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DIGITAL AFTER-HOURS EXPECTATIONS AND WORK-LIFE BOUNDARY STRAIN AMONG UNIVERSITY EMPLOYEES IN PAKISTAN: A CROSS-SECTIONAL STUDY

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Abstract
Digital communication technologies have intensified expectations of rapid responsiveness, stretching work into evenings, weekends, and other nonwork hours. In higher education settings, where teaching, coordination, student support, and administrative workflows increasingly run through instant messaging and email, these expectations can erode psychological detachment and heighten work-life boundary strain. Drawing on boundary theory, Conservation of Resources (COR) theory, and the stressor detachment model, this study tested whether perceived digital after-hours expectations are positively associated with work-life boundary strain among university employees in Pakistan. Using an online cross-sectional survey (n = 289), structural equation modeling (SEM) indicated that digital after-hours expectations were significantly and positively associated with boundary strain ($\beta = 0.57$, $p < 0.001$), explaining 32% of variance. Findings align with meta-analytic evidence linking technology-assisted supplemental work and extended availability to reduced detachment and increased work-family conflict. Implications include institutional norms clarifying response expectations and structured protection of recovery time.

INTRODUCTION

Digital tools have made academic work more synchronous, immediate, and traceable but also harder to "switch off." Global evidence suggests that information and communication technologies (ICTs) expand where and when work happens, often blurring temporal boundaries between paid work and private life (International Labour Organization & Eurofound, 2017). In this context, "being reachable" becomes a norm rather than an exception, and responsiveness can quietly turn into a performance signal especially in environments with high interdependence and frequent coordination demands.

Empirical work consistently links after-hours work-related communication with poorer recovery and more work-nonwork interference. A meta-analysis on technology-assisted supplemental work (TASW) reported meaningful associations with decreased

psychological detachment (r ≈ −.38) and increased strain/negative affect outcomes (e.g., emotional exhaustion; r ≈ .28), while also noting some positive links with work engagement (r ≈ .19), suggesting a "double-edged" dynamic (Kühner et al., 2023). A meta-analysis focused on work-related extended availability similarly reported converging evidence for a negative association with psychological detachment (r ≈ −.34) and a positive association with work- family conflict (r ≈ .34) (Thörel et al., 2022). These patterns support the idea that the cost is not merely "extra minutes" of responding, but also the cognitive and emotional spillover that disrupts recovery during nonwork time.

Higher education is a particularly sensible setting to study these dynamics. Academic and university work is frequently characterized by high workload, ambiguous role boundaries, and evening/weekend work as a normalized practice (Kinman & Jones, 2008). Digital channels can intensify this by converting many interactions (student issues, administrative requests, committee coordination) into "always-available" message streams rather than time-bounded tasks. Within Pakistan, the practical reality of university work increasingly involves instant messaging-based coordination, with WhatsApp groups commonly used for rapid instructions, announcements, and student/faculty communication. Qualitative evidence from Pakistani women academics during COVID-19 lockdowns, for example, describes blurred work-hour boundaries and feeling obligated to respond to "urgent" WhatsApp group queries, including outside standard hours (Salahuddin et al., 2023). While that study focuses on a pandemic-era setting and gendered labor, it illustrates a broader structural issue: digital communication channels can create de facto availability expectations in university contexts. Given the limited quantitative evidence on after-hours digital expectations and boundary strain among university employees in Pakistan, this study tests a direct, theory-driven association: perceived digital after-hours expectations → work- life boundary strain.

Theoretical Background and Hypothesis

i. *Boundary perspectives and micro-role transitions*: Boundary-related theories argue that people actively negotiate borders between work and nonwork roles. When boundaries become permeable or when organizations encourage (explicitly or implicitly) frequent cross-boundary transitions role strain increases (Allen et al., 2014; Ashforth et al., 2000). From this lens, after-hours messages are not neutral "information." They act as boundary-crossing events that trigger micro role transitions (e.g., shifting from family time to "employee mode"), which can accumulate strain when boundaries are repeatedly breached.

ii. *Recovery and psychological detachment:* Recovery research adds a key mechanism: psychological detachment, the ability to mentally disengage from work during nonwork time, is central for recovery and wellbeing (Sonnentag & Fritz, 2007). The stressor-detachment model proposes that job stressors undermine detachment, which in turn predicts strain outcomes (Sonnentag & Fritz, 2015). After-hours communication expectations, especially when rapid response is implied are structurally positioned to disrupt detachment because they stimulate work-related thoughts and actions precisely in the time window where recovery should occur.

