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Uncovering the intervening mechanisms in the relationship between technological stressors and individual and work-related consequences

Abstract

This study examined how workplace telepressure and cyber incivility, as work-related stressors, affect individual and work-related outcomes in hospitality employees, using a mixed-methods approach. After developing a draft, following a thorough literature review and interviews with hotel staff, the drafted questions were refined through a pre-test and a pilot test. Finally, the main survey was conducted with 792 hotel staff in China. Structural equation modeling was performed using Mplus (8.3) to test both direct and serial mediating effects. It was found that workplace telepressure and cyber incivility, through the serial mediating effect of technostress and poor mental health, had a significant impact on work–life wellbeing and work pleasure as individual-related outcomes, and service recovery failure and service delay response as work-related outcomes. The findings may help in managing employees' individual-related and work-related stressors triggered by modern digital technologies.

Keywords: workplace telepressure, cyber incivility, technostress, poor mental health, work-life wellbeing, service recovery failure, service delay response.

Highlights

- This study investigated the role of digital technology in causing technostress and work performance.
- Workplace telepressure and cyber incivility negatively influenced mental health.
- Workplace telepressure and cyber incivility negatively affected work performance.

Introduction

Information and communication technology (ICT), now amplified by Internet-based and artificial intelligence (AI) applications, has become indispensable in virtually every task in contemporary hospitality and tourism operations. Digital tools accelerate decision making, reduce labor requirements, streamline collaboration with colleagues and guests, and enhance brand image (Huang & Gursoy, 2024; Kim et al., 2023). However, the same technologies also introduce a new layer of strain: hotel employees are continuously reachable, expected to master ever-evolving systems, and often exposed to online rudeness from co-workers or customers. Consequently, many hospitality staff experience “technostress”; the stress that arises when the demands of technology exceed an individual’s resources or adaptive capacity (Nosrati & Kim, 2025; Tarafdar et al., 2010).

Technostress is not a monolithic construct: its causes and effects are diverse. For example, Atanasoff and Venable (2017) distinguished transactional/perceived, biological, and occupational-health components, whereas Tarafdar et al. (2007) identified five technostressors: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty. More recent research has added non-work dimensions such as information, communication, and social-interaction overload on social-networking sites (Şahin & Çoklar, 2009) and broadened the taxonomy to include overload, invasion, complexity, privacy, and inclusion (Nimrod, 2018). A systematic review by La Torre et al. (2019) organized these perspectives into work-related, non-work-related, and mixed technostress categories. Across classifications, the evidence shows that technostress can negatively impact performance and work-life balance (Kecić, 2020; Ladkin et al., 2016).

In this regard, workplace telepressure, the persistent urge to respond quickly to electronic messages (Davari & Kim, 2025; La Torre et al., 2019; Nosrati & Kim, 2025), and cyber incivility, rude or disrespectful online communication (Tasoulis et al., 2023) are increasingly prevalent in the hotel industry, which is a labor-intensive, high-contact sector where employee affect and service behavior directly shape customer experience. Early indications suggest that telepressure and cyber incivility harm psychological health, diminishing employees’ work-life wellbeing, work pleasure, and service quality. However, the precise mechanisms through which they operate—especially the mediating role of

technostress—are still unclear. Understanding how technology-triggered stress depletes mental resources is essential for designing interventions that protect staff wellbeing and maintain service performance amid accelerating digitalization (Huang & Gursoy, 2024; Kim et al., 2023; Kusairi et al., 2023; Nosrati & Kim, 2025).

A comprehensive review of the hospitality and organizational behavior literature revealed four concept-centred gaps. Firstly, prior hospitality studies have focused on pandemic-related stress (Yan et al., 2021; Wong et al., 2021), AI-based challenges and hindrance stressors (Huang & Gursoy, 2024), work overload and ostracism (Karatepe et al., 2023; Khorakian et al., 2018), occupational stress (Nosrati et al., 2024; Yousaf et al., 2020), and job insecurity (Darvishmotevali et al., 2024). Technology-specific stressors such as workplace telepressure and cyber incivility have scarcely been examined. Secondly, technostress has mainly been investigated among IT professionals, remote workers, and librarians (Shirish, 2021; Srivastava et al., 2015; Stein et al., 2015). Existing research has seldom unpacked its subdimensions or its unique antecedent–outcome dynamics in frontline service jobs, such as those in the hospitality industry. Thirdly, few hospitality studies have embedded technostress in a comprehensive theoretical framework. Transactional stress theory offers a suitable lens, yet empirical models incorporating ICT-led stressors, technostress appraisal, and downstream effects are scarce. Finally, although technostress is acknowledged as harmful, little is known about how it translates into subjective and work-related outcomes. The potential pathway from telepressure/cyber incivility to technostress to poor mental health to behavioural consequences is virtually untested.

To address these gaps, this study aimed to: (1) investigate how workplace telepressure and cyber incivility shape technostress and poor mental health among hotel employees; (2) examine the influence of technostress and poor mental health on work–life wellbeing and work pleasure (individual outcomes) and on service recovery failure and service delay response (work-related outcomes); (3) test the independent and serial mediating roles of technostress and poor mental health; and (4) develop a transactional-stress-based model that clarifies the process linking ICT-induced stressors to employee wellbeing and service performance.

By isolating technology-specific antecedents and analyzing technostress as a pivotal mechanism, this research advances conceptual clarity, responds to urgent managerial concerns in a digitizing industry, and offers evidence-based guidance for mitigating the dark side of workplace technologies.

Literature review and development of hypotheses

Transactional stress theory

Transactional stress theory, also known as the transactional model of stress and coping, is a psychological framework that describes individuals' perceptions and responses to stress (Lazarus & Folkman, 1984; Scheier et al., 1986). This theory proposes that stress is not solely determined by external occurrences, but rather by an individual's evaluation and interpretation of those events. It suggests that individuals engage in cognitive appraisal when confronted with potential stressors, which involves an assessment of the stressor's significance and their capacity to manage it. This appraisal process has two stages: primary appraisal, which involves assessing the stressor's significance as a challenge or harm, and secondary appraisal, which involves assessment of the individual's available resources and coping options (Lazarus & Folkman, 1984). These appraisals shape the individual's emotional and behavioral reactions to the stressor. Individuals then adopt coping strategies to tackle stress, and the efficacy of these strategies can affect their overall stress response. A number of studies have corroborated and expanded upon the transactional model of stress and coping behavior. For instance, Lazarus and Folkman (1984) analyzed empirical results in developing the transactional stress model, while Carver et al. (1989) further examined the role of coping tactics in stress management, deepening the understanding of how individuals adapt and react to the perceived stress. Based on this logic, transactional stress theory describes three sequential processes merging perceived stressors, cognitive appraisal of the stressors, and subsequent attitudinal and behavioral outcomes.

Some studies in the hospitality literature have adopted the transactional stress theory framework to elucidate the role of external stressors in the workplace in producing coping behaviors or behavioral intentions (Darvishmotevali & Ali, 2020; Huang & Gursoy, 2024; Karatepe et al., 2014; Kim et al., 2023; Yan et al., 2021). For example, Karatepe et al. (2014) found that hotel employees' perceived stressors arising from work overload and job responsibility significantly influenced work engagement through the psychological appraisal process, impacting job performance and organizational commitment. As ICT technologies continue to advance in the hospitality industry, Kim et al. (2023) found that transactional stress theory explained how technostress influences hotel customers' intentions to use hotel kiosks. In a similar vein, some studies (Davari & Kim, 2025; Huang & Gursoy, 2024) established that new digital technology integration led to increased hindrance and challenging

appraisals, which affected service employees' wellbeing at work, and their job security, ultimately resulting in proactive service behavior.

