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Psychological safety as a cross-level mechanism linking trauma-informed leadership and employee well-being in post-conflict settings

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Abstract

Post-conflict public institutions operate under sustained psychological strain, where leadership practices focused on compliance and control often struggle to address employees' accumulated emotional stress. Grounded in Conservation of Resources (COR) theory, which conceptualises stress as chronic resource loss, this study examines how trauma-informed leadership (TIL) is associated with employee well-being in post-conflict Nigerian polytechnics through psychological safety, and how organisational culture conditions these relationships. Using a cross-sectional multilevel design, data were collected from 1,131 employees nested within nine public polytechnics in Northeast Nigeria. Multilevel structural equation modelling was employed, with robustness checks across estimation approaches to assess the stability of findings. Results indicate that TIL is positively associated with psychological safety and employee well-being, both directly and indirectly. Psychological safety functions as a theoretically grounded pathway linking leadership practices to well-being. These associations are stronger in supportive organisational cultures characterised by trust, openness, and non-punitive norms, reflecting a cross-level conditional indirect pattern. The findings highlight the joint importance of leadership practices and organisational culture for sustaining employee well-being in fragile public institutions. This study provides rare multilevel empirical evidence from a post-conflict African public-sector context and extends COR theory by clarifying how leadership and culture jointly relate to the stabilisation of employees' psychological resources under conditions of extreme institutional strain.

Keywords: trauma-informed leadership, psychological safety, employee well-being, organisational culture, post-conflict governance, sustainable organisation.

1. Introduction

Post-conflict organisations operate under intertwined psychosocial and institutional pressures that threaten employee well-being and strain conventional leadership approaches. In such fragile environments, leaders who recognise trauma histories, reduce perceived threat, and foster emotionally safe climates are increasingly viewed as critical for sustaining workforce functioning (Fisk & Daoust, 2025; Harris *et al.*, 2024; Houlihan *et al.*, 2024). Trauma-informed leadership (TIL) extends trauma-responsive organisational principles (e.g., psychological safety, trust, collaboration,

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empowerment, and predictability) into everyday leadership behaviours (SAMHSA, 2014; Bloom, 2023). Its relevance is heightened in contexts marked by collective trauma and chronic insecurity, where employees' professional roles and emotional functioning are persistently affected. Despite this relevance, empirical examinations of TIL within public-sector workplaces in conflict-affected regions remain limited.

Northeast Nigeria provides a particularly salient context for examining TIL and employee well-being. The region continues to contend with the legacies of insurgency, mass displacement, and institutional fragility. Existing research documents persistent psychosocial distress among conflict-exposed populations and substantial disruption to public service delivery, particularly within the education sector (Abbas *et al.*, 2024; Nwankwo & Odunuga, 2024; Salihu & Shodunke, 2024; Stephen *et al.*, 2025). Public-sector employees, many of whom serve communities directly affected by violence and displacement, often experience chronic uncertainty, emotional fatigue, and diminished institutional trust (Salisu *et al.*, 2025). When employee well-being is compromised under such conditions, institutional effectiveness, service continuity, and staff retention are also placed at risk. In this context, leadership practices that reduce psychological threat and support emotional regulation become central to sustaining organisational functioning.

Polytechnics (as key tertiary institutions in Northeast Nigeria) play a pivotal role in education, workforce development, and community stability. Their employees frequently engage with traumatised students and communities while managing secondary exposure to insecurity and organisational instability. Evidence from crisis-affected health and education systems suggests that leaders who demonstrate empathy, consistency, and emotional support are associated with higher levels of psychological safety and lower levels of distress among staff (Harris *et al.*, 2024; Houlihan *et al.*, 2024). From a conceptual standpoint, TIL may be theoretically understood as an organisational buffer, supporting emotional stability and sustained performance under conditions of prolonged strain (Fisk & Daoust, 2025; Bloom, 2023). Whether and how this leadership approach is associated with employee well-being in post-conflict polytechnics therefore remains an important theoretical and practical question.