iii. *Conservation of Resources (COR) theory and resource loss cycles:* COR theory posits that stress arise when valued resources (e.g., time, energy, attention, emotional capacity) are threatened, lost, or insufficiently replenished after investment (Hobfoll, 1989). After-hours expectations can produce "resource loss cycles": time intended for family, rest, or leisure is partially reallocated to work interaction; cognitive bandwidth is taxed by monitoring and deciding whether to respond; and emotional resources are drained by perceived surveillance or evaluation risks. Even when employees do not respond, the expectation itself can carry psychological cost evidence on organizational expectations for after-hours email monitoring suggests associations with resource depletion and adverse wellbeing outcomes (Belkin et al., 2020).

iv. *Contemporary connectivity constructs (availability expectations; tele-pressure)*: Connectivity research operationalizes these pressures through constructs such as after-hours availability expectations and tele-pressure. After-hours availability expectations have been linked to lower detachment and greater work-family conflict through increased after-hours work-

related smartphone use (Mellner, 2016). Tele-pressure defined as feeling preoccupied with and urged to respond quickly has been associated with impaired recovery and stress-related outcomes (Barber & Santuzzi, 2015). Diary evidence also links work-related smartphone use during off-job time with reduced detachment and higher exhaustion, particularly when segmentation norms are weak (Derks et al., 2014). Meta-analytic evidence further indicates that TASW is meaningfully correlated with availability expectations ($r \approx .45$), and that the broader TASW pattern is associated with weaker detachment and higher conflict/strain (Kühner et al., 2023).

Taken together, these frameworks converge on a clear prediction: when employees perceive strong digital after-hours expectations, boundary strain should increase.

1. *Perceived digital after-hours expectations are positively associated with work-life boundary strain among university employees in Pakistan.*

Research Framework

Figure 1 presents the hypothesized research model in a horizontal structural format. The predictor variable, Digital After-Hours Expectations, is depicted on the left within a blue rectangular box, representing perceived norms and pressure to respond to work-related messages outside standard working hours. The outcome variable, Work-Life Boundary Strain, is positioned on the right within an orange rectangular box, reflecting difficulty disconnecting from work and strain resulting from blurred work-nonwork boundaries. A unidirectional arrow extends from digital after-hours expectations to work-life boundary strain, indicating the proposed direct effect. The arrow is marked with a plus sign (+), signifying a positive association. This visual representation reflects the study's central hypothesis that stronger perceived expectations for after-hours responsiveness are associated with higher levels of boundary strain. The horizontal layout emphasizes the simplicity of the structural model, consistent with the single-path SEM tested in the analysis. The color differentiation between constructs visually reinforces their conceptual distinctiveness while the directional arrow clarifies the hypothesized predictive relationship.

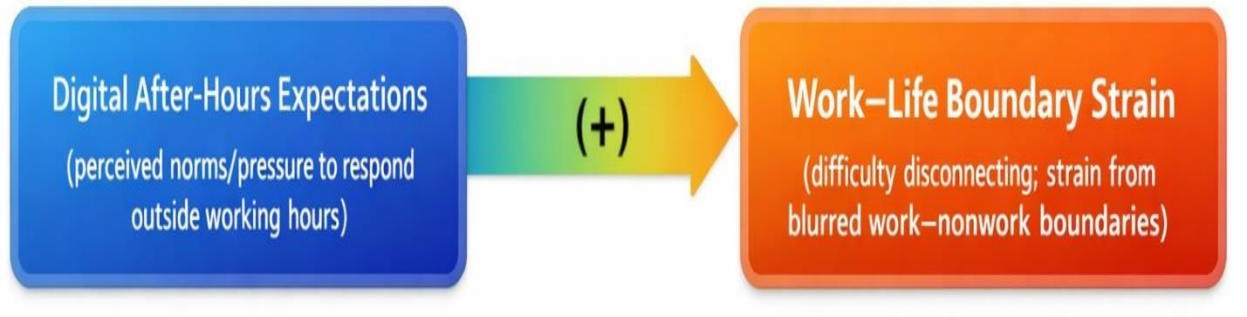

Figure 1: Research Framework of Study

Method

Design and setting

A cross-sectional survey design was used to examine associations between perceived digital after-hours expectations and work-life boundary strain in a sample of university employees.

Sampling frame and recruitment

Pakistan is administratively divided into Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan, Gilgit-Baltistan, Azad Jammu and Kashmir, and Islamabad Capital Territory. From each region, two universities were selected to form a geographically distributed sampling frame (total = 14 universities). Recruitment occurred online via widely used social media

channels and professional communities, including Facebook, Instagram, and X. Participation was voluntary, and the survey included an informed consent statement and assurances of confidentiality and anonymity. Because recruitment relied on voluntary response via online distribution, the participant-level sample should be interpreted as nonprobability/self-selected, even if the university list was geographically stratified.

