

Technostress and Burnout in Early-Career Employees: A Scoping Review of Digital Workload, Always-On Culture, and Burnout Risk in the Early Employment Phase

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Abstract—

Digital connectivity has fundamentally reshaped the conditions under which employees enter the workforce, and early-career employees, who have never known a working life without smartphones, instant messaging, and constant digital availability, appear to face a distinct configuration of technology-related demands. This scoping review synthesizes the theoretical and empirical literature on technostress, always-on culture, and burnout risk, with particular attention to the early employment phase. Guided by the Job Demands-Resources model and Conservation of Resources theory, and drawing on the established technostress-creators framework, the review integrates evidence from systematic reviews and primary studies on technostress, workplace telepressure, after-hours smartphone use, and psychological detachment. The synthesis indicates that techno-overload and techno-invasion are the most consistently documented technostress creators linked to burnout, that after-hours connectivity and implicit availability norms erode the psychological detachment recognized as essential for recovery, and that these dynamics were substantially intensified, though not created, by the rapid expansion of remote and hybrid work during the COVID-19 pandemic. A pronounced gap emerges from the literature: very few of the reviewed studies specifically sampled early-career or entry-level employees, meaning that the applicability of these mechanisms to workers in their first years of employment, a population with fewer accumulated job resources and less established boundary-setting skill, is currently inferred rather than directly demonstrated. The review concludes that early-career employees are theoretically positioned as a high-risk group for technostress-driven burnout precisely because of this resource asymmetry, and identifies the direct empirical study of this population as the field's most pressing research gap.

Keywords—*technostress, burnout, early-career employees, always-on culture, job demands-resources model, conservation of resources, workplace telepressure, psychological detachment*

I. INTRODUCTION

A twenty-four-year-old associate consultant checks a work chat application at 9 p.m. on a Sunday, not because a client is waiting, but because a colleague's message earlier that afternoon carried an unspoken expectation of same-day acknowledgment. No one told her explicitly that she had to respond outside working hours; she simply inferred, correctly, that this was how things were done here. This small, unremarkable act of digital vigilance, repeated daily across millions of early-career workers, sits at the center of a phenomenon that organizational psychology has spent nearly two decades trying to name and measure: technostress, and its downstream relationship to burnout.

Technostress was defined in the foundational information-systems literature as stress experienced by individuals due to their use of information and communication technologies, and operationalized through five recurring technostress creators: techno-overload, the pressure to work faster and longer because technology enables it; techno-invasion, the blurring of boundaries between work and personal life through constant reachability; techno-complexity, the cognitive burden of mastering ever-changing systems; techno-

insecurity, the fear of being replaced by more technologically capable colleagues or by automation itself; and techno-uncertainty, the unease produced by continuous, unpredictable technological change. This framework has since been validated and extended across dozens of empirical studies spanning healthcare, education, and knowledge-work settings.

Parallel to this literature, organizational psychology has documented a related but distinct phenomenon: the erosion of the boundary between work and non-work time through smartphone-enabled connectivity, captured in constructs such as workplace telepressure, the felt urgency to respond quickly to work-related messages, and after-hours availability norms, the implicit organizational expectations that employees remain digitally reachable outside contracted hours. A recent scoping review of twenty-three studies across nine countries found that increased work-related smartphone use during off-job hours was associated with increased work-life conflict in the large majority of cases, mediated substantially by reduced psychological detachment from work, the felt ability to mentally switch off outside working hours that is now recognized as a core recovery process protecting against burnout.

Early-career employees enter this technological environment under a distinctive set of conditions. Unlike more senior colleagues, they typically possess fewer accumulated job resources, less organizational tenure from which to negotiate boundaries, weaker professional networks to buffer setbacks, and less-established personal routines for psychological detachment, while simultaneously facing strong incentives, whether real or perceived, to demonstrate responsiveness and commitment during a probationary or reputation-building period. Whether the technostress and always-on literature, developed largely on general working-age samples, applies with particular force to this population, or whether early-career workers possess offsetting resources such as higher digital fluency, has not been systematically examined.

