients' needs. Even during non-work hours, employees often feel compelled to respond to work-related messages. To describe this psychological state of needing to reply immediately to work messages, Barber and Santuzzi (2015) introduced workplace telepressure, defining it as the urgency employees experience when wanting to respond quickly to ICT-based work messages.

The essence of workplace telepressure is stress (Grawitch et al., 2018), yet it differs from general work stress. It is uniquely associated with the blurring of work-family boundaries brought about by ICT interactions, arising from addi-

tional response demands beyond regular work tasks. It represents a distinctive stress experience stemming from growing dependence on ICT in the work environment (Barber & Santuzzi, 2015). It differs from technostress, which emerged during the era of widespread information technology (IT) adoption (Tarafdar et al., 2020), whereas workplace telepressure originates from the more advanced ICT era, focusing specifically on ICT use for timely response to work messages.

2.2 Conceptual Definition and Measurement

Workplace telepressure is defined as employees' preoccupation and impulse to respond quickly to work-related messages via ICT (Barber & Santuzzi, 2015). The concept comprises two essential components—preoccupation and impulse—both of which are indispensable. Preoccupation refers to the persistent thinking about "that unanswered message," a mental state where employees cannot fully engage in other activities until they reply, making it difficult to concentrate on work tasks or daily life. Impulse reflects the strong desire to respond immediately rather than ignore work messages, manifesting as frequently checking for and replying to messages promptly. Notably, workplace telepressure concerns employees' psychological experience in the ICT context, not their external behaviors, distinguishing it from ICT-related behaviors such as after-hours work connectivity. For instance, employees using ICT during non-work hours to maintain contact with supervisors, colleagues, or clients falls outside the conceptual scope of telepressure.

Based on these two characteristics, Barber and Santuzzi (2015) developed a six-item telepressure scale. The items exclude emotional expressions (e.g., anxiety, worry) or behavioral descriptions (i.e., replying to messages) to ensure the scale captures only message preoccupation and response impulse. This scale is currently the only instrument for measuring workplace telepressure and has demonstrated good reliability and validity across multiple empirical studies (Cambier & Vlerick, 2020; Kao et al., 2020).

2.3 Distinctions from Related Concepts

To deepen understanding of workplace telepressure, it is necessary to distinguish it from related but distinct concepts.

(1) Fear of Missing Out (FoMO). When employees worry about missing career opportunities—experiencing workplace FoMO—they develop a strong desire to stay informed about work information (Przybylski et al., 2013; Budnick et al., 2020), which manifests as increased ICT use. This behavioral pattern aligns with telepressure. However, individuals high in FoMO use ICT to learn what others are doing, whereas telepressure involves high attention to work messages to meet others' response expectations and maintain positive workplace social relationships.

(2) Workaholism. Also called work addiction, workaholism refers to a stable

individual trait characterized by compulsive overwork (Schaufeli et al., 2008). Both workaholism and telepressure involve impulses to stay connected to work, but workaholism is driven by guilt and discomfort when not working, featuring compulsive thinking about and execution of work tasks. In contrast, telepressure is motivated by meeting others' response expectations, with behavioral outcomes focused specifically on information-based ICT use—replying to work messages rather than actually performing work tasks.

(3) Job Engagement. Job engagement refers to a positive, fulfilling work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Job engagement and telepressure share similar behavioral manifestations of staying connected to work activities. However, engagement is motivated by intrinsic enjoyment and satisfaction derived from work, whereas telepressure-driven connection serves merely to respond to job demands.

(4) Work-Related Rumination. This refers to employees' conscious, repetitive thinking about work-related issues "without being asked to do so, typically during non-work hours such as after work or leisure time" (Cropley & Zijlstra, 2011; Zhang et al., 2020). Both work-related rumination and telepressure' s preoccupation dimension emphasize persistent thinking about work messages that may overshadow other activities. However, rumination occurs proactively during non-work hours and is difficult to disengage from voluntarily, whereas telepressure' s preoccupation state arises upon receiving work messages, and employees can actively return to their previous activities (including work tasks or daily life) after replying, with telepressure potentially occurring during both work and non-work hours.

3. Antecedents of Workplace Telepressure: A JD-R Model Perspective

When Barber and Santuzzi (2015) introduced workplace telepressure, they defined it within the JD-R framework as a response to ICT response demands—demands that often stem from widespread ICT adoption in the workplace. Subsequent research on telepressure predictors has largely followed this approach, analyzing it through the JD-R lens (e.g., Cambier & Vlerick, 2020; Page et al., 2021).

The JD-R model (Demerouti et al., 2001; Bakker & Demerouti, 2017) posits that all job characteristics can be categorized as job demands or job resources. Job demands require sustained physical and/or psychological effort, while job resources help employees achieve work goals and reduce associated physiological and psychological costs. In terms of effects, job demands have health-impairing effects, whereas job resources have motivational effects, negatively and positively influencing job performance, respectively. High job resources can buffer the health-impairing effects of job demands, while high job demands can enhance the motivational effects of job resources. Beyond these job characteristics, personal

resources (e.g., self-efficacy) function similarly to job resources, and personal demands (e.g., workaholism, perfectionism, neuroticism) may also play a role.