Participants

A total of N = 318 responses were submitted. After excluding incomplete entries, the final analytic sample consisted of N = 289 participants. The sample comprised 61% academic faculty and 39% administrative staff; 55% identified as male and 45% as female. Mean age was 35.2 years (SD = 7.4), and average tenure was 6.8 years.

Measures

All items were rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

i. *Perceived digital after-hours expectations.* Digital after-hours expectations were assessed using a 4-item measure capturing perceived norms and pressure to respond outside standard working hours. Scale content was conceptually aligned with prior operationalizations of availability expectations and organizational norms around after-hours monitoring and responsiveness (Belkin et al., 2020; Mellner, 2016). A representative item was: "I feel expected to respond to work-related messages outside regular working hours." Internal consistency was high (Cronbach's $\alpha = .88$).

ii. *Work-life boundary strain.* Work-life boundary strain was assessed using 5 items capturing difficulty disengaging from work and felt strain from blurred boundaries. Item content was grounded in recovery research emphasizing psychological detachment and the stressor-detachment mechanism (Sonnentag & Fritz, 2007, 2015), and in boundary dynamics perspectives (Allen et al., 2014). A representative item was: "I find it difficult to disconnect from work during my personal time." Internal consistency was high (Cronbach's $\alpha = .90$).

Analytic strategy

Analyses proceeded in two steps. First, confirmatory factor analysis (CFA) evaluated the measurement model (factor loadings and fit indices). Second, structural equation modeling (SEM) tested the hypothesized direct path from digital after-hours expectations to work-life boundary strain. Model fit interpretation followed recommendations emphasizing patterns of indices rather than single cutoffs (Hu & Bentler, 1999). Common method bias risk was addressed procedurally through anonymity and by separating constructs into distinct item blocks; conceptually, the study also follows recommended awareness of common method risks in self-report designs (Podsakoff et al., 2003).

Results

The two-factor CFA demonstrated acceptable-to-good fit: CFI = .96, TLI = .94, RMSEA = .04. All standardized factor loadings were ≥ .65, supporting convergent measurement quality (Hu & Bentler, 1999). Perceived digital after-hours expectations showed a significant positive association with work-life boundary strain ($\beta = .57$, $p < .001$). The model explained 32% of variance in work-life boundary strain ($R^2 = .32$). H1 was supported.

Table 1. Structural model results

Predictor → Outcome	Standardized β	p-value	R^2 (Outcome)
Digital after-hours expectations → Work-life boundary strain	0.57	< 0.001	0.32

Discussion

This study provides quantitative evidence that perceived digital after-hours expectations are associated with higher work-life boundary strain among university employees in Pakistan. The association is theoretically coherent and empirically aligned with the "always-reachable" literature: when work is expected to remain psychologically present during nonwork time, recovery processes, especially detachment become harder to sustain (Sonnentag & Fritz, 2015). The findings fit closely with prior research on availability expectations and telepressure. Tele-pressure theory suggests that the felt urgency to respond quickly can intrude into off-job hours and impair recovery (Barber & Santuzzi, 2015). Similarly, after-hours availability expectations have been connected to reduced detachment via increased off-hours smartphone behavior (Mellner, 2016), and diary evidence indicates that work-related smartphone use during leisure time predicts lower detachment and higher exhaustion particularly when norms do not support segmentation (Derks et al., 2014). Meta-analytic work reinforces that these are not minor effects: TASW and related availability patterns show robust negative associations with detachment and positive associations with strain and work-nonwork conflict (Kühner et al., 2023; Thörel et al., 2022).

A context-sensitive interpretation matters. University work is already prone to boundary diffusion high demands, ambiguous role boundaries, and evening/weekend work are widely documented in academia (Kinman & Jones, 2008). Digital after-hours expectations may therefore function less like a brand-new demand and more like an accelerant: they make boundary crossings easier to initiate and harder to refuse. In Pakistani higher education, qualitative evidence has described blurred work-hour boundaries and perceived obligation to remain responsive via WhatsApp-based communication streams (Salahuddin et al., 2023). Complementing this, evidence on administrative staff stressors in Pakistani public universities points to organizational conditions (e.g., role ambiguity, role conflict, communication gaps) that could amplify the perceived risk of not responding after hours (Noor et al., 2024).

