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Managing *Technostress* in the Digital Era: The Role *of Workplace Spirituality* in Mitigating Employee *Burnout* (Study on the Banking Sector in Makassar)

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A R T I C L E I N F O

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A B S T R A C T

Digital transformation in banking has intensified technostress, which may increase employee burnout. This study examines the effect of technostress on burnout and tests workplace spirituality as a moderating variable. An explanatory quantitative design used a cross-sectional online questionnaire completed by 162 banking employees in Makassar, selected by purposive sampling and analyzed using partial least squares structural equation modeling in SmartPLS 4.0. Technostress significantly increased burnout ($\beta = 0.478$; $p < 0.001$), whereas workplace spirituality reduced burnout ($\beta = -0.245$; $p = 0.002$) and weakened the technostress–burnout relationship ($\beta = -0.192$; $p = 0.014$). Workplace spirituality functions as an internal, non-material job resource. Banks are advised to embed spirituality in organizational culture as a holistic stress management strategy.

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INTRODUCTION

Digital transformation in the banking sector in Indonesia has changed the paradigm of customer service to be based on fast-paced technology (Marlina & Bimo, 2018; Sawhney et al., 2022). Along with these changes, the city of Makassar as a hub in the eastern region of Indonesia has become the center of highly competitive banking competition, where the adoption of information technology is the main instrument in winning the market. However, this massive integration of technology brings challenges for human resources (Ainun et al., 2025) as well as psychological consequences for the workforce (Susanto, 2025; Yener & Rocha, 2024). In this context, the phenomenon of *technostress*, or the inability of individuals to adapt to technological demands in a healthy way, is beginning to emerge as a serious threat to banking productivity in big cities. This is reinforced by several internal reports in the banking sector that show increasing complaints of digital fatigue and pressure due to the ever-changing technology-based work system, which indicates that there are increasingly real psychological problems in the field (Winasis & Riyanto, 2020).

The pressure to stay connected to dynamic systems and software changes often exceeds the cognitive capacity of employees (Gunawan et al., 2026; Rahmi et al., 2025). As a result, based on the *Job Demands-Resources* (JD-R) theory, *burnout* or chronic burnout occurs when job demands such as *technostress* are not balanced with the resources that employees have (Nurhikmah, 2025; Puspita & Zamralita, 2023; Sparidans et al., 2023). Furthermore, in the Makassar banking sector, the high digital workload if left without a mitigation mechanism will have an impact on operational risks, ranging from a decrease in service quality to the potential for *fatal human error* for financial institutions. Not only does this have an impact on operational aspects, this condition also has the potential to increase *turnover intention* and reduce the quality of service to customers, which ultimately has an impact on the competitiveness of banking institutions.

Although the urgency of handling work stress has been realized, most previous research has still emphasized technical approaches and the provision of material compensation (Gunawan, 2024; Nurfadli et al., 2025; Suminarto, 2025). There is a *research gap* regarding the role of spiritual resources as internal protectors of employees, so the approach used has not fully explained the non-material psychological mechanisms in dealing with modern work pressure. Qualitative studies on technology *startup* employees in Makassar do show that welfare programs positioned as *job resources* can reduce *burnout* (Nurhikmah, 2025), but the resources studied are still in the form of organizational programs such as counseling, work flexibility, and recreational activities, not the spiritual dimension, and have not targeted the banking sector. In addition, the study in the framework *of Job Demands-Resources* (JD-R) is still dominated by external and material *job resources*, while the spiritual dimension as an internal resource has not been widely integrated in the empirical model. In fact, people in Makassar have strong characteristics of religiosity and social values, which should be explored as a resilience capital in the workplace (Rusydi et al., 2023). *The novelty of* this research lies in testing *workplace spirituality* as a mitigation variable that is

expected to be able to neutralize the negative impact of technology on employee mental health.

Based on this description, this study aims to examine the influence of *technostress* on *burnout*, the influence of *workplace spirituality* on *burnout*, and the role of *workplace spirituality* moderation in the relationship between *technostress* and *burnout* in banking employees in Makassar City. In addition, this research not only aims to fill the gap in management literature, but also provides practical solutions for banking management in Makassar to build a more humane and meaningful work environment. By understanding how the meaning of work and a sense of community can reduce *burnout*, banking institutions can formulate more holistic welfare policies to maintain the performance of human resources in the midst of continuous digital disruption. Thus, this research is expected to not only contribute empirically, but also expand the application of *the Job Demands-Resources* theory by including the spiritual dimension as part of *non-material job resources* in the context of digital work in Indonesia.