Furthermore, scholars have distinguished between hindering and challenging job demands, arguing that demands can have both health-impairing and motivational effects. Hindering job demands are constraints that interfere with or inhibit personal goal achievement, impairing health without providing motivational benefits. Challenging job demands, while requiring effort, may promote personal growth and achievement, exerting both health-impairing and motivational effects simultaneously (LePine et al., 2005; Podsakoff et al., 2007; Crawford et al., 2010; Bakker & Demerouti, 2017).

Additionally, reverse causal effects exist between job demands, resources, and employee well-being. Motivated employees may engage in job crafting (Wrzesniewski & Dutton, 2001; Tims & Bakker, 2010) to create more resources, leading to higher motivation levels. Conversely, employees under high stress may exhibit self-undermining behaviors (Bakker & Costa, 2014), resulting in even higher job demands and greater stress.

3.1 ICT Use as Both Job Resource and Job Demand

As previously noted, ICT use presents both advantages and disadvantages for employees. On one hand, ICT enables employees to work more autonomously regarding when and where they work (Kossek et al., 2006). On the other hand, ICT' s connectivity convenience keeps employees constantly on standby, leading to increased workload, longer work hours, and blurred work-nonwork boundaries (Mazmanian et al., 2013). Therefore, ICT use in the workplace functions as both a job resource and a job demand (Day et al., 2010, 2012). When employees associate ICT use with task flexibility and autonomy, they may perceive it as a job resource. Conversely, when they link it to greater workload, longer hours, and difficulty disengaging from work, they may view it as a job demand (Peters et al., 2009; Demerouti et al., 2014).

Van Laethem et al. (2018) proposed that if employees perceive frequent ICT message responses as a burden, they will treat it as a job demand and experience telepressure. However, if they view it as enhancing their autonomy and flexibility, they will perceive it as a resource, leading to higher job engagement.

3.2.1 Predictive Effects of ICT-Related Job Demands on Telepressure

In work environments with widespread ICT adoption, employees who perceive ICT as a job demand are more likely to experience telepressure. Telepressure represents employees' internalization of ICT use-related demands (Barber & Santuzzi, 2015), encompassing work overload, control over demands, and social norms (connectivity and responsiveness expectations) (Grawitch et al., 2018). Work overload includes both quantitative overload and techno-overload; when employees face excessive workloads or when technological advances create higher job demands (Wang et al., 2008), they experience higher telepressure (Barber &

Santuzzi, 2017; Grawitch et al., 2018). Perceived control over ICT demands also affects telepressure experiences (Grawitch et al., 2018); those who cannot control their ICT use are more likely to feel they must reply immediately, experiencing greater stress (Hair et al., 2007). Additionally, in the context of pervasive ICT use, organizations expect employees to remain constantly connected and respond quickly. This organizational expectation functions as a social norm—an extra job demand beyond regular workload (Barber & Santuzzi, 2015)—making employees feel they can never escape work activities (Ragu-Nathan et al., 2008) and resulting in higher telepressure (Barber & Santuzzi, 2015, 2017; Grawitch et al., 2018).

Furthermore, scholars have found that telepressure more often represents a response to challenging rather than hindering job demands (Santuzzi & Barber, 2018; Barber et al., 2019; Baumeister et al., 2021). In other words, employees are more likely to perceive these ICT-related demands as challenging. Santuzzi and Barber (2018) found a positive correlation between telepressure and job engagement, suggesting that these challenging ICT demands simultaneously increase telepressure and enhance job engagement.

3.2.2 Predictive Effects of ICT-Related Personal Demands/Resources on Telepressure

While external factors play important roles in telepressure, individual factors explain a substantial portion of variance (Grawitch et al., 2018), and these can be categorized as personal demands and personal resources.

Personal demands such as neuroticism, workaholism, and self-regulation reflect traits that promote telepressure. First, among the Big Five personality traits, neuroticism is a key predictor; employees high in neuroticism are more prone to anxiety and impulsive behavior (e.g., rushing to reply to emails) and thus experience greater telepressure. Extraversion and conscientiousness also show weak positive relationships with telepressure, as extraverted employees seek social connection and feel compelled to respond quickly, while conscientious employees focus on goal achievement and tend to respond promptly to work messages (Barber & Santuzzi, 2015, 2017; Grawitch et al., 2018). Second, workaholism —as a compulsive drive to overwork motivated by guilt and discomfort when not working—represents an important personal demand (Bakker & Demerouti, 2017). Workaholic employees adopt exceeding organizational expectations as a self-protection strategy, generating preoccupation and response impulses toward ICT demands and resulting in higher telepressure (Barber & Santuzzi, 2015; Grawitch et al., 2018). Third, dispositional self-regulation is associated with high motivation to follow job demands to achieve goals consistently, making employees more attentive to ICT-related role expectations and strengthening the effect of organizational expectations on telepressure (Kao et al., 2020). Additionally, employees' fear of missing out (concerns about missing work-related information) and public self-consciousness (concern about impressions made on others) are significantly positively correlated with telepressure (Barber & San-

tuzzi, 2015, 2017).