Work-related stressors, technostress and poor mental health

The definition of stress varies depending on its antecedents. From a work-oriented standpoint, stress may arise from environmental pressures such as excessive workloads or alterations in scheduled timetables (Kim et al., 2022a; Wong et al., 2025b). Stress refers to an individual's psychological and emotional reactions to external stimuli that exceed a certain limit (Ganster, 2008). On this basis, working conditions, individual characteristics, and psychological and emotional factors can trigger work-related stressors (Ornek & Esin, 2020). Other studies have indicated that unfavorable psychological work environments and work-relevant stressors, such as high job demands (Dalgard et al., 2009; Wong et al., 2025a) and job insecurity (Darvishmotevali et al., 2024; Wong et al., 2025b) cause poor mental health. Sequential stress-inducing factors resulted in various psychological and behavioral outcomes (Ornek & Esin, 2020). These results are analogous to the transactional stress theory's proposal that individuals' exposure to workplace stressors negatively affects their cognitive appraisal processes (Huang & Gursoy, 2024; Lazarus & Folkman, 1984). Hence, in accordance with transactional stress theory, we proposed that workplace telepressure and cyber incivility, which are engendered by ICT technologies, have adverse effects on technostress and mental health issues.

Workplace telepressure refers to strains stemming from social media text messages related to digital technologies (Nosrati & Kim, 2025). With the advancement of digital technologies and the prevalence of internet-based work environments, research has shown that cyber incivility can also induce technostress and poor mental health (La Torre et al., 2019; Shahwar & Dhar, 2023; Shirish, 2021). Cyber incivility refers to communicative misbehavior that leads to loss of mutual respect or trust, which is a significant issue in triggering negative responses from customers and employees (Lim & Teo, 2009; Nosrati & Kim, 2025). Previous research has demonstrated that cyber incivility can give a rise to stress within an organization, particularly when employees are heavily involved in digital technology-related tasks, leading to depression and reduced motivation to work (Lim & Teo, 2009; Nosrati & Kim, 2025; Tasoulis et al., 2023). The continuous need to stay connected through the internet, both during work hours and afterward, along with the expectation to promptly respond to messages outside of official working time, can significantly drain employees' mental and emotional resources. This ongoing demand interferes with the essential recovery period that

individuals require after completing their professional duties, ultimately impacting their well-being and long-term productivity (Barber & Santuzzi, 2015). Cyber incivility, often driven by constant digital connectivity, can intensify the challenges employees face. It can leave them feeling powerless to effectively communicate concerns or explain service failures to customers, supervisors, or higher-level management. This lack of clarity and unresolved tension gradually diminish their energy and motivation, not only reducing their willingness to engage with digital tools but also undermining their overall commitment to workplace tasks and responsibilities (Lim & Teo, 2009; Tasoulis et al., 2023).

A review of the extant literature on workplace telepressure and cyber incivility revealed that their impact on technostress and poor mental health in hospitality employees has not been adequately empirically examined. These relationships can be better understood through the lens of transactional stress theory (Lazarus & Folkman, 1984; Scheier et al., 1986). According to this perspective, work-related stressors such as workplace telepressure and cyber incivility gradually drain an individual's psychological and emotional resources. The accumulated stress can then spill over into other areas of life, crossing personal and professional boundaries. This process may result in heightened levels of technostress and poor mental health. Therefore, the following hypotheses were developed:

Workplace telepressure increases technostress (H1-1) and positively affects poor mental health (H1-2).

Cyber incivility increases technostress (H2-1) and positively affects poor mental health (H2-2).

Technostress, poor mental health, and individual and job-related consequences

Technostress has an adverse effect on individuals' psychological, emotional, and cognitive wellbeing, leading to negative effects such as poor mental health and lack of job performance (Ayyagari et al., 2011; Dragano & Lunau, 2020; Nimrod, 2018; Nosrati & Kim, 2025; Ornek & Esin, 2020). For example, some studies (Ornek & Esin, 2020; Wong et al., 2025b) found that stress-causing factors in the workplace aggravated multiple strains and had adverse effects on employees' mental health.

Some studies have indirectly proposed that the presence of negative stressors and strains in the workplace can diminish hospitality employees' mental health, generating detrimental outcomes in the workplace such as intention to quit (Darvishmotevali et al., 2024; Vo-Thanh et al., 2022; Wong et al., 2025b). Poor mental health among employees can decrease positive

outcomes in the organization, such as job performance, and instead escalate negative behavioral consequences such as anti-corporate behavior (Chua et al., 2022; Kim et al., 2025; Nosrati & Kim, 2025; Vo-Thanh et al., 2022). For example, some studies (Kim et al., 2025; Vo-Thanh et al., 2022) noted that poor mental health in hospitality employees, stemming from customer misbehavior, could significantly influence employees' counterproductive coping strategies. This relationship can be better understood through the application of transactional stress theory.

In this framework, workplace telepressure and cyber incivility are stressors identified during the primary appraisal stage. These stressors then contribute to heightened levels of technostress, which reflects the secondary appraisal phase where individuals assess their coping limitations. Ultimately, this chain of stress responses depletes psychological resources, leading to a decline in mental health, which can have serious implications for employees' job performance, hindering their ability to function effectively in the workplace. Technostress and poor mental health, as outcomes for hospitality employees experiencing work-related stressors, may result in reduced individual positive energy, negatively affecting work-life wellbeing and work pleasure, and poor performance consequences such as service recovery failure and service delay response. The following hypotheses were therefore developed:

Technostress positively affects poor mental health (H3-1).

Technostress negatively affects work-life wellbeing (H4-1) work pleasure (H4-2) and positively affects service recovery failure (H4-3), and delayed service responses (H4-4).

Poor mental health negatively affects work-life wellbeing (H5-1) and work pleasure (H5-2) and positively affects service recovery failure (H5-3), and delayed service response (H5-4).

Serial mediation effects of technostress and poor mental health

Even though prior research has investigated the mediating role of mental health (Darvishmotevali et al., 2024; Vo-Thanh et al., 2022), the mediating effects of technostress and poor mental health, as well as their serial mediating effects, have not been explored. The existing literature shows that factors such as loneliness, anxiety, the duration of consumers' usage of technological tools (Kara et al., 2021), perceived stress, and attachment anxiety (Liang, 2024) can exacerbate negative strain. Stressors related to work have a detrimental effect on individuals' quality of life and work-life balance (Darvishmotevali & Ali, 2020; Wong et

al., 2021; Wong et al., 2025a). By creating cognitive, psychological, and emotional strains, such stressors negatively influence wellbeing and other behavioral outcomes. It has been suggested that intervening mechanisms, known as strain, which can arise in the short term, also have a significant impact on behavioral outcomes (Ganster, 2008). That means that technostress, as a short-term phenomenon, has a significant negative effect on employees' mental health in the long term. Furthermore, the chain of effects from work-related stressors through technostress and poor mental health to employees' behavioral and coping strategies corresponds with the predictions of transactional stress theory (Lazarus & Folkman, 1984).