This scoping review addresses that gap. It asks how technostress and always-on connectivity are conceptualized and measured in the organizational literature; what mechanisms link these constructs to burnout; and, specifically, what is currently known, and what remains unknown, about how these dynamics manifest among employees in the early phase of their careers.

II. THEORETICAL BACKGROUND

A. *The Job Demands-Resources Model*

The Job Demands-Resources model proposes that working conditions can be categorized into job demands, aspects of work requiring sustained physical, cognitive, or emotional effort, and job resources, aspects of work that help achieve goals, reduce demands, or stimulate growth. Job demands are primarily related to the exhaustion component of burnout, whereas a lack of job resources is primarily related to the disengagement component. A subsequent decade of theoretical development confirmed and extended these core relationships, establishing the model as one of the most widely applied frameworks in occupational health psychology. Within this framework, technology functions ambivalently: it can constitute a resource, enabling flexibility, autonomy, and efficient task completion, or a demand, when its use is mandatory, poorly matched to competencies, or extended into recovery time. The technostress and always-on literature reviewed below is best understood as an investigation of the specific conditions under which digital technology shifts from the resource side of this ledger to the demand side.

B. *Conservation of Resources Theory Applied to Digital Demands*

Conservation of Resources theory holds that stress arises from a threat of resource loss, an actual loss of resources, or a failure to gain resources following significant investment of effort, and that resource loss tends to beget further loss in self-reinforcing spirals (Hobfoll, 1989). Applied to early-career employees

specifically, this theory generates a clear and testable prediction: because early-career workers begin their working lives with a comparatively thin portfolio of job resources, professional autonomy, established boundaries, social capital, and accumulated coping routines, any given unit of technology-driven demand should deplete a proportionally larger share of their available resources than it would for a more senior colleague, placing them at elevated risk of entering a loss spiral. A Conservation of Resources-informed study of smartphone use directly supported this general logic, finding that job control and psychological detachment functioned as mediating mechanisms through which technology-enabled connectivity translated into work-family conflict and diminished well-being, precisely the kind of resource-erosion pathway the theory would predict.

C. *Technostress Creators and the Technostress Trifecta*

The original technostress-creators framework identified five stressor dimensions, techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty, as institutional stressors arising from information and communication technology use, and validated their consequences for end-user strain and reduced productivity in organizational samples. A later theoretical development, the technostress trifecta, expanded this unidimensional focus on harm by distinguishing techno-distress, the negative pole captured by the original creators, from techno-eustress, a positive, challenge-oriented form of technology-related activation capable of enhancing effectiveness and innovation, and by emphasizing that information-systems design itself can be engineered to amplify eustress while mitigating distress. This distinction matters for the present review because it implies that the relationship between digital technology and early-career burnout is not fixed but is substantially shaped by organizational and design choices, including the norms an organization sets around after-hours availability.

D. *Workplace Telepressure and Psychological Detachment*

Workplace telepressure was introduced as a specific construct capturing the urge to respond quickly to work-related messages, driven by both explicit organizational demands and implicit norms inferred from colleagues' and supervisors' behavior, such as receiving praise for a rapid after-hours reply. Telepressure is theorized and empirically shown to interfere with psychological detachment, the recovery-critical experience of mentally disengaging from work during off-job time, which in turn is one of the most robust predictors of lower emotional exhaustion in the broader recovery literature. Because psychological detachment depends partly on learned personal strategies and partly on organizational permission structures, both of which early-career

employees have had comparatively little time to develop or negotiate, this construct offers a second, complementary theoretical route by which junior employees may be disproportionately exposed to technostress-driven burnout risk.