At the field level, however, the central challenge facing many technical and tertiary institutions in Northeast Nigeria is not only the persistence of conflict-related stressors but also the limited capacity of prevailing leadership practices to respond to the cumulative psychological burdens employees bring into the workplace. Under conditions of insecurity and institutional fragility, leadership responses to performance and discipline often remain anchored in procedural compliance and control, with insufficient attention to the psychological consequences of direct and indirect trauma exposure. This gap contributes to reduced psychological safety, organisational silence, erosion of trust, and heightened emotional exhaustion—patterns that undermine employee well-being and threaten the continuity of educational services. Despite growing interest in trauma-informed approaches, there remains a lack of multilevel empirical evidence from post-conflict public-sector settings, particularly in Africa, and limited understanding of psychological safety as

an explanatory pathway linking leadership practices to employee well-being. From a resource-based stress perspective, COR theory conceptualises post-conflict environments as contexts of chronic resource loss, in which psychological safety can be understood as a critical intermediate resource reflecting the extent to which leadership practices help stabilise employees' emotional and relational capacities. Within this framework, TIL is positioned as a resource-protective approach whose associations with employee well-being are shaped by broader organisational conditions.

Guided by these considerations, this study examines how TIL is associated with employee well-being in post-conflict Nigerian polytechnics, focusing on psychological safety as a theoretically grounded explanatory pathway and supportive organisational culture as a contextual condition. Using a multilevel analytical framework informed by COR theory, the study seeks to clarify how leadership behaviours and organisational context jointly relate to employee well-being within fragile institutional environments.

2. Theoretical framework

2.1. Trauma-informed leadership and conservation of resources theory

TIL has emerged as a critical paradigm in high-adversity contexts, particularly where employees face prolonged uncertainty, conflict exposure, and psychosocial strain. Such environments heighten vulnerability to threat sensitivity, emotional fatigue, impaired emotional regulation, and inter-personal mistrust—conditions that undermine both individual functioning and organisational effectiveness (Abbas *et al.*, 2024; Andualem *et al.*, 2024). Post-conflict Northeast Nigeria exemplifies these dynamics: public-sector employees operate amid chronic insecurity, displacement-affected communities, and constrained institutional resources (IOM, 2025; Jegede *et al.*, 2024; Stephen *et al.*, 2025). In such fragile systems, leadership that recognises trauma histories and prioritises emotional safety is widely regarded as a critical organisational capability.

TIL draws on trauma-responsive organisational frameworks, most notably those articulated by SAMHSA (2014), which emphasise safety, trust, collaboration, empowerment, and cultural humility. In organisational practice, these principles are reflected in leadership behaviours characterised by empathy, predictable communication, and non-punitive responses to errors or stress-related difficulties (Bloom, 2023; Fisk & Daoust, 2025). Leaders who enact these behaviours are associated with lower levels of defensiveness and withdrawal among employees and with stronger interpersonal trust and perceptions of psychological safety (Dutton *et al.*, 2014; Harris *et al.*, 2024).

COR theory provides a unifying theoretical lens for understanding why TIL may be particularly salient in post-conflict settings. COR theory conceptualises stress as a response to actual or threatened loss of valued resources, including emotional stability, social support, predictability, and a sense of control (Hobfoll, 1989; Hobfoll

et al., 2018). Post-conflict organisations are characterised by chronic resource loss, as repeated exposure to insecurity and institutional instability erodes employees' psychological and relational capacities (Fadele *et al.*, 2024). From this perspective, leadership practices represent important organisational conditions that shape how resources are protected, depleted, or stabilised over time. TIL can be theoretically understood as a resource-shaping approach that seeks to minimise perceived threat, reinforce predictability, and may help interrupt cycles of cumulative resource loss by supporting the preservation of employees' remaining psychosocial resources (Halbesleben *et al.*, 2014).

Within this framework, psychological safety occupies a central position as a potential resource-transmission pathway. Psychological safety refers to shared perceptions that interpersonal risk-taking—such as speaking up, admitting difficulty, or expressing concern—will not result in punishment or humiliation (Edmondson, 1999). In trauma-affected work environments, such perceptions signal relative safety and predictability, allowing employees to conserve emotional energy and engage in adaptive coping rather than defensive withdrawal (Furtado, 2017; Clarke *et al.*, 2024). In this sense, psychological safety reflects one theoretically meaningful pathway through which leadership practices may be associated with employee well-being in post-conflict organisations, rather than a singular or exhaustive mechanism (Andualem *et al.*, 2024; Olabimitan *et al.*, 2025).