Transactional stress theory suggests that specific stressors encountered in the workplace can strongly influence individuals' cognitive and psychological states during an intermediate stage, which leads to various behavioral and coping responses in a subsequent stage. Viewed using this theoretical framework, a substantial body of research in the hospitality and tourism sectors has demonstrated that when employees are exposed to elevated levels of workplace stressors, they often develop coping mechanisms that negatively impact key behavioral and attitudinal outcomes (Darvishmotevali & Ali, 2020; Huang & Gursoy, 2024; Karatepe et al., 2014; Kim et al., 2023; Yan et al., 2021). For example, Darvishmotevali and Ali (2020) applied transactional stress theory and found that job insecurity in the hospitality industry undermined employees' subjective well-being, which ultimately impaired their job performance.

Accordingly, work-related stressors in the first stage stimulate employees' psychological and cognitive appraisal, leading to individual-related and work-related outcomes. Since workplace telepressure and cyber incivility act as detrimental stressors in the initial phase, they may initiate technostress and poor mental health as part of the psychological and cognitive appraisal process in the subsequent stage. This results in outcomes such as reduced work-life wellbeing and work pleasure as individual-related outcomes, and service recovery failures and service delay responses as job-related consequences.

Some studies also indicated that a high level of technostress could have a detrimental impact on individuals' psychological, cognitive, and mental health (Borle et al., 2021; Dragano & Lunau, 2020; Nosrati & Kim, 2025). It can be argued that workplace telepressure and cyber incivility, as work-related stressors, can aggravate technostress among hospitality employees. This can lead to poor mental health as a psychological and cognitive factor, negatively impacting work-life wellbeing and work pleasure, while also positively affecting service recovery failure and service delay response. Given the theoretical background, the following hypotheses were formulated:

Technostress and poor mental health serially affect the relationship between workplace telepressure and work-life wellbeing (H6-1), between workplace telepressure and work pleasure (H6-2), between workplace telepressure and service recovery failure (H6-3), and between workplace telepressure and service delay response (H6-4).

Technostress and poor mental health serially affect the relationship between cyber incivility and work-life wellbeing (H7-1), between cyber incivility and work pleasure (H7-2), between cyber incivility and service recovery failure (H7-3), and between cyber incivility and service delay response (H7-4).

The development of hypotheses from the comprehensive literature review is presented in Figure 1. As depicted, workplace telepressure and cyber incivility act as stressors in the workplace environment, which can lead to technostress and poor mental health. These, in turn, result in two individual-related outcomes: work–life wellbeing and work pleasure, and two work-related outcomes: service recovery failure and service delay response.

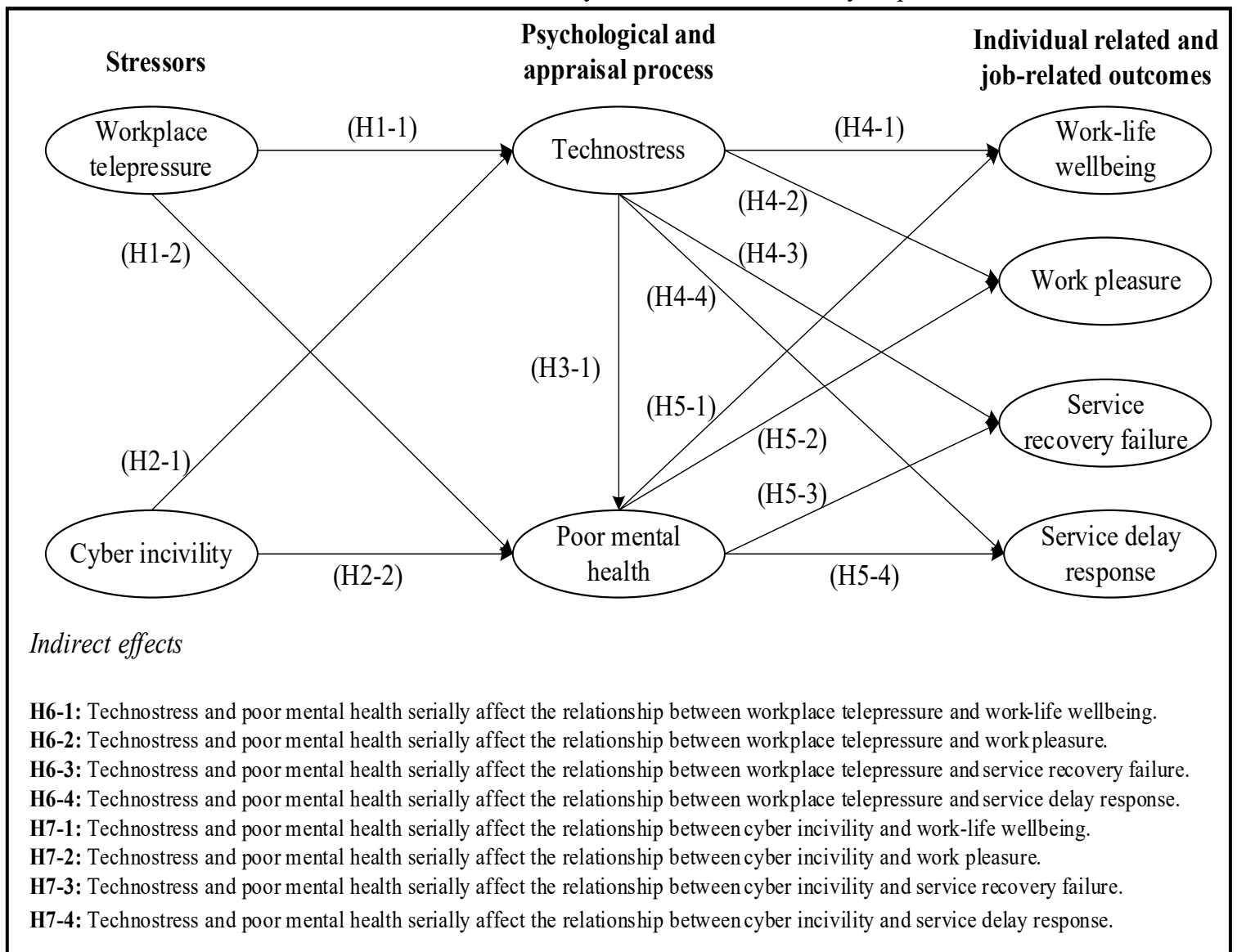


Figure 1. Role of technology-led stressors and their consequences (Source: Developed by the authors)

Methodology

Development of measurements

To construct measurement instruments, a two-stage process was adopted. First, a thorough literature review and in-depth qualitative interviews with hotel employees were conducted to identify and refine relevant constructs. This ensured that the measures captured both theoretically grounded and industry-specific dimensions of technostress and its outcomes. Items to measure relevant factors were adopted from previous research as follows: workplace telepressure (Barber & Santuzzi, 2015); technostress (Ayyagari et al., 2011); cyber incivility (Lim & Teo, 2009); technostress (Ayyagari et al., 2011); poor mental health (Chua et al., 2022; Wong et al., 2025a); individual-related outcome variables, work–life wellbeing and work pleasure (Darvishmotevali & Ali, 2020; Sirgy, 2019); and service recovery failure and service delay response (Boshoff & Allen, 2000; Fernie et al., 2017). The English version of the measurement instruments was translated into Chinese using the back-translation method. The translated questionnaire was then reviewed by three professors in the tourism and hospitality field.