LITERATURE REVIEW

Job Demands-Resources Theory dan Technostress

The *Job Demands-Resources* (JD-R) theory explains that *burnout* arises when the demands of work that drain physical and psychological energy are not offset by adequate resources (Demerouti et al., 2001; Puspita & Zamralita, 2023). In this framework, *technostress* is positioned as a work demand, namely psychological pressure due to the use of information technology that comes from *techno-overload*, *techno-invasion*, *techno-complexity*, *techno-insecurity*, and *techno-uncertainty* (Tarafdar et al., 2007). The demand to always connect and adjust to system updates has the potential to drain employees' cognitive capacity (Rahmi et al., 2025; Tams et al., 2020), while emotional exhaustion and depersonalization are the core of *burnout* (Widhianingtanti & Luijtelaar, 2022). In the context of Indonesian banking, Winasis & Riyanto (2020) associate digital transformation with increased employee work stress, so the expected direction of the relationship is positive.

H1: *Technostress* has a positive and significant effect on the *burnout* of banking employees in Makassar.

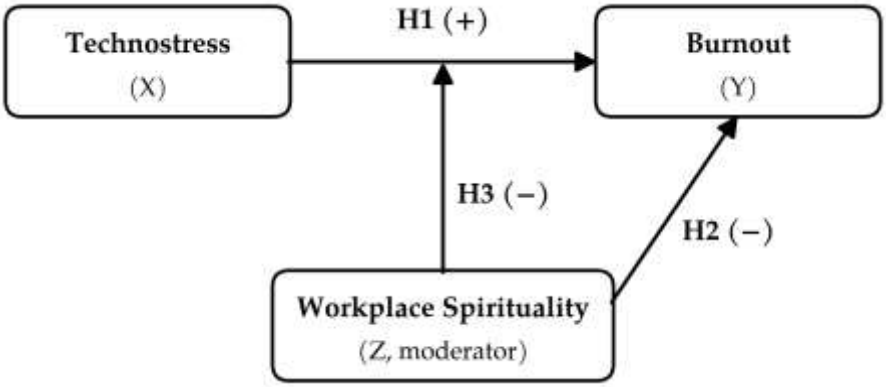
Workplace Spirituality as an Internal Resource

Ashmos & Duchon (2000) conceptualize *workplace spirituality* as the recognition that employees have an inner life that grows through meaningful work in a community context, with three dimensions, namely the meaning of work, inner life, and sense of community. In the perspective of JD-R, these dimensions can be seen as non-material internal resources that increase the capacity of employees to face the demands of work. This view is in line with Nurhikmah (2025), who found that welfare programs function as job *resources* that reduce *burnout* in tech *startup* employees in Makassar, and with Rusydi et al. (2023) who raised religiosity as the basis for a nurse performance model in a hospital in Makassar. Work resources can also act as a moderator on the relationship between digital stress and *burnout* (Puspita & Zamralita, 2023), so that spirituality in the workplace is expected to not only directly reduce *burnout*, but also weaken the impact of *technostress* on *burnout*.

H2: *Workplace spirituality* has a negative and significant effect on *burnout*.

H3: *Workplace spirituality* moderates the influence of *technostress* on *burnout* so that it weakens at a higher level of spirituality.

Based on these three hypotheses, the conceptual framework of the research is presented in Figure 1.



Gambar 1. Kerangka Konseptual

METHODOLOGY

This quantitative study employs an explanatory design to examine causal relationships and the moderating role among variables (Yüce, 2024). Data were collected cross-sectionally through an online survey of banking employees in Makassar. Research ethics were upheld by ensuring respondent anonymity through a consent form at the beginning of the questionnaire. The study population consists of all banking employees in Makassar who use digital systems. The sampling technique employed was purposive sampling (Ahmad & Wilkins, 2025). The criteria used were: (1) a minimum of one year of service to ensure experience with the dynamics of the organization's digital systems, and (2) active users of banking technology in their daily tasks. The sample size was determined following the recommendations of Hair et al. (2019), who suggest a minimum sample size of 5 to 10 times the number of research indicators; thus, the target number of respondents in this study was set at a minimum of 150 to ensure the stability of data estimates.

Variables were measured using a 1–5 Likert scale (Koo & Yang, 2025). Technostress was measured across five dimensions (overload, invasion, complexity, insecurity, uncertainty) developed by Tarafdar et al. (2007). Burnout was measured using the modified Maslach Burnout Inventory (MBI), which includes emotional exhaustion and depersonalization (Widhianingtanti & Luijtelaar, 2022). Meanwhile, workplace spirituality, as a moderating variable, was measured using the Ashmos & Duchon scale, which includes the dimensions of work meaning, inner life, and a sense of community (Ashmos & Duchon, 2000). To examine the relationships among the variables, this study employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) method, conducted using the SmartPLS software (Cheah et al., 2024). The analysis was conducted in two main stages. First, the researchers verified the accuracy of the measurement instruments through an outer model evaluation to ensure that each item was truly valid and consistent. Second, an inner model evaluation was

conducted using the bootstrapping procedure to test the hypotheses. This stage aims to determine whether technostress actually triggers burnout, as well as the extent to which spirituality in the workplace can mitigate these negative effects.