III. METHOD

A. Review Design

This review was conducted as a scoping review rather than a systematic review or meta-analysis, following the general logic of the Arksey and O'Malley methodological framework as applied in recent occupational health scoping reviews. A scoping approach was selected because the specific intersection of interest, technostress and always-on culture within the early-career employment phase specifically, has not yet accumulated a sufficiently homogeneous body of controlled studies to support meta-analytic pooling, and because a central aim of the review is to map the extent and nature of the existing evidence and to identify gaps, which is the purpose for which scoping methodology is designed.

B. Search Strategy

Literature was identified through keyword-based searches of academic search engines and bibliographic sources, using combinations of the terms technostress, techno-overload, techno-invasion, always-on culture, workplace telepressure, after-hours availability, psychological detachment, work-life conflict, burnout, job demands-resources, conservation of resources, and early-career, graduate, or young employees. Searches were restricted to English-language, peer-reviewed sources, including original theoretical papers, systematic and scoping reviews, and directly relevant primary studies, supplemented by examination of reference lists within retrieved reviews to identify additional foundational sources.

C. Eligibility Criteria

Sources were included if they addressed at least one of the following: (a) the theoretical foundations of the Job Demands-Resources model, Conservation of Resources theory, or the technostress-creators framework; (b) empirical evidence on technostress, workplace telepressure, or after-hours digital connectivity and their relationship to burnout, exhaustion, or work-life conflict; or (c) evidence specifically concerning early-career, graduate, or young employee populations in relation to any of the above. Sources concerned exclusively with technology acceptance or productivity outcomes unrelated to stress or burnout were excluded unless they provided directly relevant theoretical content.

D. Synthesis Approach

Given the heterogeneity of included designs, spanning theoretical papers, systematic reviews, scoping reviews, and primary cross-sectional and diary studies, findings are synthesized narratively and organized thematically. Where the underlying literature itself takes the form of a

systematic or scoping review with quantified findings, most notably the smartphone and work-life conflict scoping review addressing twenty-three primary studies, those findings are reported as originally published. A specific focus throughout the synthesis is placed on flagging, rather than obscuring, the extent to which included studies did or did not specifically sample early-career employees, since this distinction is central to the review's central research gap.

IV. THEMATIC SYNTHESIS OF THE LITERATURE

A. Technostress Creators and Their Link to Burnout

Across the reviewed literature, techno-overload and techno-invasion emerge as the most consistently documented technostress creators associated with burnout and psychological strain, appearing as the dominant stressors in comprehensive reviews of the technostress literature and in pandemic-era systematic reviews alike. A systematic review of technostress during the severe confinement phase of the COVID-19 pandemic identified techno-invasion and techno-overload as the primary techno-stressors of the period, with techno-fatigue emerging as the most frequently reported resulting strain state, and confirmed that these dynamics were substantially intensified by the sudden, largely unplanned shift to remote work, which collapsed the physical boundary that had previously separated office-based technology exposure from home life.

It is notable that this literature, while extensive, is drawn overwhelmingly from general working-age or occupation-specific samples, healthcare workers, teachers, remote and hybrid professionals, rather than from samples explicitly restricted to or stratified by career stage. None of the systematic or scoping reviews identified for this synthesis reported findings disaggregated by years of organizational tenure, meaning that the field currently cannot say with direct empirical confidence whether techno-overload and techno-invasion strike early-career employees harder, in the same way, or less severely than their more senior colleagues, despite the strong theoretical rationale, developed in Section 2, for expecting a disproportionate effect.

B. After-Hours Connectivity, Availability Norms, and Work-Life Conflict

The most methodologically comprehensive evidence available on digital always-on culture specifically comes from a scoping review of twenty-three studies conducted across nine countries, which found that nineteen of the twenty-three included studies, eighty-three percent, showed a significant association between increased work-related smartphone use during off-job hours and increased work-life conflict, with small-to-moderate effect sizes. This relationship was mediated by psychological detachment from work and by the degree of communication about family demands with one's supervisor, and was strengthened by supervisor

expectations and job pressure while attenuated by job autonomy, schedule control, and a low personal preference for segmenting work from home life.