Qualitative Interviews

Recognizing that stressors, mental health, and their consequences can vary with industrial context (Chua et al., 2023; Kim et al., 2025), in-depth interviews were conducted to refine and contextualize the survey constructs. The purpose of these qualitative in-depth interviews was to ensure the relevance and applicability of the selected constructs and to enhance understanding of technostress within the hospitality industry. The interviews provided insights into how technostress manifests in this specific context, contributing to both theoretical understanding and practical applications by uncovering its antecedents and consequences. A total of 10 hotel employees were selected, ensuring representation across three key dimensions: (1) organizational hierarchy (40% managers, 30% supervisors, 30% junior staff); (2) property classifications (50%: luxury, 30%: mid-range, 20%: budget); and (3) operational functions spanning all major departments (Table 1). This stratified approach ensured coverage of a range of industry contexts while maintaining analytical depth. Interviews continued until theoretical saturation was reached, where no new substantive themes emerged from the data.

Table 1. Profiles of interviewees ($n = 10$)

| Respondent ID | Hotel job level | Years of experience | Gender | Age range | Hotel category | Department/Area |
|---------------|-----------------|---------------------|--------|-----------|----------------|---------------------|
| R1 | Manager | 12 | F | 31-40 | Mid-range | Sales and marketing |
| R2 | Manager | 20 | M | 41-50 | Luxury | Housekeeping |
| R3 | Manager | 22 | M | 41-50 | Budget | Front Desk |
| R4 | Manager | 25 | F | 51-60 | Luxury | Food & Beverage |
| R5 | Supervisor | 6 | M | 31-40 | Luxury | Front Desk |
| R6 | Supervisor | 4 | F | 21-30 | Luxury | Concierge |
| R7 | Supervisor | 5 | M | 21-30 | Mid-range | Food & Beverage |
| R8 | Junior Staff | 3 | F | 21-30 | Luxury | Banquet |
| R9 | Junior Staff | 2 | F | 21-30 | Mid-range | Front Desk |
| R10 | Junior Staff | 2 | M | 21-30 | Budget | Reservation |

The semi-structured interview protocol balanced open-ended exploration with systematic coverage of three primary thematic domains: (1) workplace telepressure and cyber incivility, examining compulsive response behaviors and exposure to hostile digital communications; (2) technostress manifestations, including technology-induced fatigue and psychological distress; and (3) downstream consequences for individual wellbeing and service outcomes. This framework enabled comprehensive investigation while allowing emergent themes to surface organically.

The interview data provided empirical evidence of employees' lived experiences of the study's focal constructs, validating the proposed measurement items' relevance to the hospitality context. Analysis revealed three dominant patterns of technological stress: First, multiple respondents across organizational levels (R2, R5, R8) reported experiencing intense telepressure characterized by an overwhelming obligation to maintain constant connectivity, with several describing intrusive after-hours communications that blurred work-life boundaries and contributed to chronic fatigue. Second, frontline employees (R1, R9) consistently recounted experiences of cyber incivility, particularly through digital guest interactions where rude or demanding messages significantly impacted their psychological wellbeing. Third, the data uncovered industry-specific stressor configurations, including a manager's account (R3) of the unique telepressure dynamics created by 24/7 service expectations in hospitality, and a supervisor's description (R7) of platform-mediated guest hostility during peak service periods. These findings directly informed substantial revisions to the measurement instruments. These involved (1) the development of hospitality-specific telepressure items capturing the distinctive always-on communication culture; (2) enhanced cyber incivility measures reflecting digital interactions with guests; and (3) expanded technostress indicators addressing the multi-platform operational realities of hotel work. The

qualitative evidence thus had both confirmatory and generative functions, verifying the applicability of existing constructs while revealing novel dimensions requiring adaptation of the measurement instrument to adequately capture the hospitality context.

Pre-test and pilot test

The results of the literature review and the in-depth interviews were integrated and used to develop question items for a pre-test, pilot test and main survey. Responses to the survey were measured using a 7-point Likert scale, ranging from “1 = strongly disagree” to “7 = strongly agree.” Table 3 shows the finalized measurement items, and the number of instruments used to measure each variable. The items were pre-tested by the research team by reviewing and discussing each item. The wordings of a few items were amended in response to comments. The questionnaire was pilot tested using actual hotel employees in Guangzhou, mainland China, via an online survey platform (wjx.com) on WeChat, where respondents could easily participate after visiting a link or reading a QR code. One general manager in a deluxe hotel in Guangzhou, who is well known as a successful role model for hotel employees, took the lead in the online survey by asking other hotels’ general managers across mainland China to motivate their employees to complete the online survey. A total of 200 questionnaire responses were obtained and each item was then examined in terms of mean value and standard deviation. All items presented a higher value than 4.0 (neutral). Factor analyses were conducted for constructs including workplace telepressure, cyber incivility, technostress, poor mental health, work-life wellbeing, work pleasure, service recovery failure, and service delay response. In all factor structures for the eight constructs, communalities were higher than .50 and factor loadings were greater than .674, while reliability coefficients for the eight constructs were greater than .70, indicating they were above the recommended thresholds (Hair et al., 2019).

Main survey data collection

A human ethics application was approved by the University Ethics Committee. The main survey was conducted using hotel employees in Guangzhou, mainland China, using the same approach as the pilot test. A total of 806 questionnaires were collected from 45 hotels in China, ranging from local brand hotels to international chain hotels. In total, 792 questionnaires were used for further data analyses after ruling out 14 that showed insincere answers such as multiple missing values or continuous ticking on one number.

Analytical methods

The overall data analysis involved two main steps. Firstly, confirmatory factor analysis (CFA) was conducted to assess the psychometric properties of the measurement instruments. This involved calculating the average variance extracted (AVE) and composite reliability (CR) to evaluate convergent validity. Additionally, various model fit indices such as chi-square (χ^2), degrees of freedom (df), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were computed. In the second step, structural equation modeling (SEM) using Mplus (8.3) was performed to test both direct and serial indirect effects. Standardized beta coefficients (β) < 0.05 and t-values = ± 1.96 were used to assess the significance of direct hypotheses. To test direct and serial mediation effects, the bootstrapping method with 5,000 sample iterations and a 95% confidence interval was applied. Lower-level confidence intervals (LLCI) and upper-level confidence intervals (ULCI) were used to determine the significance level of serial mediations.

Results

Profile of the respondents

The largest percentage of respondents were aged 36-45 years (29.8%), followed by those aged 26-35 (29.7%), 18-25 (20.7%), and 46-55 (17.6%). Female employees (54.4%) outnumbered male employees (44.4%). In terms of monthly income, the percentages were 5,001 to 8,000 yuan (19.7%), followed by 8,001 to 10,000 yuan (8.5%), and more than 20,000 yuan (8.3%). With regard to organizational tenure, employees had worked for their organization for 1 to 5 years (42.8%), less than 1 year (29.7%), 6-10 years (15.3%), and 11-15 years (10.3%). More respondents (58.5%) were married than not married (41.5%). Regarding current positions, the percentages were: managerial level (29.2%), supervisory level (26.6%), entry level (24.6%), and between entry level and supervisory level (24.6%).