Personal resources such as high self-control and boundary management strategies help mitigate telepressure. Self-control helps employees suppress the impulse to reply immediately (Maloney et al., 2012), reducing telepressure (Barber & Santuzzi, 2017; Grawitch et al., 2018). Segmentation boundary management strategies enable employees to construct physical, temporal, or psychological boundaries between work and life domains, maintaining role separation, alleviating telepressure (Page et al., 2021), and reducing its negative consequences (Hu et al., 2019).

Moreover, telepressure shows significant differences across gender and marital status (Grawitch et al., 2018). Gender differences are particularly pronounced, with female employees experiencing higher telepressure than males. Married individuals may experience slightly more telepressure than unmarried ones. These differences likely reflect social realities where women and married employees face greater family responsibilities, leaving them with fewer resources to cope with increased technology-driven job demands and making them more susceptible to work-related stress.

4. Consequences of Workplace Telepressure: Integrating JD-R' s Health Impairment Path with the Effort-Recovery Model

According to the JD-R model, telepressure resides in the health impairment path, negatively affecting employees (e.g., Hu et al., 2019; Gillet et al., 2022). This aligns with the Effort-Recovery Model (Meijman & Mulder, 1998), which posits that effort expended to meet job demands depletes personal resources, causing stress reactions, while recovery activities help alleviate these reactions. Employees can replenish resources through recovery during both work and non-work hours, such as taking breaks between tasks during work hours or psychologically disengaging from work during non-work hours. When recovery is impeded, employees remain continuously exposed to high job demands and incomplete recovery, leading to accumulated stress reactions and ultimately chronic health impairment (Geurts & Sonnentag, 2006).

4.1 Telepressure Promotes ICT Responsiveness

The immediate result of effort expended by employees with high telepressure to meet job demands is increased ICT-based responsiveness, manifested in shorter response latency and more frequent replies (Barber & Santuzzi, 2015, 2017). However, Cambier and Vlerick (2020) found that telepressure was positively correlated only with reply frequency, not significantly associated with response delay. Building on Barber and Santuzzi (2015), Van Laethem et al. (2018) further distinguished between work and non-work hours, finding that employees experiencing high telepressure engage more frequently in work-related activities via ICT at any time.

4.2 Telepressure Impedes Recovery Activities

To respond to ICT messages more quickly at all times, employees with high telepressure struggle to achieve psychological detachment from work during work breaks or non-work hours—defined as not thinking about work and work-related events (Sonnentag & Fritz, 2007)—thereby impeding recovery. Multiple studies have demonstrated that telepressure leads to lower psychological detachment (Barber & Santuzzi, 2015; Santuzzi & Barber, 2018; Barber et al., 2019). This may result from increased ICT communication driven by high telepressure (Cambier et al., 2019) or because high telepressure strengthens the negative relationship between work-related ICT communication and psychological detachment, preventing employees from mentally disengaging even after work hours (Van Laethem et al., 2018).

During work hours, frequent, unpredictable ICT messages cause high-telepressure employees to prioritize responding to them, forcing interruptions to ongoing activities (Delanoeije et al., 2019). Frequent task interruptions waste substantial effective work time (Gupta et al., 2013), forcing employees to complete more work in less time (Keller et al., 2020; Stich, 2019) and reducing opportunities for recovery during task gaps.

When receiving messages during non-work hours, high-telepressure employees are more likely to interrupt personal or family activities to perform work-related tasks via ICT (Barber & Santuzzi, 2015; Hu et al., 2019). These cross-boundary behaviors interfere with personal and family life (Stich, 2019), reducing opportunities for psychological detachment during non-work hours (Page et al., 2021) and preventing employees from engaging in restorative activities. Research on recovery activities has primarily focused on restorative sleep (Barber & Santuzzi, 2015; Grawitch et al., 2018; Santuzzi & Barber, 2018; Barber et al., 2019; Cambier et al., 2019; Hu et al., 2019). Telepressure undermines restorative sleep in three ways: poorer sleep quality (Hu et al., 2019), shorter sleep duration (Barber & Santuzzi, 2015), and irregular sleep patterns (Barber & Santuzzi, 2017; Santuzzi & Barber, 2018). Hu et al. (2019) found that telepressure indirectly leads to poorer sleep quality and shorter sleep duration by reducing psychological detachment or increasing after-hours responsiveness to work demands (e.g., sacrificing sleep to meet work requirements).