RESEARCH RESULTS

Characteristics of Respondents

This study successfully collected data from 162 respondents working at various banking institutions in Makassar. The respondents' profiles show that the majority (62%) are operational staff and frontline workers. This group consists of banking professionals who interact intensively with digital systems—such as core banking systems and CRM applications—for more than 7 hours each day. Demographically, the respondents were predominantly Millennials and Gen Z (aged 22–38). Although this age group is known for its strong digital literacy, they are actually the group most vulnerable to technostress. This is due to companies' high expectations for instant performance within today's digital banking ecosystem.

Model Quality Test (Outer Model)

Before conducting further testing, the researchers ensured that the measurement tools used were appropriate and reliable through an analysis using SmartPLS 4.0. The results of the convergent validity test showed that each indicator of the research variables had an outer loading value above 0.70, meaning that all questionnaire items were able to represent the measured variables very well. This is supported by the Average Variance Extracted (AVE) values for the variables Technostress (0.592), Burnout (0.634), and Workplace Spirituality (0.601), all of which exceeded the minimum standard of 0.50. Furthermore, based on the Fornell-Larcker criteria, it was found that these variables are truly distinct and do not overlap conceptually (discriminant validity). Finally, the reliability test results, as indicated by Cronbach's Alpha and Composite Reliability (CR) values above 0.80, demonstrate that this research instrument possesses excellent internal consistency for repeated use. A summary of the measurement model evaluation results is presented in Table 1.

Table 1. Summary of Measurement Model Evaluation (*Outer Model*)

Variabel	***Outer Loading***	**AVE**	**Cronbach's Alpha**	***Composite Reliability***
Technostress	> 0,70	0,592	> 0,80	> 0,80
Burnout	> 0,70	0,634	> 0,80	> 0,80
Workplace Spirituality	> 0,70	0,601	> 0,80	> 0,80

Structural Model Test (Inner Model)

To prove the hypothesis proposed, the researcher performed a *bootstrapping procedure* with 5,000 iterations to ensure the statistical accuracy and significance of the research results. The results of the hypothesis testing are presented in Table 2.

Table 2. Hypothesis Testing Results and Path Coefficients

Hipotesis	Path Relationships	Coeficin (β)	T-Statistics	P-Value	Results
H1	*Technostress → Burnout*	0,478	6,215	0,000	Supported
H2	*Workplace Spirituality → Burnout*	−0,245	3,114	0,002	Supported
H3	*Technostress × Workplace Spirituality → Burnout*	−0,192	2,456	0,014	Supported

Table 2 shows that all three hypotheses are supported. Technostress has a positive and significant effect on burnout (H1), workplace spirituality has a negative and significant effect on burnout (H2), and the interaction between the two has a negative and significant effect on burnout (H3), meaning that workplace spirituality moderates the effect of technostress on burnout.

The R^2 value for the Burnout variable is 0.568, indicating that this model has moderate-to-strong predictive power in explaining the phenomenon of workplace burnout in the banking sector in Makassar.

DISCUSSION

The Escalation of Burnout Due to Technostress in the Banking Sector

The results of the data analysis clearly show that technostress acts as the primary factor triggering burnout among banking employees in Makassar. This finding sends a strong signal to management practitioners that massive banking digitization does not always go hand in hand with employees' psychological well-being. More specifically, the dimensions of techno-overload and techno-invasion were identified as the most dominant contributors to stress. This aligns with the findings of Winasis & Riyanto (2020), who noted that the increased workload resulting from technological capabilities often exceeds human cognitive capacity. This situation arises when employees feel that their workload has increased unreasonably due to technological capabilities, while simultaneously feeling overwhelmed because the boundaries between their professional and personal lives have become blurred. The accessibility of technology via mobile devices allows work instructions and coordination via instant messaging to encroach on employees' break times, creating a mentally exhausting sense of being constantly on call (Tams et al., 2020).