Table 2. Outline of demographic variables ($N = 792$)

| Variables | Frequency | Percentage |
|--------------------|-----------|------------|
| <i>Age (years)</i> | | |
| 18-25 | 164 | 20.7 |
| 26-35 | 235 | 29.7 |
| 36-45 | 236 | 29.8 |
| 46-55 | 139 | 17.6 |
| 56 or older | 18 | 2.4 |
| <i>Gender</i> | | |
| Male | 352 | 44.4 |
| Female | 431 | 54.4 |

| | | |
|--|-----|------|
| Prefer not to say | 9 | 1.2 |
| <i>Monthly income (Yuan)</i> | | |
| 2,001-5,000 | 415 | 52.4 |
| 5,001-8,000 | 156 | 19.7 |
| 8,001-10,000 | 67 | 8.5 |
| 10,001-15,000 | 54 | 6.8 |
| 15,001-20,000 | 34 | 4.3 |
| More than 20,000 | 66 | 8.3 |
| <i>Organizational tenure (years)</i> | | |
| Less than 1 year | 235 | 29.7 |
| 1-5 | 339 | 42.8 |
| 6-10 | 121 | 15.3 |
| 11-15 | 82 | 10.3 |
| 16-20 | 8 | 1.0 |
| Longer than 20 | 7 | 0.9 |
| <i>Marital status</i> | | |
| Single or divorced | 329 | 41.5 |
| Married | 463 | 58.5 |
| <i>Current position</i> | | |
| Entry-level employee | 195 | 24.6 |
| Between entry-level and supervisory employee | 155 | 19.6 |
| Supervisory employee | 211 | 26.6 |
| Managerial level | 231 | 29.2 |

Measurement model

Before testing the hypotheses, a CFA model was conducted using Mplus (8.3) to evaluate the construct validity of the measurement instruments. The overall results from the covariance-based measurement model indicated that the 8-factor model was a good fit for the data. The modification results were as follows: $\chi^2 = 6398.411$ ($df = 1710$, $p < 0.001$), $\chi^2/df = 3.741$, $CFI = 0.934$, $TLI = 0.930$, $RMSEA = 0.059$, $SRMR = 0.046$. The results of the CFA model are presented in Table 3. As shown in the table, the standardized factor loading of all measurement instruments exceeded 0.5, which is considered acceptable. It is important to note that the initial items related to work pleasure were removed due to cross-loading issues. Additionally, the AVE and CR results for all nine constructs were above 0.5 and 0.7, respectively, indicating that the study's constructs achieved convergent validity. To assess internal consistency, the alpha coefficient was used. This testing indicated that all the constructs had alpha values greater than 0.7, confirming the study's reliability. Mean and standard deviation values are also presented in Table 3.

Table 3. CFA model, reliability test, and descriptive statistics

| Items | Factor loadings | AVE | CR | Cronbach's alpha | Mean | SD |
|--|-----------------|-------|-------|------------------|-------|-------|
| <i>Workplace telepressure</i> | | 0.568 | 0.901 | 0.911 | 4.20 | 1.304 |
| I'm concerned about maintaining fast response times. | 0.825 | | | | | |
| I think about how I need to respond more quickly. | 0.725 | | | | | |
| It's hard for me to focus on other things when I receive a message from someone. | 0.833 | | | | | |
| I can concentrate better on other tasks once I've responded to my messages. | 0.634 | | | | | |
| I can't stop thinking about a message until I complete a response to it. | 0.830 | | | | | |
| I feel a strong need to respond to others immediately. | 0.685 | | | | | |
| It's difficult for me to resist responding to a message right away. | 0.717 | | | | | |
| <i>Cyber incivility (Lim & Teo, 2009)</i> | | 0.773 | 0.971 | 0.974 | 3.107 | 1.421 |
| I sometimes receive messages from my hotel colleagues/ customers that are hurtful to me, through email, smartphone, or online platforms. | 0.852 | | | | | |
| I sometimes receive emails or messages through online platforms that say negative things about me that the sender would not say to me face-to-face. | 0.878 | | | | | |
| I sometimes receive demeaning or derogatory remarks about me through email or online platforms. | 0.936 | | | | | |
| I sometimes receive sarcastic or mean comments in emails or online platforms. | 0.942 | | | | | |
| I sometimes receive emails or comments from my colleagues/customers on online platforms, which put me down or are condescending to me in some way. | 0.928 | | | | | |
| I sometimes receive emails/messages from my colleagues/ customers with a rude and discourteous tone. | 0.901 | | | | | |
| I sometimes receive unpleasant emojis/emoticons from my colleagues/customers through email or online platforms. | 0.901 | | | | | |
| My colleagues do not reply to my emails or reply to me on online platforms. | 0.824 | | | | | |
| My coworkers have ignored requests (e.g., to schedule a meeting) that I have made through email or online platforms. | 0.834 | | | | | |
| My coworkers have used emails or online platforms (such as Facebook, Instagram and Twitter) in a rush or suddenly for time-sensitive messages (e.g., canceling or scheduling a meeting at short notice). | 0.783 | | | | | |
| <i>Technostress</i> | | 0.834 | 0.952 | 0.953 | 3.687 | 1.444 |
| I feel drained by tasks that require me to read or study using digital technology. | 0.803 | | | | | |
| I feel tired after using digital technology. | 0.968 | | | | | |

| | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| Interacting with digital technology is a strain for me. | 0.952 | | | | | |
| I feel burned out from my digital technology-related activities. | 0.920 | | | | | |
| <i>Poor mental health</i> | | 0.794 | 0.988 | 0.988 | 2.937 | 1.438 |
| I feel downhearted and blue. | 0.756 | | | | | |
| I feel afraid about my future. | 0.786 | | | | | |
| I feel that life is meaningless. | 0.854 | | | | | |
| I feel I am not worth much as a person. | .843 | | | | | |
| I am unable to become enthusiastic about anything. | 0.891 | | | | | |
| I am unable to experience any positive feelings at all. | 0.904 | | | | | |
| I feel unable to use my initiative to do things. | 0.860 | | | | | |
| I experience an increased heart rate. | 0.905 | | | | | |
| I experience a dry mouth. | 0.933 | | | | | |
| I feel dizzy. | 0.923 | | | | | |
| I experience trembling in my hands. | 0.941 | | | | | |
| I experience feelings of panic. | 0.956 | | | | | |
| I feel scared for no reason. | 0.949 | | | | | |
| I feel embarrassed. | 0.931 | | | | | |
| I find it difficult to relax. | 0.885 | | | | | |
| I am full of negative thoughts. | 0.940 | | | | | |
| I become agitated easily. | 0.900 | | | | | |
| I feel irritated. | 0.906 | | | | | |
| I feel rushed. | 0.797 | | | | | |
| I feel nervous. | 0.907 | | | | | |
| I feel uneasy. | 0.915 | | | | | |
| <i>Work-life wellbeing</i> | | 0.861 | 0.969 | 0.971 | 5.137 | 1.291 |
| I feel happy in life whenever I think of my work. | 0.952 | | | | | |
| I feel that my professional work completes my personal life. | 0.924 | | | | | |
| I feel safe in life whenever I remember my work. | 0.944 | | | | | |
| I feel a sense of peace of mind in my life when I think of my work. | 0.899 | | | | | |
| I enjoy life because of my work. | 0.919 | | | | | |
| <i>Work pleasure</i> | | 0.852 | 0.958 | 0.927 | 5.114 | 1.183 |
| I feel strong at my workplace. | - | | | | | |
| I feel alive in my work environment. | 0.918 | | | | | |
| I feel safe at my workplace. | 0.901 | | | | | |
| I feel I have a healthy work environment. | 0.918 | | | | | |
| I feel hopeful at work. | 0.953 | | | | | |
| <i>Service recovery failure</i> | | 0.691 | 0.917 | 0.923 | 3.510 | 1.394 |
| Considering all the things I do, I don't handle dissatisfied customers well. | 0.753 | | | | | |
| I don't like dealing with complaining customers. | 0.719 | | | | | |
| Customers I deal with leave problems unresolved. | 0.835 | | | | | |
| It is hard for me to satisfy complaining customers. | 0.942 | | | | | |

| | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|--|--|
| I believe that complaining customers I have dealt with in the past will not be future customers. | 0.888 | | | | | | | |
| <i>Service delay response</i> (Fernie et al., 2017) | | 0.739 | 0.934 | 0.945 | 3.580 | 1.440 | | |
| It is sometimes hard for me to begin a task as soon as it is given to me, even though I plan on doing so. | 0.880 | | | | | | | |
| I intend to do something, but I sometimes don't always do it. | 0.793 | | | | | | | |
| My intention is to get things done, but sometimes I don't finish my tasks. | 0.841 | | | | | | | |
| I sometimes can't meet my deadline for completing a task. | 0.880 | | | | | | | |
| It is sometimes hard for me to get things done on time. | 0.900 | | | | | | | |