4.3 Chronic Impairment Outcomes of Telepressure

Continuous exposure to high job demands and incomplete recovery leads to accumulated stress reactions (Geurts & Sonnentag, 2006), particularly when recovery is impeded during non-work hours. During non-work hours, unpredictable work messages force high-telepressure employees to constantly switch between work and family tasks (Tedone, 2022), continuously depleting psychological and physical resources (Day et al., 2012). Impaired recovery further damages employees' ability to replenish resources (Demerouti et al., 2009), triggering job burnout (Hu et al., 2019; Santuzzi & Barber, 2018; Barber et al., 2019; Kao et

al., 2020; Page et al., 2021), intensifying perceived stress (Hu et al., 2019; Van Laethem et al., 2018; Page et al., 2021), and reducing job engagement (Barber et al., 2019). Notably, telepressure may also directly increase employee stress (Barber & Santuzzi, 2017) and exacerbate work-family conflict, subsequently leading to burnout (Page et al., 2021).

Furthermore, impeded recovery activities under high telepressure adversely affect employees' family lives and work performance. In the family domain, responding to work messages during non-work hours consumes time and attention needed for family activities, hindering family role participation and increasing work-family conflict (Gadeyne et al., 2018; Kao et al., 2020; Page et al., 2021) or reducing work-life balance (Grawitch et al., 2018), resulting in lower well-being (Barber & Santuzzi, 2017; Barber et al., 2019). Additionally, the stress experience from telepressure or the stress from impeded recovery can further trigger work-family conflict (Page et al., 2021). Regarding work performance, research remains limited, focusing only on health-related absenteeism, presenteeism (Barber & Santuzzi, 2015; referring to employees working despite poor physical/mental condition), and cyberloafing behavior (Stich, 2019; Su et al., 2021).

[Figure 1: see original paper] Current Research Progress (Source: Compiled by authors based on literature)

5. Future Research Directions

Reviewing existing research provides a comprehensive understanding of telepressure' s predictors from the JD-R perspective and its outcomes through the Effort-Recovery Model (Figure 1). However, several limitations warrant attention. This section analyzes these shortcomings and proposes directions for future research (Figure 2).

[Figure 2: see original paper]

5.1 Refining the Conceptual Definition of Workplace Telepressure

Clear conceptual definition is fundamental to scientific research. Current studies uniformly adopt Barber and Santuzzi' s (2015) definition, which has several unresolved issues. First, the scope of "work-related messages" remains ambiguous. Given that Barber and Santuzzi (2015) suggested that employees'desire for rapid response may serve as workplace impression management to create favorable impressions, and that quick responses indeed enhance perceived social connection (Templeton et al., 2022), research should examine ICT responsiveness in terms of interpersonal connection, distinguishing between task-related and interpersonal work messages. Increased ICT interaction reduces face-to-face communication, narrowing sources of workplace social support and potentially motivating employees to proactively maintain contact via ICT to obtain social support and improve work experiences (Collins et al., 2016). In workplace social support research, employees obtain support through two pathways: instrumental support

(seeking advice or help on work problems) and emotional support (social interaction for listening, care, and interest) (Collins et al., 2016; ten Brummelhuis et al., 2021). How do response impulses differ for task-related versus interpersonal messages? What distinct outcomes might these two telepressure dimensions produce? Distinguishing between task-related and interpersonal work messages could advance antecedent and consequence research.

Second, the operationalization of "rapid response" through response latency remains unclear. Does response latency refer to the interval between reading a message and replying, or between receiving it and replying? This ambiguity affects measurement methods and may produce contradictory findings. While Barber and Santuzzi (2015) found telepressure associated with shorter email response latency and higher reply frequency, Cambier and Vlerick (2020) found no relationship between telepressure and response delay, possibly due to different time interval measurements. Clarifying this time interval is essential; Cambier and Vlerick (2020) recommend using the duration between message reading and replying to assess response latency.

Finally, although Barber and Santuzzi (2015) identified telepressure as a response to ICT demands, the proposition that telepressure reflects reactions to challenging versus hindering demands remains largely theoretical, derived from JD-R logic without empirical validation. Future research should empirically test whether employees experiencing high telepressure perceive ICT communication as challenging or hindering demands and link these perceptions to increased workload and extended work hours (Van Laethem et al., 2018). Studies should also identify conditions under which ICT communication is viewed as a challenging demand that simultaneously motivates employees despite causing telepressure (Baumeister et al., 2021).

5.2 Deepening Research on Telepressure Antecedents

Current research insufficiently examines telepressure predictors. Future studies should expand investigation of job demands/resources and personal demands/resources.

Regarding job demands and resources, five areas merit attention. First, temporal social norms warrant particular emphasis in cross-cultural research. In low-context cultures (primarily Western countries), time is viewed as a scarce commodity, creating pressure to act within limited timeframes. In high-context cultures (e.g., China, India), time is less likely to create immediate action pressure (Eldor et al., 2017). Thus, cultural differences may exist regarding expectations for rapid message response, which should be considered when generalizing telepressure research across cultures.