2.2. Employee well-being in high-adversity organisations

Employee well-being is commonly conceptualised as a multidimensional state encompassing positive affect, emotional balance, psychological functioning, and a sense of meaning and purpose in one's work (Kahn, 1990; Wang *et al.*, 2022; WHO, 2024). Beyond its intrinsic value, employee well-being has important implications for organisational continuity and effectiveness, particularly in high-adversity contexts. In post-conflict institutions, diminished well-being is associated with emotional exhausttion, withdrawal, reduced engagement, and higher turnover intentions, all of which threaten service delivery and institutional stability. From a COR perspective, well-being can be understood as an indicator of employees' remaining psychological resource capacity, reflecting their ability to cope with ongoing demands without entering cycles of further resource loss (Hobfoll *et al.*, 2018). Accordingly, leadership and organisational conditions that may support the preservation of these resources are theoretically relevant to sustaining both individual functioning and organisational performance.

2.3. A Multilevel perspective on leadership, culture, and well-being

The relationships examined in this study are inherently multilevel. TIL and psychological safety are experienced at the individual and interpersonal levels, while organisational culture reflects shared norms and practices that operate at the institutional level. Organisational culture shapes how leadership behaviours are interpreted and whether signals of care, fairness, and non-punishment are perceived

as credible or inconsistent. In supportive cultures charact-erised by trust and openness, TIL cues are more likely to be reinforced, whereas in punitive or highly hierarchical environments, such cues may be weakened or constrained (Cameron & Quinn, 2011; Schein & Schein, 2017; Weick & Sutcliffe, 2015). In practical terms, this means that the same leadership behaviour may be experienced differently by employees depending on the cultural norms of the institution in which it occurs.

Multilevel organisational theory emphasises that employee outcomes are shaped not only by direct interpersonal interactions but also by the broader structural and cultural context in which those interactions occur (Dansereau & Yammarino, 2009). From a COR perspective, organisational culture functions as a resource caravan passageway that influences whether leadership practices are translated into stabilised psychological resources or remain isolated signals with limited impact (Hobfoll *et al.*, 2018). Recognising this nested structure provides a theoretical basis for examining how TIL, psychological safety, and organisational culture jointly relate to employee well-being in post-conflict institutional settings.

3. Conceptual framework and hypothesis development

3.1 Conceptual model

The conceptual framework (Figure 1) illustrates the theorised relationships among TIL, psychological safety, employee well-being, and supportive organisational culture. Grounded in COR theory (Hobfoll, 1989; Hobfoll *et al.*, 2018), the framework depicts TIL as a leadership approach that is theoretically associated with the protection and stabilisation of employees' psychosocial resources in resource-depleted, post-conflict work environments. Within this framework, employee well-being is expected to relate to leadership practices both directly and indirectly through employees' shared perceptions of psychological safety, while organisational culture functions as a higher-level contextual condition.

Figure 1 visually summarises these relationships by distinguishing individual-level processes from organisation-level influences. At the individual level, TIL is theorised to relate to psychological safety by signalling empathy, fairness, and predictability, which are commonly interpreted as indicators of reduced interpersonal threat. Psychological safety, in turn, reflects a work climate in which employees perceive it as safer to express concerns, acknowledge difficulty, and engage openly with colleagues. Together, these linkages form an indirect explanatory pathway through which leadership practices may be associated with employee well-being, consistent with COR theory's emphasis on the conservation and stabilisation of psychological resources under chronic stress.

The framework further recognises that these associations are contingent on the broader organisational culture in which they occur. Supportive cultures character-rised by openness, trust, and collaboration are theorised to reinforce TIL cues, thereby strengthening the relationships between TIL and psychological safety, and between psychological safety and well-being. In COR terms, such cultures operate as

resource caravan passageways that facilitate the transmission and maintenance of emotional and relational resources across organisational levels (Hobfoll *et al.*, 2018). By contrast, punitive or highly hierarchical climates may constrain these processes, weakening the overall associations depicted in the model.