Theoretical Contributions of Study

1. The study offers a contextually grounded empirical examination of a theoretically anticipated relationship that has remained under-measured within Pakistan's higher education sector, thereby addressing an important geographical and sectoral gap in the digital boundary literature.
2. The findings extend boundary perspectives by demonstrating that boundary permeability in digitally mediated academic environments is not solely a function of individual segmentation preferences but is structurally shaped by institutional communication norms and implicit expectations (Allen et al., 2014; Ashforth et al., 2000).
3. The results provide support for Conservation of Resources theory by indicating that perceived digital availability expectations operate as ongoing resource threats, gradually depleting time, cognitive bandwidth, and emotional energy, which in turn manifest as work-life boundary strain (Hobfoll, 1989).
4. The study integrates recovery and detachment frameworks into the higher education context by empirically linking perceived after-hours expectations with strain outcomes consistent with the stressor detachment model (Sonnentag & Fritz, 2015), thereby reinforcing the centrality of psychological detachment in digitally connected work environments.
5. By focusing on a single direct structural path within a digitally intensive academic setting, the study provides a parsimonious yet theoretically coherent model that can serve as a foundation for future mediation and moderation research, particularly examining mechanisms such as tele pressure, segmentation norms, and role-based differences within universities.

Implications of the Study

1. Universities can mitigate work-life boundary strain without prohibiting digital communication by establishing clear, predictable, and humane expectations regarding after-hours responsiveness. Formal guidance that differentiates urgent from non-urgent communication and specifies reasonable response windows can reduce ambiguity and minimize the perceived "ASAP pressure" that

contributes to telepressure (Barber & Santuzzi, 2015).

2. Leadership behavior represents a critical normative lever. Supervisors and administrators implicitly shape availability expectations through practices such as late-night broadcasts, weekend messaging, and rapid-response norms. Even in the absence of formal policy, these behaviors can signal constant availability expectations. Training leaders to use delayed-send features and to normalize next-business-day responses can reduce perceived pressure while maintaining operational efficiency.

3. Institutions can strengthen recovery processes by explicitly recognizing psychological detachment as a legitimate and performance-sustaining resource rather than a discretionary personal preference. Given the well-established role of detachment in reducing strain and facilitating recovery (Sonnentag & Fritz, 2007, 2015), institutional endorsement of protected nonwork time can function as a preventive organizational strategy.

4. Communication policies should aim for structured flexibility rather than rigid restriction. Because technology-assisted supplemental work (TASW) has shown occasional positive associations with engagement (Kühner et al., 2023), the objective should not be maximal disconnection but the development of fair, transparent, and recovery-compatible connectivity norms.

5. Finally, institutional interventions should integrate policy, leadership modeling, and cultural messaging to shift perceptions of availability from implicit obligation to negotiated expectation. Such alignment can reduce chronic resource depletion while preserving coordination, responsiveness, and academic performance.

Limitations and Future Research Directions

1. The cross-sectional design precludes causal inference, and the observed association between digital after-hours expectations and work-life boundary strain may reflect reverse or reciprocal dynamics. For instance, employees experiencing higher strain may be more likely to perceive communication norms as intrusive or demanding.

2. The reliance on self-report measures introduces the possibility of common method bias, despite procedural safeguards such as anonymity and construct separation. Future research should adopt multi-wave, time-lagged, or diary-based designs to reduce same-source bias and strengthen temporal ordering (Podsakoff et al., 2003).

3. Subsequent studies should explicitly examine underlying mechanisms, particularly tele-pressure as a mediating pathway linking perceived availability expectations to boundary strain (Barber & Santuzzi, 2015).

4. Potential moderators warrant systematic investigation, including segmentation norms and boundary control, which may buffer or exacerbate the impact of after-hours expectations on detachment (Derks et al., 2014).

5. Additional contextual moderators such as job autonomy, supervisor expectations, and family demands should be incorporated to clarify boundary conditions and explain heterogeneity in effects across employee groups (Thörel et al., 2022).

Conclusion

Digital after-hours expectations should not be dismissed as a neutral byproduct of technological progress or as a mere convenience of modern communication systems. Rather, they operate as structural boundary intrusions that extend work into nonwork time, interfere with psychological detachment, and contribute to sustained work-life boundary strain. When responsiveness becomes implicitly tied to professionalism, commitment, or performance visibility, employees may experience persistent cognitive activation even in the absence of actual message volume. The strain, therefore, arises not only from behavioral response demands but also from anticipatory vigilance and perceived evaluative risk.