Second, future research should examine job or organizational characteristics. Rapid response times benefit customer-oriented roles (e.g., consulting, sales), where employees may experience higher telepressure, whereas roles without such demands may be less affected (Barber & Santuzzi, 2015).

Third, leadership factors may influence employee telepressure. Expectancy Violations Theory (EVT; Burgoon & Hale, 1988) suggests that message recipients hold preset expectations for senders' behavior; violations may trigger negative evaluations and reactions. In ICT-mediated workplace interactions, long response delays or silence may be perceived as expectancy violations. Integrating Leader-Member Exchange (LMX) theory (Graen et al., 1982), "in-group" members have higher-quality exchange relationships with leaders and face greater response expectations than "out-group" members. Kalman and Rafaeli (2011) found that long response delays negatively impacted impressions of high-expectation candidates but not low-expectation ones. Thus, as an expectancy violation, response delay by "in-group" members may trigger more negative leader evaluations. To meet leader expectations and avoid losing their advantageous position, "in-group" members may experience higher telepressure, suggesting that high LMX may increase telepressure.

Fourth, future research should examine person-team temporal focus fit. As remote work and virtual teams become more common, alignment between individual and team temporal characteristics is important. When individuals' time perceptions match those of their team members, they may face fewer collective environment constraints and experience less telepressure (Jansen & Kristof-Brown, 2006; Eldor et al., 2017).

Fifth, insufficient task load may also cause telepressure. When task load falls short of employees' expectations, they may worry about being excluded from important communications and missing critical work information (Stich et al., 2019), leading them to crave work connection and experience higher telepressure (Stich, 2019).

Regarding personal demands and resources, ICT anxiety (Wang et al., 2008) may function as a personal demand increasing telepressure, while self-esteem (Hair et al., 2007) and self-efficacy in managing negative emotions (Liu et al., 2021) may serve as personal resources reducing telepressure. Additionally, employees' subjective time perspectives may be important: present-focused employees may view response urgency as interfering with current tasks, while future-focused employees may see it as facilitating long-term goal achievement (Eldor et al., 2017), potentially experiencing different telepressure levels.

5.3 Deepening Research on Telepressure Outcomes

Current research on telepressure consequences has several limitations. First, most studies focus on email responsiveness. However, as the pandemic has dramatically increased digital work intensity, employees no longer rely on single platforms, using various channels beyond email (Marsh et al., 2021). In China, for instance, WeChat Work, DingTalk, and Lark are widely used for workplace communication. Cambier and Vlerick (2020) propose that future research should measure multiple ICT platforms simultaneously to comprehensively understand the telepressure-response relationship. Additionally, ICT re-

sponsiveness may not be the best performance indicator; future research should examine telepressure' s impact on the quality and efficiency of employees' core work tasks (Barber & Santuzzi, 2015).

Second, according to JD-R, stressed employees engage in self-undermining behaviors that create higher job demands (Bakker & Costa, 2014), leading to a spiral of resource depletion and intensified stress (Bakker & Demerouti, 2017). Demerouti et al.' s (2004) longitudinal study demonstrated this reverse causality. Thus, employees experiencing telepressure may over time perceive and create higher ICT demands, leading to even greater telepressure. Longitudinal research examining this reverse causality will reveal telepressure' s long-term effects.

5.4 Exploring Coping Strategies for Workplace Telepressure

Intervention principles for telepressure differ from general work stress management. Since high-telepressure employees must respond to unpredictable work information at any time, they cannot autonomously choose when to engage in recovery activities (Gillet et al., 2022), such as temporarily ignoring work or learning new skills without distraction. This inability to detach from work prevents resource replenishment (Barber et al., 2019).

Thus, from the Effort-Recovery perspective, the key to helping employees cope with telepressure lies in increasing opportunities for psychological detachment and recovery (Richardson, 2017). According to Milligan and Turner (cited in Richardson, 2017), some organizations have begun restricting when emails can be sent to protect employees' non-work hours. However, the effectiveness of such interventions requires empirical testing. Currently, few studies have examined intervention strategies; Rogers and Barber (2019) conducted a preliminary experimental study with university students on sleep and technology education interventions, finding no significant effects but taking a first step toward telepressure intervention research. Developing and testing interventions is crucial for protecting employee health and improving motivation and performance (LePine et al., 2005).

First, organizational norms regarding ICT responsiveness should be clarified. Organizations can establish ICT use policies specifying expected response times or encourage teams to develop their own response protocols (Barber & Santuzzi, 2015), clarifying whether immediate responses have direct negative consequences (e.g., supervisor reprimands, lower performance ratings) (Page et al., 2021). This can reduce unnecessary communication and continuous connectivity, encouraging employees to focus on family activities during non-work hours to replenish resources.

Second, creating a family-supportive organizational climate may help employees gain more organizational support for their family lives, buffering telepressure' s negative effects (e.g., work-family conflict; Witt & Carlson, 2006).