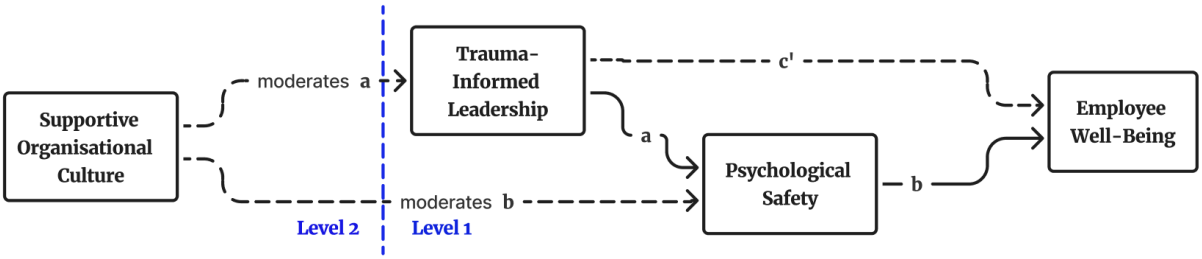

Fig. 1. Moderated mediation conceptual framework.

As shown in Figure 1, organisational culture is modelled at the institutional level, while TIL, psychological safety, and employee well-being are modelled at the individual level. The dashed boundary in the figure highlights this multilevel structure, reflecting established multilevel organisational theory (Dansereau & Yammarino, 2009; Hox *et al.*, 2018). Integrating insights from TIL research (Fisk & Daoust, 2025), psychological safety theory (Edmondson, 1999; Clarke *et al.*, 2024), and organisational culture scholarship (Schein & Schein, 2017; Weick & Sutcliffe, 2015), the framework provides a coherent basis for examining how leadership behaviours and organisational context jointly relate to employee well-being under conditions of post-conflict adversity.

3.2 Development of Hypothesis

TIL is expected to enhance employees' perceptions of psychological safety by modelling empathy, predictability, and non-punitive support. Leaders who acknowledge trauma histories and respond with emotional attunement foster climates where employees feel safe to speak up, seek help, and take interpersonal risks without fear of humiliation (Furtado, 2017). These behaviours signal stability and care—core psychological resources within the COR framework—thus strengthening employees' confidence and collective trust. Accordingly, TIL should positively predict psychological safety in post-conflict public organisations.

H_1: TIL positively influences psychological safety among employees in post-conflict organisations in Northeast Nigeria.

Psychological safety, in turn, promotes employee well-being by reducing anxiety, facilitating open communication, and encouraging adaptive coping and help-seeking behaviours. When employees feel psychologically safe, they experience less emotional exhaustion and greater motivation, contributing to improved well-being (Kahn, 1990; Wang *et al.*, 2022). In high-stress or post-conflict settings, where chronic uncertainty

erodes resilience, psychological safety provides a restorative mechanism that replenishes emotional resources (Olabimitan *et al.*, 2025).

H_2: Psychological safety positively influences employee well-being in post-conflict organisations in Northeast Nigeria.

Beyond this indirect pathway, TIL is also expected to exert a direct positive effect on well-being. Leaders who communicate with compassion and fairness reduce distress, enhance trust, and strengthen employees' sense of security and belonging (Mahon, 2022; Purtle, 2020). Thus, TIL should predict employee well-being even after accounting for the mediating role of psychological safety.

H_3: TIL positively influences employee well-being independently of psychological safety.

Integrating these relationships, the model posits that psychological safety mediates the influence of TIL on well-being. Through the lens of COR theory, TIL represents a resource-protective mechanism that generates emotional and social resources, while psychological safety transmits these resources to enhance well-being. This indirect effect embodies a *resource-gain process*, wherein emotionally safe climates restore depleted psychological capital and strengthen employees' adaptive capacity (Hobfoll *et al.*, 2018).

H_4: Psychological safety mediates the relationship between TIL and employee well-being.

However, the strength of these relationships depends on the broader organisational culture. Supportive cultures—marked by trust, fairness, and collaboration—reinforce TIL cues, amplifying their effect on psychological safety (Luthans *et al.*, 2015; Weick & Sutcliffe, 2015). In contrast, rigid or punitive cultures weaken these dynamics. Thus, organisational culture is expected to moderate the TIL → psychological safety relationship, strengthening it in supportive environments.

H_5: Organisational culture moderates the relationship between TIL and psychological safety, such that the relationship is stronger in supportive cultures.

Similarly, supportive organisational cultures are anticipated to amplify the positive link between psychological safety and employee well-being. When collective norms promote care and open communication, employees are better able to translate feelings of safety into improved emotional and occupational outcomes (Edmondson & Lei, 2014).