Notes: AVE = average variance extracted; CR = composite reliability; SD = standard deviation.

The correlation matrix and normality test using skewness and kurtosis for the study's constructs are displayed in Table 4. To establish discriminant validity, the Fornell and Larcker criterion was applied. Accordingly, the square root of the AVEs needed to exceed the correlation values in each row. As indicated in Table 4, the bold numbers in the diagonals surpassed the correlation values in each row. Based on these findings, discriminant validity was not a concern in the current study.

Table 4. Correlation matrix and Fornell and Larcker's discriminant validity test

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1. Workplace telepressure | 0.753 | | | | | | | |
| 2. Cyber incivility | 0.508** | 0.879 | | | | | | |
| 3. Technostress | 0.649** | 0.643** | 0.913 | | | | | |
| 4. Poor mental health | 0.443** | 0.665** | 0.559** | 0.890 | | | | |
| 5. Work-life wellbeing | -0.084 | -0.134** | -0.149** | -0.310** | 0.927 | | | |
| 6. Work pleasure | -0.027 | -0.107** | -0.111** | -0.267** | 0.911** | 0.923 | | |
| 7. Service recovery failure | 0.334** | 0.560** | 0.476** | 0.615** | -0.154** | -0.135** | 0.831 | |
| 8. Service delay response | 0.358** | 0.523** | 0.477** | 0.604** | -0.124** | -0.113** | 0.780* | 0.859 |
| Skewness | -0.020 | 0.567 | 0.207 | 0.647 | -0.203 | -0.027 | 0.356 | 0.277 |
| Kurtosis | 0.168 | 0.012 | -0.177 | -0.007 | -0.358 | -0.450 | 0.192 | 0.002 |

Notes: The bold numbers in the diagonals are related to the square root of AVEs.

** Correlation is significant at the $p < 0.01$ level.

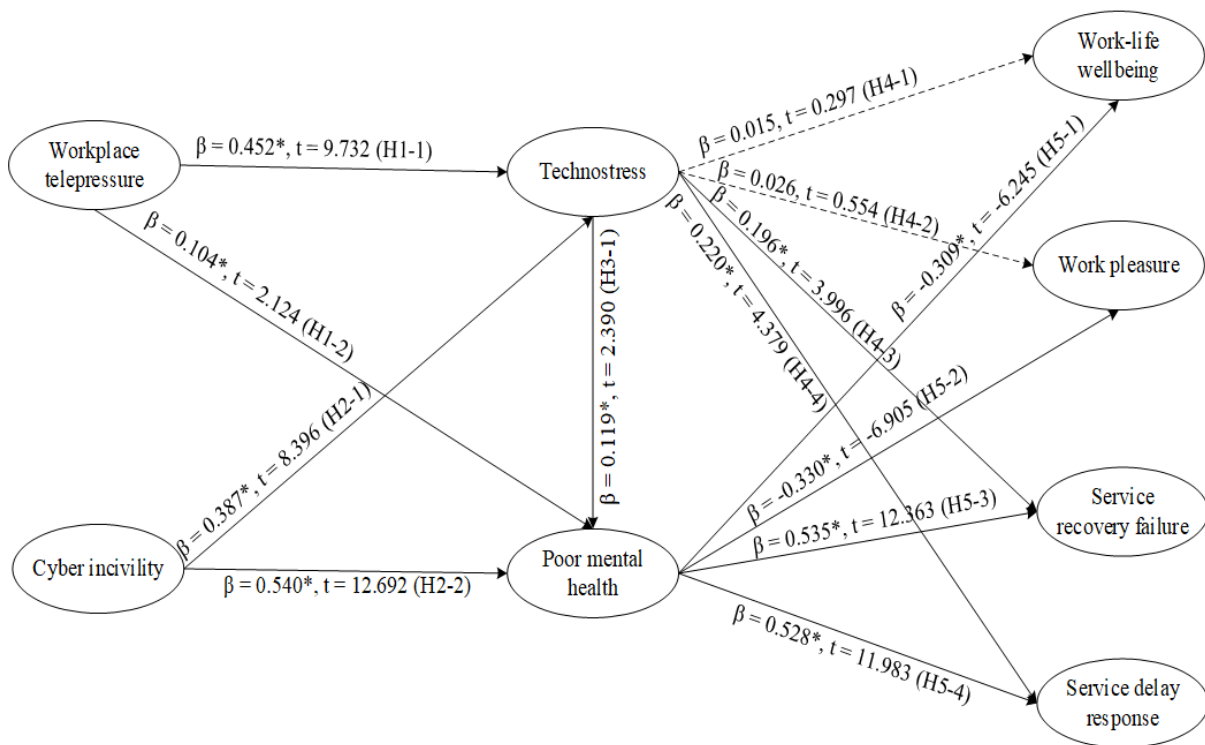
* Correlation is significant at the $p < 0.05$ level.

Testing research hypotheses

Structural equation modeling (SEM) was conducted using Mplus (8.3) to test the study's hypotheses, with the overall SEM model illustrated in Figure 2. The model fit indices of the SEM model indicated a suitable fit, as follows: $\chi^2 = 6398.411$ ($df = 1710$, $p < 0.001$), $\chi^2/df = 3.741$, $CFI = 0.934$, $TLI = 0.930$, $RMSEA = 0.059$, $SRMR = 0.046$. The bootstrapping method,

with 5,000 sample iterations and a 95% confidence interval, was used to test both direct and serial mediating effects.

The results of testing hypotheses showed that workplace telepressure had a positive relationship with technostress [$\beta = 0.452, t = 9.732$ (**H1-1**)] and poor mental health [$\beta = 0.104, t = 2.124$ (**H1-2**)]. Cyber incivility had a significant impact on technostress [$\beta = 0.387, t = 8.396$ (**H2-1**)] and poor mental health [$\beta = 0.540, t = 12.692$ (**H2-2**)]. The impact of technostress on poor mental health [$\beta = 0.119, t = 2.390$ (**H3-1**)], work-life wellbeing [$\beta = 0.015, t = 0.297$ (**H4-1**)] and work pleasure [$\beta = 0.026, t = 0.554$ (**H4-2**)] was insignificant and not supported, while the impact of technostress on service recovery failure [$\beta = 0.196, t = 3.996$ (**H4-3**)] and service delay response [$\beta = 0.220, t = 4.379$ (**H4-4**)] was confirmed. The impacts of poor mental health on work-life wellbeing [$\beta = -0.309, t = -6.245$ (**H5-1**)], work pleasure [$\beta = -0.330, t = -6.905$ (**H5-2**)], service recovery failure [$\beta = 0.535, t = 12.363$ (**H5-3**)] and service delay response [$\beta = 0.528, t = 11.983$ (**H5-4**)] were all significant.