Beyond top-down work design changes, employees can also adopt bottom-up ap-

proaches to actively optimize their work environment (Demerouti et al., 2015). According to the JD-R model, the motivational path involves a positive resource spiral through job crafting. As a proactive change to balance job demands/resources with personal abilities, job crafting is an important mechanism linking job characteristics to outcomes (Tims & Bakker, 2010). Through job crafting, employees can increase job resources and challenging demands while reducing hindering demands (Tims & Bakker, 2010; Petrou et al., 2012), creating positive work environment changes that increase engagement (Petrou et al., 2012; Tims et al., 2013; Demerouti et al., 2015; Vogt et al., 2016) and reduce negative demand effects (Tims et al., 2013). Future intervention research could promote job crafting to activate resource gain spirals, potentially increasing telepressure' s positive effects (Bakker & Demerouti, 2017) while reducing telepressure itself.

[Figure 2: see original paper] Future Research Directions (Source: Compiled by authors based on literature)

苏靖璇, 陈壮, 马红宇. (2021). 通讯压力对网络闲逛的影响——自我损耗与微休息的作用. 第二十三届全国心理学学术会议, 中国内蒙古呼和浩特.

王海江, 宋学静, 龙立荣, 黄韫慧. (2021). 远程办公情境下如何提升上级的信任感和绩效评价?——解释水平理论视角下电子沟通即时性的作用. 管理学季刊, 6(02), 36-56+145-146.

张晶, 李伟贺, 史燕伟, 张南, 马红宇. (2020). 工作反刍及其"双刃剑"效应. 心理科学进展, 28(02), 358-

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research*, *1*(3), 112-119.

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273-285.

Barber, L. K., Conlin, A. L., & Santuzzi, A. M. (2019). Workplace telepressure and work-life balance outcomes: The role of work recovery experiences. *Stress and Health*, *35*(3), 350-362.

Barber, L. K., & Santuzzi, A. M. (2015). Please respond ASAP: Workplace telepressure and employee recovery. *Journal of Occupational Health Psychology*, *20*(2), 172-189.

Barber, L. K., & Santuzzi, A. M. (2017). Telepressure and college student employment: The costs of staying connected across social contexts. *Stress and Health*, *33*(1), 14-23.

Baumeister, V. M., Kuen, L. P., Bruckes, M., & Schewe, G. (2021). The relationship of work-related ICT use with well-being, incorporating the role of resources and demands: A meta-analysis. *SAGE Open*, *11*(4), 1-19.

Budnick, C. J., Rogers, A. P., & Barber, L. K. (2020). The fear of missing out at work: Examining costs and benefits to employee

health and motivation. *Computers in Human Behavior*, *104*, 106161. https://doi.org/10.1016/j.chb.2019.106161

Burgoon, J. K., & Hale, J. L. (1988). Nonverbal expectancy violations: Model elaboration and application to immediacy behaviors. *Communication Monographs*, *55*(1), 58–79.

Burton, E., Edwards, D.J., Roberts, C., Chileshe, N., & Lai, J. (2021). Delineating the implications of dispersing teams and teleworking in an agile UK construction sector. *Sustainability*, *13*, 9981. https://doi.org/10.3390/su13179981

Cambier, R., Derks, D., & Vlerick, P. (2019). Detachment from work: A diary study on telepressure, smartphone use and empathy. *Psychologica Belgica*, *59*(1), 227–245.

Cambier, R., & Vlerick, P. (2020). You've got mail: Does workplace telepressure relate to email communication? *Cognition Technology & Work*, *22*(3), 633–640.

Collins, A. M., Hislop, D., & Cartwright, S. (2016). Social support in the workplace between teleworkers, office-based colleagues and supervisors. *New Technology, Work and Employment*, *31*(2), 161–175.

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848.

Cropley, M., & Zijlstra, F. R. H. (2011). Work and rumination. In J. Langan-Fox, & C. L. Cooper (Eds.), *Handbook of Stress in the Occupations* (pp. 487–501). Edward Elgar Publishing.

Day, A., Paquet, S., Scott, N., & Hambley, L. (2012). Perceived information and communication technology (ICT) demands on employee outcomes: The moderating effect of organizational ICT support. *Journal of Occupational Health Psychology*, *17*(4), 473–491.

Day, A., Scott, N., & Kelloway, E. K. (2010). Information and communication technology: Implications for job stress and employee well-being. In P. L. Perrewé & D. C. Ganster (Eds.), *New developments in theoretical and conceptual approaches to job stress* (pp. 317–350). Emerald Group Publishing.

Delanoeije, J., Verbruggen, M., & Germeys, L. (2019). Boundary role transitions: A day-to-day approach to explain the effects of home-based telework on work-to-home conflict and home-to-work conflict. *Human Relations*, *72*(12), 1843–1868.