This review further confirmed that after-hours availability expectations, whether explicit organizational policy or implicit inferred norms, are a key driver of workplace telepressure, and that high after-hours availability expectations were specifically associated with low psychological detachment from work, echoing the original telepressure research showing that implicit norms conveyed through subtle organizational cues, being praised for a rapid evening reply, receiving repeated follow-up messages when a response is delayed, are sufficient to generate sustained telepressure independent of any explicit rule. Direct empirical work on the association between availability norms and burnout symptoms during the COVID-19 period confirmed that such norms were linked to heightened burnout symptoms, with autonomy and telepressure operating as distinct explanatory mechanisms. As with the technostress-creators literature in Section 4.1, the smartphone and telepressure studies synthesized here were conducted predominantly on general adult working samples, with only limited attention to organizational tenure or career stage as a moderating variable.

C. The Pandemic as an Accelerant, Not an Origin

A recurring theme across the reviewed literature is that the COVID-19 pandemic functioned as an accelerant of pre-existing technostress dynamics rather than as their origin. The technostress-creators framework, telepressure construct, and boundary-blurring concerns documented in Section 2 all predate the pandemic by more than a decade, but the sudden, large-scale shift to remote and hybrid work compressed years of gradual digital boundary erosion into a matter of months, providing an unusually large and geographically distributed natural experiment through which these mechanisms became empirically visible at scale. This has practical relevance for early-career employees specifically, since a substantial proportion of the current early-career workforce entered employment during or shortly after this period, meaning their formative professional norms around digital availability were shaped under conditions of unusually intense technostress exposure relative to historical baselines, a cohort effect that the existing literature has not yet examined directly.

D. Resource-Based Mechanisms Linking Technostress to Burnout

Consistent with both the Job Demands-Resources model and Conservation of Resources theory, the reviewed literature converges on job control, schedule autonomy, and psychological detachment as the resources that most consistently buffer the relationship between technology-driven demands and burnout-relevant outcomes. A Conservation of Resources-informed study

of smartphone-enabled connectivity found that job control and psychological detachment functioned as mediators linking technology use to work-family conflict and diminished well-being, directly demonstrating the resource-erosion pathway theorized in Section 2.2. Because job control and schedule autonomy are precisely the resources that accrue with organizational tenure and seniority, and because early-career employees are, by definition, positioned lowest on this accrual curve, the resource-based mechanisms identified in this literature provide a coherent, if still empirically untested, explanation for why early-career employees may be structurally more vulnerable to technostress-driven burnout than the aggregate findings of the general working-age literature would suggest.

V. DISCUSSION

A. Theoretical Integration

Read together, the Job Demands-Resources model, Conservation of Resources theory, and the technostress-creators framework converge on a coherent account of how digital connectivity translates into burnout risk: techno-overload and techno-invasion function as job demands that are difficult to offset without adequate job resources, chiefly control, autonomy, and the organizationally sanctioned permission to psychologically detach; where those resources are present, technology-related demands appear to be manageable or even, per the techno-eustress concept, motivating; where those resources are absent or thin, the same demands appear to translate into telepressure, reduced detachment, work-life conflict, and ultimately burnout-relevant exhaustion. Early-career employees occupy a theoretically distinctive position within this account, not because the underlying mechanisms differ for them, but because the resource side of the equation is, by the structural nature of being new to an organization and a profession, thinner than it is for established colleagues.

This integration also clarifies why the pandemic-era acceleration documented in Section 4.3 carries particular weight for the current early-career cohort: a generation of employees formed its early professional norms around digital availability during a period of historically elevated technostress exposure, potentially normalizing availability expectations that would, under ordinary circumstances, have been recognized and resisted as excessive.

B. Practical Implications

At the organizational level, the finding that supervisor expectations and job pressure strengthen, while job autonomy and schedule control attenuate, the relationship between after-hours smartphone use and work-life conflict suggests that structured onboarding programs for early-career employees could explicitly address digital availability norms, making implicit expectations explicit

and thereby removing the ambiguity that workplace telepressure research identifies as a key driver of the phenomenon.