In the present study of university employees in Pakistan, perceived digital after-hours expectations demonstrated a strong and statistically significant positive association with work-life boundary strain, explaining 32% of its variance. This magnitude suggests that availability norms constitute a substantively meaningful organizational factor rather than a marginal irritant. The findings provide empirical support for boundary theory by illustrating how repeated cross-domain transitions accumulate strain (Allen et al., 2014; Ashforth et al., 2000). They

are equally consistent with Conservation of Resources theory, insofar as persistent expectations for availability function as chronic threats to time, attention, and emotional energy (Hobfoll, 1989). Furthermore, the results align with stressor-detachment models by demonstrating how structural demands during nonwork time may undermine recovery processes (Sonnentag & Fritz, 2015).

Importantly, this study extends the digital boundary strain literature into the context of Pakistani higher education, where instant messaging platforms and group-based communication channels can create de facto availability norms even in the absence of formal policy mandates. In such environments, silence may be interpreted as disengagement, thereby reinforcing responsiveness pressures. The evidence suggests that institutional structures, rather than individual preference alone, shape boundary permeability in contemporary academic work settings.

From a policy perspective, the findings indicate that universities can mitigate strain without sacrificing coordination or responsiveness. Clarifying response-time expectations, discouraging unnecessary after-hours messaging, and modeling recovery-compatible communication practices can recalibrate norms in ways that protect employee well-being while maintaining institutional effectiveness. In digitally intensive academic systems, sustainable performance is unlikely to depend on constant availability; rather, it depends on balanced connectivity that allows recovery, cognitive restoration, and long-term engagement.

REFERENCES

Allen, T. D., Cho, E., & Meier, L. L. (2014). Work-family boundary dynamics. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 99-121. https://doi.org/10.1146/annurev-orgpsych-031413-091330

Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review, 25*(3), 472-491. https://doi.org/10.5465/amr.2000.3363315

Barber, L. K., & Santuzzi, A. M. (2015). Please respond ASAP: Workplace telepressure and employee recovery. *Journal of Occupational Health Psychology, 20*(2), 172-189. https://doi.org/10.1037/a0038278

Belkin, L. Y., Becker, W. J., & Conroy, S. A. (2020). The invisible leash: The impact of organizational expectations for email monitoring after-hours on employee resources, well-being, and turnover intentions. *Group & Organization Management*. https://doi.org/10.1177/1059601120933143

Derks, D., van Mierlo, H., & Schmitz, E. B. (2014). A diary study on work-related smartphone use, psychological detachment and exhaustion: Examining the role of the perceived segmentation norm. *Journal of Occupational Health Psychology, 19*(1), 74-84. https://doi.org/10.1037/a0035076

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513-524. https://doi.org/10.1037/0003-066X.44.3.513

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

International Labour Organization, & Eurofound. (2017). *Working anytime, anywhere: The effects on the world of work*. (Report; no DOI assigned).

Kinman, G., & Jones, F. (2008). A life beyond work? Job demands, work-life balance and wellbeing in UK academics. *Journal of Human Behavior in the Social Environment, 17*(1-2), 41-60. https://doi.org/10.1080/10911350802165478

Kühner, C., Rudolph, C. W., Derks, D., Posch, M., & Zacher, H. (2023). Technology-assisted supplemental work: A meta-analysis. *Journal of Vocational Behavior, 142*, 103861. https://doi.org/10.1016/j.jvb.2023.103861

Mellner, C. (2016). After-hours availability expectations, work-related smartphone use during leisure, and psychological detachment: The moderating role of boundary control. *International Journal of Workplace Health Management*, 9(2), 146-164. https://doi.org/10.1108/IJWHM-07-2015-0050

Noor, S., Aslam, A., & Isa, F. M. (2024). Causes of occupational stress and burnout amongst administrative staff in public universities: Case of Pakistan. *Journal of Applied Research in Higher Education*. https://doi.org/10.1108/JARHE-03-2024-0120

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Salahuddin, A., Mahmood, Q. K., & Rubab, I. (2023). Lived experiences of work-life balance in women academics during the COVID-19 pandemic in Pakistan. *Forman Journal of Social Sciences, 3*(2).https://doi.org/10.32368/FJSS.20230217

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. https://doi.org/10.1037/1076-8998.12.3.204

Sonnentag, S., & Fritz, C. (2015). Recovery from job stress: The stressor-detachment model as an integrative framework. *Journal of Organizational Behavior, 36*(S1), S72-S103. https://doi.org/10.1002/job.1924

Thörel, E., Pauls, N., & Göritz, A. S. (2022). Work-related extended availability and employee wellbeing: A meta-analysis and review. *European Journal of Work and Organizational Psychology*. *12(10),* 202-234.