Demerouti, E., Bakker, A. B., & Bulters, A. J. (2004). The loss spiral of work pressure, work-home interference and exhaustion: Reciprocal relations in a three-wave study. *Journal of Vocational Behavior*, *64*(1),131–149.

Demerouti, E., Bakker, A. B., & Gevers, J. M. P. (2015). Job crafting and extra-role behavior: The role of work engagement and flourishing. *Journal of Vocational Behavior*, *91*, 87–96.

Demerouti, E., Derks, D., Ten Brummelhuis, L. L., & Bakker, A. B. (2014). New ways of working: Impact on working conditions, work-family balance, and well-being. In C. Korunka, & P. Hoonakker (Eds.), *The impact of ICT on quality of working life* (pp. 123–141). Springer.

Demerouti, E., Bakker, A. B., Geurts, S. A. E., & Taris, A. W. (2009). Daily recovery from work-related effort during non-work time. In S. Sonnnentag, P. L. Perrewé, & D. C. Ganster (Eds.), *Current perspectives on job-stress recovery* (pp. 85–124). (Research in occupational stress and well being; Vol. 7). JAI Press.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512.

Eldor, L., Fried, Y., Westman, M., Levi, A. S., Shipp, A. J., & Slowik, L. H. (2017). The experience of work stress and the context of time: Analyzing the role of subjective time. *Organizational Psychology Review*, *7*(3), 227–

Gadeyne, N., Verbruggen, M., Delanoeije, J., & De Cooman, R. (2018). All wired, all tired? Work-related ICT-use outside work hours and work-to-home conflict: The role of integration preference, integration norms and work demands. *Journal of Vocational Behavior*, *107*, 86–99.

Geurts, S. A. E., & Sonnentag, S. (2006). Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scandinavian Journal of Work, Environment & Health*, *32*(6),

Gillet, N., Morin, A. J. S., Fernet, C., Austin, S., & Huyghebaert-Zouaghi, T. (2022). Telepressure and recovery experiences among remote and onsite workers. *Journal of Personnel Psychology.* Advance online publication. https://doi.org/10.1027/1866-5888/a000303

Graen, G., Novak, M. A., & Sommerkamp, P. (1982). The effects of leader –member exchange and job design on productivity and satisfaction: Testing a dual attachment model. *Organizational Behavior and Human Performance*, *30*(1), 109–131.

Grawitch, M. J., Werth, P. M., Palmer, S. N., Erb, K. R., & Lavigne, K. N. (2018). Self-imposed pressure or organizational norms? Further examination of the construct of workplace telepressure. *Stress and Health*, *34*(2),

Gupta, A., Li, H., & Sharda, R. (2013). Should I send this message? Understanding the impact of interruptions, social hierarchy and perceived task complexity on user performance and perceived workload. *Decision Support Systems*, *55*(1), 135–145.

Hair, M., Renaud, K. V., & Ramsay, J. (2007). The influence of self-esteem and locus of control on perceived email-related stress. *Computers in Human Behavior*, *23*(6), 2791–2803.

Hu, X., Santuzzi, A. M., & Barber, L. K. (2019). Disconnecting to detach: The role of impaired recovery in negative consequences of workplace telepressure. *Journal of Work and Organizational Psychology*, *35*, 9–15.

Jansen, K. J., & Kristof-Brown, A. (2006). Toward a multidimensional theory of person-environment fit. *Journal of Managerial Issues*, *18*(2), 193–212.

Kalman, Y. M., & Rafaeli, S. (2011). Online pauses and silence: Chronemic expectancy violations in written computer-mediated communication. *Communication Research*, *38*(1), 54–69.

Kao, K.-Y., Chi, N.-W., Thomas, C. L., Lee, H.-T., & Wang, Y.-F. (2020). Linking ICT availability demands to burnout and work-family conflict: The roles of workplace telepressure and dispositional self-regulation. *The Journal of Psychology*, *154*(5), 325–345.

Keller, A. C., Meier, L. L., Elfering, A., & Semmer, N. K. (2020). Please wait until I am done! Longitudinal effects of work interruptions on employee well-being. *Work & Stress*, *34*(2), 148–167.

Kossek, E. E., Lautsch, B. A., & Eaton, S. C. (2006). Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work–family effectiveness. *Journal of Vocational Behavior*, *68*(2), 347–367.

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*(5), 764–775.

Liu, B., Zhao, H., & Lu, Q. (2021). Effect of leader mindfulness on hindrance stress in nurses: The social mindfulness information processing path. *Journal of Advanced Nursing*, *77*(11), 4414–4426.

Makarius, E. E., Larson, B. Z., & Vroman, S. R. (2021, March 24). What is your organization' s long-term remote work strategy? *Harvard Business Review*. https://hbr.org/2021/03/what-is-your-organizations-long-term-remote-work-strategy

Maloney, P., Grawitch, M., & Barber, L. (2012). The multi-factor structure of the Brief Self-Control Scale: Discriminant validity of restraint and impulsivity. *Journal of Research in Personality*, *46*(1), 111–115.