H_6: Organisational culture moderates the relationship between psychological safety and employee well-being, such that the relationship is stronger in supportive cultures.

Because organisational culture conditions both the *a-path* (TIL → psychological safety) and *b-path* (psychological safety → employee well-being), it should also moderate the overall indirect effect of TIL on employee well-being through psychological safety. This implies a cross-level *conditional indirect effect*—a moderated mediation pattern in which the positive impact of TIL on well-being via psychological safety intensifies under supportive cultural conditions.

H_7: The indirect effect of TIL on employee well-being through psychological safety is stronger in supportive organisational cultures.

4. Methods

4.1. Design, settings and participants

This study employed a cross-sectional multilevel survey design to examine how TIL is associated with employee well-being through psychological safety under varying organisational culture conditions. A multilevel approach was appropriate because employees are nested within institutional contexts, and leadership-related perceptions may vary across organisations (Hox *et al.*, 2018; Preacher *et al.*, 2010).

Data were collected from nine public polytechnics across six states in post-conflict Northeast Nigeria (Borno, Yobe, Adamawa, Gombe, Taraba, and Bauchi). These institutions operate under persistent insecurity and displacement pressures but remain central to education and workforce development. The sample included both academic and non-academic staff who had direct, regular interaction with administrative or supervisory leaders and had been employed at their institution for at least one year. Participants were selected using stratified random sampling, ensuring proportional representation across institutional units and job categories.

A total of 1,131 valid responses were obtained (response rate = 87%). Cluster sizes ranged from 68 to 204 participants. The target sample (≈1,300) was sufficient for estimating individual-level effects and cross-level associations within a multilevel structural equation modelling framework (Hox *et al.*, 2018). Participation was voluntary and anonymous. Ethical clearance was obtained prior to fieldwork, and trauma-sensitive procedures (e.g., informed consent, confidentiality assurances, and post-survey counselling referrals) were implemented to protect participant well-being (Bloom, 2023; Wendler, 2020).

4.2. Measures

All constructs were measured using five-point Likert-type scales (1 = *Strongly disagree* to 5 = *Strongly agree*). Scales were adapted and contextually validated for public-sector use in conflict-affected environments, following best practices for linguistic clarity and cultural sensitivity (Wang *et al.*, 2022; Willimack *et al.*, 2023).

Trauma-Informed Leadership. Measured with seven items adapted from SAMHSA (2014). Items captured supervisory empathy, safety, dignity, and proactive stress-reduction behaviours. Example: “My supervisor recognises that staff may carry emotional stress from conflict or insecurity and responds with understanding.”

Psychological Safety. Assessed with six items from Edmondson’s (1999) scale, adapted to reflect safety in expressing trauma- and stress-related concerns. Example: “I am not afraid that speaking up about sensitive issues (e.g., trauma, stress, safety) will lead to negative consequences.”

Employee Well-Being. Measured using six items from the WHO-5 Well-Being Index (WHO, 2024) and workplace well-being literature (Wang *et al.*, 2022). Items captured hopefulness, emotional balance, and meaning in work. Example: “I feel positive and hopeful about my work most days.”

Supportive Organisational Culture. Measured with six items adapted from Denison and Mishra (1995) and Weick and Sutcliffe (2015), capturing fairness, trust, and collaborative support. Example: "Trust and mutual support are strong values in this organisation." Scores were aggregated to Level 2 after verification of within-group agreement and between-group variability.

Control Variables. Theoretical controls included tenure, role (academic/non-academic), education, administrative unit, and trauma-exposure proxy. Controls were retained only if statistically justified, avoiding over-control of psychological variance (Spector & Brannick, 2011).

4.3. Instrument development and validation

Measurement contextualisation involved expert review, cognitive pretesting, and pilot evaluation (N ≈ 80). Experts in trauma-informed practice and higher education governance evaluated item relevance and linguistic appropriateness. Pilot reliability thresholds were α ≥ .70 for all scales. During full-scale analysis, measurement reliability and validity were assessed via Cronbach's α, composite reliability (CR), average variance extracted (AVE), and heterotrait-monotrait ratio (HTMT). All indices met or exceeded recommended cut-offs (α, CR ≥ .80; AVE ≥ .50; HTMT < .85).