Note: * significant at the .005 level.

Figure 2. Results of the SEM model

The results of the serial mediating effects are shown in Table 5.

Table 5. Results of testing indirect effects (bootstrap = 5,000 sample iterations)

| Hypotheses | β | S.E. | t-value | LLCI | ULCI | Results |
|---------------------------|---------|-------|---------|--------|--------|-------------|
| H6-1. WT → TS → PMH → WLW | -0.017 | 0.008 | -2.185 | -0.034 | -0.004 | Significant |
| H6-2. WT → TS → PMH → WP | -0.018 | 0.008 | -2.205 | -0.036 | -0.004 | Significant |
| H6-3. WT → TS → PMH → SRF | 0.029 | 0.013 | 2.199 | 0.006 | 0.057 | Significant |
| H6-4. WT → TS → PMH → SDR | 0.028 | 0.013 | 2.222 | 0.006 | 0.056 | Significant |
| H7-1. CI → TS → PMH → WLW | -0.014 | 0.006 | -2.181 | -0.028 | -0.003 | Significant |
| H7-2. CI → TS → PMH → WP | -0.015 | 0.007 | -2.210 | -0.030 | -0.003 | Significant |
| H7-3. CI → TS → PMH → SRF | 0.025 | 0.011 | 2.257 | 0.006 | 0.048 | Significant |
| H7-4. CI → TS → PMH → SDR | 0.024 | 0.011 | 2.271 | 0.005 | 0.047 | Significant |

Notes: WT (workplace telepressure), CI (cyber incivility), TS (technostress), PMH (poor mental health), WLW (work-life wellbeing), WP (work pleasure), SRF (service recovery failure), SDR (service delay response), S.E. (standard error), LLCI (lower-level confidence interval), ULCI (upper-level confidence interval)

Discussion and implications

Discussion

Shedding light on technological advancement and its impact on hospitality employees, the present study investigated the negative effects of ICT on employees' individual and work-related outcomes by examining work-related stressors and the underlying mechanisms of technostress and poor mental health. Testing these linkages provided support for most, but not all of the hypotheses.

The results relating to the influence of work-related stressors, specifically workplace telepressure and cyber incivility, as outlined in hypotheses H1-1 to H2-2, indicated that these two independent variables significantly impacted both technostress and **poor** mental health in hospitality employees. This aligns with previous research indicating that ICT and AI can introduce stressors that significantly affect employees' psychological and behavioral responses (Huang & Gursoy, 2024; Kim et al., 2023). Importantly, these quantitative findings are consistent with the qualitative evidence gathered in our interviews, where employees described constant connectivity pressures and digital hostility from guests as salient, context-specific stressors. This triangulation between qualitative and quantitative results further validates the constructs and strengthens confidence in the study's conclusions. This means that as hospitality employees encounter new technological advancements that increase their work demands and exacerbate various types of stressors, they feel more compelled to engage with technological gadgets and platforms. In other words, when hospitality workers experience high levels of workplace telepressure and cyber incivility – all forms of stress related to technology – it can lead to increased technostress and poor mental health.

The results indicated that hypotheses H4-1 to H5-4, which outlined the influence of technostress and poor mental health on individual and work-related factors, had a significant impact on work–life wellbeing and work pleasure as individual-related outcomes, and service recovery failure and service delay response as work-related outcomes. These findings are consistent with prior research in the hospitality industry, demonstrating the importance of psychological and cognitive mechanisms, such as mental health, in achieving specific performance and outcomes in the workplace environment (Darvishmotevali et al., 2024; Vo-Thanh et al., 2022). The existing literature did not take into account the substantial influence of technostress on four key variables, which can be seen as the current study's novel and significant contributions. This understanding suggests that when hospitality employees experience high levels of technostress and poor mental health due to negative work-related stressors, their work-related performance, including service recovery failure and service delay

response, as well as their personal feelings of work–life wellbeing and work pleasure, may be decreased. In addition, although some scholars have elucidated the role of technostress as an outcome variable (Shirish, 2021), the present study empirically established the function of technostress as the mediating variable between the impact of technology-led stressors and their effect on poor mental health. Therefore, it could be argued that the introduction of digitization into the workplace environment can lead to poor mental health in hospitality employees when they experience high levels of technostress.

The results of the final set of serial mediation hypotheses (H6-1 to 7-4) indicated that the serial mediating influence of technostress and poor mental health had significant effects on the impact of workplace telepressure and cyber incivility on work–life wellbeing, work pleasure, service recovery failure, and service delay response. These findings make a completely new contribution that has not been tested in previous studies. Again, the sequential pathway identified in the survey echoes themes from the interviews, where employees described how the “always-on” culture and hostile digital interactions drained their psychological resources and undermined both personal wellbeing and service performance. Thus, it could be suggested that when hospitality employees face workplace telepressure and cyber incivility as stressors, they develop a dependency on and habitually use their technological devices due to the fear of disconnection. As a result of their persistent fear of being disconnected, and constant engagement with their work environment through smart phones and PC, their psychological reserves may be drained, leading to high levels of technostress and poor mental health. Ultimately, poor mental health in hospitality employees results in reduced work–life wellbeing and workplace pleasure as individual outcomes, as well as increased service recovery failure and service delay response as work-related outcomes.

Theoretical implications

This study makes meaningful theoretical contributions. Firstly, the in-depth interviews with hotel employees provided unique insights into the mechanisms of workplace telepressure, cyber incivility, and their cascading impacts in the hospitality sector. The findings highlight the dynamic interplay between technology-driven work environments and the psychological experiences of employees, enriching the broader application of transactional stress theory in service-based industries. By combining qualitative exploration with quantitative validation, the study demonstrates how context-specific stressors can be identified and operationalized, responding directly to calls for more rigorous construct

development in technostress research. Specifically, the interviews revealed the pervasive influence of an "always-on" communication culture, where employees expressed a constant obligation to remain connected and responsive to digital communications, even outside of working hours. This persistent telepressure not only blurred the boundaries between personal and work life but also led to chronic psychological exhaustion, emphasizing the need to extend transactional stress theory to account for the cumulative effects of technology-induced stressors in 24/7 service environments. The interviews also exposed the unique aspects of cyber incivility in the hospitality sector, where frontline employees faced frequent exposure to rude, demeaning, or demanding messages from guests through digital platforms. Unlike traditional forms of workplace incivility, this digital hostility adds a layer of complexity that amplifies emotional strain and impacts employees' poor mental health. These findings suggest that cyber incivility, as a technology-mediated stressor, triggers unique appraisal processes that may differ from conventional stressors, thereby advancing the theoretical understanding of how technology reshapes interpersonal dynamics in workplace settings.