Marsh, E., Vallejos, E. P., & Spence, A. (2022). The digital workplace and its dark side: An integrative review. *Computers in Human Behavior*, *128*, 107118. https://doi.org/10.1016/j.chb.2021.107118

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337–1357.

Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry, & C. J. de Wolff (Eds.), *Handbook of work and orga-*

nizational psychology: Work psychology (pp. 5–33). Psychology Press/Erlbaum (UK) Taylor & Francis.

Page, K. J., Nastasi, A., & Voyles, E. (2021). Did you get that thing I sent you? Mediating effects of strain and work-family conflict on the telepressure and burnout relationship. *Stress and Health*, *37*(5), 928–939.

Peters, P., den Dulk, L., & van der Lippe, T. (2009). The effects of time-spatial flexibility and new working conditions on employees' work-life balance: The Dutch case. *Community, Work & Family*, *12*(3), 279–297.

Petrou, P., Demerouti, E., Peeters, M. C. W., Schaufeli, W. B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, *33*(8), 1120–1141.

Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology*, *92*(2), 438–454.

PoliteMail (Ed.) (2020). *COVID-19' s lasting impact on corporate communications*. https://politemail.com/resource-center/whitepapers-for-internal-communications/what-the-covid-happened-to-internal-communications/

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, *29*(4), 1841–1848.

Raghuram, S., Hill, N. S., Gibbs, J. L., & Maruping, L. M. (2019). Virtual work: Bridging research clusters. *Academy of Management Annals*, *13*(1), 308–341.

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information Systems Research*, *19*(4),

Richardson, K. M. (2017). Managing employee stress and wellness in the new millennium. *Journal of Occupational Health Psychology*, *22*(3), 423–428.

Rogers, A. P., & Barber, L. K. (2019). Addressing FoMO and telepressure among university students: Could a technology intervention help with social media use and sleep disruption? *Computers in Human Behavior*, *93*,

Santuzzi, A. M., & Barber, L. K. (2018). Workplace telepressure and worker well-being: The intervening role of psychological detachment. *Occupational Health Science*, *2*(4), 337–363.

Schaufeli, W. B., Salanova, M., González-romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*(1), 71–92.

Schaufeli, W. B., Taris, T. W., & van Rhenen, W. (2008). Workaholism, burnout, and work engagement: Three of a kind or three different kinds of employee well-being? *Applied Psychology*, *57*(2), 173–203.

Sonnentag, S., & Fritz, C. (2007). The recovery experience questionnaire: Development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology*, *12*(3), 204–221.

Stich, J.-F., Tarafdar, M., Stacey, P., & Cooper, S.C. (2019). Appraisal of email use as a source of workplace stress: A person-environment fit approach. *Journal of the Association for Information Systems*, *20*(2), 132–160.

Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2020). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, *30*(1), 96–124.

Tedone A. M. (2022). Keeping up with work email after hours and employee wellbeing: Examining relationships during and prior to the COVID-19 pandemic. *Occupational Health Science*, *6*(1), 51–72.

Templeton, E. M., Chang, L. J., Reynolds, E. A., Cone LeBeaumont, M. D., & Wheatley, T. (2022). Fast response times signal social connection in conversation. *Proceedings of the National Academy of Sciences*, *119*(4), e2116915119. https://doi.org/10.1073/pnas.2116915119

ten Brummelhuis, L. L., ter Hoeven, C. L., & Toniolo-Barrios, M. (2021). Staying in the loop: Is constant connectivity to work good or bad for work performance? *Journal of Vocational Behavior*, *128*, 103589. https://doi.org/10.1016/j.jvb.2021.103589

Tims, M., & Bakker, A. B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, *36*(2), 1–9.

Tims, M., Bakker, A. B., & Derks, D. (2013). The impact of job crafting on job demands, job resources, and well-being. *Journal of Occupational Health Psychology*, *18*(2), 230–240.

Van Laethem, M., van Vianen, A., & Derks, D. (2018). Daily fluctuations in smartphone use, psychological detachment, and work engagement: The role of workplace telepressure. *Frontiers in Psychology*, *9*, 1808. https://doi.org/10.3389/fpsyg.2018.01808

Vogt, K., Hakanen, J. J., Brauchli, R., Jenny, G. J., & Bauer, G. F. (2016). The consequences of job crafting: A three-wave study. *European Journal of Work and Organizational Psychology*, *25*(3), 353–362.

Wang, K., Shu, Q., & Tu, Q. (2008). Technostress under different organizational environments: An empirical investigation. *Computers in Human Behavior*, *24*(6), 3002–3013.

Witt, L. A., & Carlson, D. S. (2006). The work-family interface and job performance: Moderating effects of conscientiousness and perceived organizational support. *Journal of Occupational Health Psychology*, *11*(4),

Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, *5*(1), 84–94.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, *26*(2), 179–201.

Note: Figure translations are in progress. See original paper for figures.