In the context of Makassar, which is currently transforming into a major economic hub in Eastern Indonesia, these dynamics become even more complex. The pressure to meet competitive banking targets, coupled with ongoing IT system updates aimed at improving efficiency, actually creates an extraordinary cognitive burden for staff. Theoretically, this phenomenon reinforces the validity of the Job Demands-Resources (JD-R) theory, as emphasized by Puspita & Zamralita (2023), in which technology is positioned as a job demand that depletes psychological energy. If these demands are imposed without sufficient recovery, employees will become trapped in a phase of emotional exhaustion and

depersonalization, which, according to Widhianingtanti & Luijtelaar (2022), are core indicators of work-related burnout. This strong negative impact indicates that without proper stress management, digitalization actually backfires on human resource productivity.

Spirituality in the Workplace as a Resilient Internal Resource

The findings of this study also empirically demonstrate that workplace spirituality plays a significant role in reducing burnout levels among bank employees. These results are highly consistent with the sociocultural context of Makassar society, which is known for upholding religious values and local wisdom such as sipakatau (treating one another with humanity) and sipakalebbi (mutual respect). Spirituality here is not viewed merely as religious ritual activity, but rather as an individual's effort to find meaningful work, in line with the conceptualization by Ashmos & Duchon (2000). These findings reinforce the study by Rusydi et al. (2023), which revealed that local spiritual values can serve as a psychological bulwark for communities in South Sulawesi in coping with modern work pressures.

Employees who are able to interpret every banking transaction or customer service interaction as a form of worship or social contribution to the Makassar community tend to possess stronger mental resilience. This perspective serves as a vital internal resource within the JD-R framework. Strong internal resources can counterbalance high work demands, preventing physical exhaustion from directly transforming into destructive emotional exhaustion (Marlina & Bimo, 2018). This indicates a significant negative correlation, meaning that strengthening the spiritual aspect in the banking work environment in Makassar can effectively slow the rate of increase in burnout. This finding aligns with Nurhikmah's (2025) qualitative study of employees at a technology startup in Makassar, which showed that non-material resources—such as psychological support and team-building activities that strengthen a sense of belonging to the organization—contribute to a reduction in burnout, consistent with the "sense of community" dimension of workplace spirituality.

Moderation Mechanism: The Synergy of Spirituality in Mitigating Technology-Related Stress

The most crucial finding—and a novel contribution of this study—is the effectiveness of workplace spirituality in mitigating or reducing the negative impact of technostress on burnout. The results of the interaction test revealed a significant negative moderation coefficient, confirming the existence of a protective mechanism. In simpler terms, spirituality acts as a psychological buffer that prevents technology-induced stress from escalating into mental exhaustion (Susanto, 2025).

When employees face technical challenges—such as system errors amid long customer lines or the complexity of new application procedures—those working in a highly spiritual environment will exhibit different coping mechanisms. A strong sense of community naturally fosters social support, where employees work together to overcome technical obstacles rather than competing individually (Gunawan, 2024). Spirituality strengthens employees' psychological resilience by providing inner peace in the face of digital uncertainty. These findings directly challenge the conventional view, which

tends to emphasize only technical solutions or material compensation in addressing work-related stress (Nurfadli et al., 2025). Thus, the integration of spirituality into banking management is not merely a supplementary measure, but an essential operational strategy for ensuring that humans retain control over technology.

CONCLUSIONS AND RECOMMENDATIONS

This study successfully demonstrated empirically that technostress is the primary trigger for burnout among banking employees in Makassar. Massive digitalization, while improving operational efficiency, has resulted in excessive cognitive load and the intrusion of technology into employees' private lives. However, workplace spirituality has been shown to significantly act as a mitigating (moderating) variable that weakens the destructive impact of this technostress. Employees who are able to find meaning in their work and feel strong community support tend to have greater inner resilience to persevere amid digital pressures.

Theoretically, this study contributes to the development of the Job Demands-Resources (JD-R) theory by confirming that the spiritual dimension is an essential non-material internal resource in the digital age. Practically, banking management in Makassar is advised to begin adopting digital well-being policies that focus not only on technical training but also on fostering a work environment that supports connections among employees and the internalization of values related to the meaningfulness of work. Integrating aspects of spirituality into organizational culture is expected to serve as a strategic solution for maintaining the mental health and productivity of human resources amid ongoing technological disruption.

ADVANCED RESEARCH

This study has several limitations. First, the cross-sectional design does not allow for strong causal conclusions; therefore, future research is recommended to use a longitudinal or experimental design. Second, the use of purposive sampling among banking employees in a single city limits the generalizability of the findings; thus, further studies could involve other sectors and regions. Third, the data were sourced from an online questionnaire self-administered by the respondents, making them susceptible to perceptual bias; a mixed-methods approach incorporating interviews could enrich our understanding of the mechanisms through which spirituality mitigates technology-related stress. Finally, future research could examine the dimensions of workplace spirituality—namely, the meaning of work, inner life, and a sense of community—separately to determine which dimension plays the most significant role.

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