At the individual level, given that psychological detachment functions as a recovery-critical mediator across multiple studies reviewed here, career counseling, coaching, and early-career mentoring programs might usefully incorporate explicit skill-building around boundary-setting and digital detachment, competencies that more senior employees often develop informally through years of trial and error, but which early-career employees have not yet had the opportunity to acquire.

At the policy level, the review's findings lend indirect support to organizational and legislative disconnection policies of the kind already implemented in some European jurisdictions, though the literature reviewed here also cautions, via the technostress trifecta framework, that blanket restrictions on technology use are less likely to be effective than design and norm-level interventions that specifically target techno-invasion and telepressure-generating communication patterns rather than technology use per se.

C. Limitations

This review is subject to several limitations. First, as a scoping rather than systematic review, it does not apply a fully reproducible multi-database search protocol with independent dual screening, and the selection of sources, while guided by explicit eligibility criteria, cannot rule out selection bias toward more prominent or more easily retrievable publications.

Second, and most significantly, the central limitation is not of this review but of the underlying literature itself: as documented repeatedly across Sections 4.1 through 4.4, none of the major technostress, telepressure, or after-hours connectivity studies identified for this synthesis specifically sampled or stratified by early-career status. The claims made in this review about early-career vulnerability are therefore theoretically derived from the Job Demands-Resources model and Conservation of Resources theory rather than directly demonstrated by primary data, and should be read as a well-motivated hypothesis rather than an established finding.

Third, much of the empirical technostress and telepressure literature relies on cross-sectional or short-duration diary designs, limiting causal inference regarding the direction of the relationship between digital demands and burnout-relevant outcomes.

Fourth, the search was restricted to English-language sources, which may underrepresent technostress research conducted in other labor-market and cultural contexts, despite evidence that after-hours connectivity effects have been documented across highly diverse national settings.

Fifth, several of the constructs reviewed here, including telepressure, techno-invasion, and psychological detachment, are measured using varied and

not fully harmonized instruments across studies, complicating direct comparison of effect sizes across the literature.

D. Outlook

The single most consequential direction for future research, following directly from the gap identified in Section 5.3, is the direct empirical study of technostress, telepressure, and burnout specifically within early-career or graduate-entry samples, ideally using longitudinal or diary designs capable of tracking how job resources such as autonomy and schedule control accrue over the first years of employment and whether this accrual measurably attenuates technostress-driven burnout risk over time. A second promising direction concerns intervention research testing whether explicit onboarding-stage digital-availability-norm-setting, informed by the technostress and design literature, can shift early-career employees' trajectories away from the loss-spiral pattern predicted by Conservation of Resources theory. Finally, given that the current early-career cohort formed its professional norms substantially during the pandemic-era acceleration of technostress exposure documented in Section 4.3, cohort-comparative research examining whether pre-pandemic and post-pandemic early-career entrants differ systematically in their baseline availability expectations would clarify whether the field is observing a durable generational shift or a transient artifact of an unusual historical period.

Digital connectivity has not created burnout, but it has changed the terrain on which the Job Demands-Resources balance is negotiated, compressing the boundary between work and recovery time in ways that reward employees who already possess the autonomy and detachment skills to resist that compression, and that theoretically disadvantage those who do not yet have them. Early-career employees are, on current theoretical grounds, the population most likely to fall into the latter category, and the field's inability to confirm or disconfirm this directly, for want of data specifically collected on this group, stands as this literature's most consequential open question.

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Ethics Approval. This article is a scoping literature review and did not involve the collection of primary data from human participants. Accordingly, formal ethics committee approval was not required.

Informed Consent. Not applicable, as this review did not involve human participants or primary data collection.

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Use of Generative AI. Generative AI tools were used to assist with literature retrieval, language editing, and structuring of this manuscript. All scientific content, theoretical integration, interpretations, and conclusions are the sole responsibility of the author.

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