Second, previous studies have shown varied results in areas such as work–life wellbeing, work pleasure, service recovery failure, and service delay response in different work environments and with different causes, without any clear classification (Burns & Machin, 2012; Sirgy, 2019; Khamitov et al., 2020; Taylor, 1994). However, this study categorized these factors into individual-related and work-related outcomes, which are influenced by technological advancements and employees' psychological and cognitive experiences of ICT in the hospitality environment. In addition, using the three-phase consecutive effects of transactional stress theory (Lazarus & Folkman, 1984), the current study determined that stressors such as workplace telepressure and cyber incivility can deplete psychological and cognitive appraisal, leading to technostress and poor mental health, and ultimately resulting in various behavioral and coping responses. Unlike prior research, which considered service recovery effectiveness as the intervention (Anusree & Ponnampal, 2019; Sukhu & Bilgihan, 2023), this study uniquely examined service recovery effectiveness as a critical response variable, bridging the gap between technostress and customer service outcomes in the hospitality sector. It provides novel insights into how employees' stress responses influence their ability to recover service failures, which is a key determinant of customer satisfaction and organizational success.

Third, examining previous research on the causes of technostress, it became clear that certain psychological and emotional factors such as techno-stressors, along with the threats and opportunities of technological advancements, had been identified (Shirish, 2021;

Srivastava et al., 2015; Stein et al., 2015). However, due to unprecedented technological advancements and their use in the hospitality industry (Kim et al., 2023), this study has identified new stressors that originate from technological and ICT devices. Crucially, these stressors were not only theorized from prior literature but were empirically grounded in interviews with hospitality employees, ensuring that the constructs and their measurement items reflected lived experiences rather than abstract generalizations. Therefore, recognizing workplace telepressure and cyber incivility may enhance the existing literature on how the negative aspects of technological advancement can jeopardize the psychological and cognitive resources of hospitality employees, leading to technostress and poor mental health.

Fourth, while previous studies have implicitly suggested that technostress can significantly affect individuals' valuable resources (Shirish, 2021; Srivastava et al., 2015; Stein et al., 2015), no previous study had identified the mediating role of this variable. The current study is the first to establish the mediating role of technostress in the hospitality industry. It also advances understanding by demonstrating the serial mediating effect of technostress and poor mental health on the impact of work-related stressors and outcomes.

Finally, through these findings, which were based on transactional stress theory, the present study provides a clear response to previous scholars, demonstrating how AI and ICT tools in the hospitality industry can introduce stressors, and identifying the underlying mechanisms that may be triggered and identified in the impact of stressors and employees' behavioral and coping responses (Huang & Gursoy, 2024; Kim et al., 2023). This theoretical contribution advances understanding of technostress by linking technology-driven demands to employees' psychological processes and workplace outcomes in the hospitality context.

Practical implications

The findings of this study have important practical implications for the hospitality and tourism industry. Firstly, the study demonstrated that workplace telepressure, which involves the persistent need to respond promptly to digital communications, significantly contributes to employee stress levels. Hospitality managers should recognize this as a distinct form of stress and implement targeted interventions; for example, establishing clear communication policies that limit digital communication outside of working hours could help to alleviate telepressure. Such policies may include designated "no-contact" periods or specific guidelines for after-hours communication, ensuring employees can disconnect without fear of negative repercussions. Moreover, training managers to consolidate non-urgent messages into a single communication instead of frequent interruptions could reduce the pressure on

employees to stay constantly connected. Organizations could also introduce task management tools or centralized communication platforms to streamline digital correspondence and reduce the overwhelming burden of managing multiple communication channels.

Secondly, the study found that cyber incivility triggers significant stress among hospitality employees. Management should proactively address this issue by fostering a respectful digital communication culture. One effective strategy is to implement customer-facing courtesy campaigns on booking platforms, confirmation emails, or hotel signage. For instance, messages such as, “*Our team is here to serve you with care. Please treat them with the same courtesy,*” can serve as a gentle reminder to customers. Internally, hotels can conduct mandatory seminars for employees to establish ethical guidelines for professional digital communication, addressing how harmful behaviors such as rude emails or dismissive messages negatively impact mental health and performance. Additionally, management should offer accessible resources such as counseling services, grievance reporting systems, and a conflict resolution committee dedicated to addressing interpersonal disputes arising from cyber incivility. These proactive measures not only mitigate employee stress but also foster a more collaborative and respectful work environment.

Thirdly, the study highlighted the challenges employees face due to the rapid integration of advanced technologies such as AI-powered tools, chatbots, and online check-ins. While these technologies enhance operational efficiency, they can also create stress, particularly for senior staff who may feel apprehensive about adapting to these innovations. To bridge this gap, management should implement structured training programs tailored to different employee levels, ensuring that all staff, regardless of their technological proficiency, are equipped to use these tools effectively. For instance, step-by-step training workshops could help employees understand how to interact with AI systems and respond to customer inquiries through digital platforms. Additionally, mentorship programs pairing tech-savvy younger employees with senior staff could encourage knowledge-sharing and foster close collaboration. Regular team-building activities and open forums on technology adoption could further ease tensions and ensure a smoother transition to digital workflows.

Fourthly, the study revealed that work-related stressors, particularly workplace telepressure and cyber incivility, deplete psychological resources, leading to technostress and poor mental health. These, in turn, negatively affect both individual and work-related outcomes. To address these cascading effects, hotel management should regularly monitor employees' mental and psychological wellbeing through anonymous surveys. For instance, conducting anonymous surveys to assess employees' perceptions of after-hours work-related

communication could help to identify early signs of technostress without infringing on privacy. Based on the findings, organizations could implement supportive measures such as digital detox initiatives, which encourage employees to disconnect from work-related communications during their off-hours, or wellness programs focused on stress management techniques and mental health support.

Finally, to optimize hospitality services amidst the challenges posed by technological advancements, it is crucial to enhance employees' adaptability to technology while simultaneously addressing their psychological needs. This involves creating a work culture that values both technological efficiency and employee wellbeing. For example, management should integrate coping strategies into employee training programs, emphasizing how to balance technological demands with personal mental health. Additionally, fostering a supportive work environment that prioritizes work-life balance can mitigate the negative impact of stressors on employees' performance and satisfaction. By addressing these interrelated factors, hospitality organizations can enhance employee wellbeing, minimize service disruptions, and ultimately improve customer satisfaction.

Limitations and future research

The current study has limitations that may provide future research directions. Firstly, despite implementing various pre- and post-procedural measures to minimize common method bias in this cross-sectional study, it is recommended that future studies explore mental health issues in hospitality employees from a longitudinal perspective, as the psychological and mental wellbeing of employees can evolve over time when they are exposed to chronic stressors (Liyanage et al., 2022). Secondly, several studies have indicated that technostress a result of technological advancements is more common among women than men (Carlotto et al., 2017; Sasidharan, 2022). Therefore, it is recommended that future research includes a multigroup analysis to determine whether the results vary with other moderating variables including gender, age, educational level, job description, and working area.

Thirdly, while the present study explored and justified the roles of technostress and poor mental health as two underlying mechanisms in the impact of work-related stressors on individuals and work-related outcomes, it is recommended that future studies investigate other technology-based intervening mechanisms, such as cyber-ostracism, cyber-aggression, and fear of missing out (Karatepe et al., 2023; Khorakian et al., 2018), which are technology-induced psychological harms. Fourth, since perception of the technology adoption level

differs between countries or cultural boundaries (Choi et al., 2021; Han et al., 2024; Quan et al., 2024), the conceptual framework needs to be tested in different countries or regions. Finally, as there is currently a lack of conceptual models incorporating technology-triggered stresses, future research needs to develop new theoretical models and empirically test them. This will enable future researchers to explore theories more deeply and offer useful, practical ideas to hotel management.

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