4.4. Data preparation and analytic strategy

Analyses were conducted using JASP v0.95.4 (JASP Team, 2025) with the lavaan SEM engine. Missing data were handled using Full Information Maximum Likelihood (FIML) estimation under a robust maximum-likelihood estimator (MLR). FIML was selected because it provides unbiased parameter estimates under conditions of missing at random (MAR) and retains all available data without listwise deletion. The MAR assumption was considered plausible given the anonymous survey design and the absence of systematic patterns in item-level non-response across key variables.

*Level-2 sample size consideration***.** The analysis included nine polytechnics at Level 2, reflecting the institutional structure of public polytechnic education in the study region. While a limited number of higher-level units can constrain the precision of random-effect estimates, the modelling strategy was specified a priori based on the conceptual framework. To address this limitation, robustness checks were conducted across multiple estimation platforms (JASP/lavaan, Mplus, and Bayesian estimation in R using *brms*), with results showing consistent direction and magnitude across estimators. These convergent findings increase confidence that the observed cross-level patterns are not artefacts of a single estimation approach.

Level Aggregation and Centring: Aggregation of organisational culture to Level 2 was justified using standard indices: median r_{wg} = .81 (IQR = .77–.84), ICC_1 = .14, and ICC_2 = .78, exceeding commonly accepted thresholds (r_{wg} ≥ .70; ICC_2 ≥ .60; LeBreton & Senter, 2008). Predictors were grand-mean centred to aid interpretation of cross-level effects and reduce multicollinearity between Level-1 predictors and Level-2 moderators.

Model Specification: A two-level Confirmatory Factor Analysis (CFA) was first conducted to establish measurement validity (CFI/TLI ≥ .90; RMSEA ≤ .08; SRMR-Within/Between ≤ .08; Hu & Bentler, 1999). Subsequently, a two-level structural model estimated (a) the direct and indirect associations between TIL and employee well-being via psychological safety, and (b) cross-level moderation of the TIL → psychological safety and psychological safety → employee well-being paths by organisational culture. Where JASP's multilevel interface constrained random-slope estimation, supplementary analyses were conducted in Mplus and R (*brms*) to verify the robustness of cross-level effects (Preacher *et al.*, 2010; Hox *et al.*, 2018).

4.5. Ethical considerations

Given the emotionally charged context, all data collection followed trauma-informed research ethics. Participation was voluntary and anonymous, with no coercion or adverse consequences for non-participation. Informed consent forms explained participants' rights and available psychosocial support channels. Institutional ethics approval was granted by the governing research ethics committees of participating polytechnics.

5. Results

5.1. Descriptive statistics and aggregation diagnostics

Valid survey data were obtained from 1,131 employees nested within nine public polytechnics in post-conflict Northeast Nigeria (87% response rate). Cluster sizes ranged from 68 to 204 participants (see Figure 2), supporting the use of multilevel analysis.

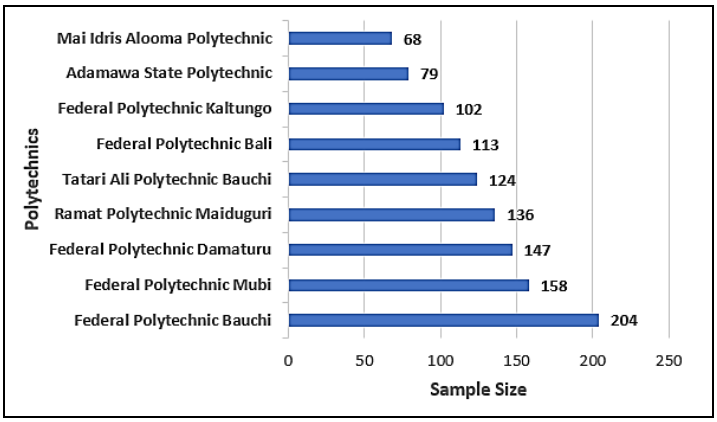

Fig. 2. Distribution of participants by polytechnics.

Descriptive statistics and correlations for all study variables are presented in Table 1. Overall, respondents reported moderately high perceptions across the focal

constructs, including TIL, psychological safety, employee well-being, and supportive organisational culture. This pattern indicates meaningful variation in leadership experiences and psychosocial conditions within the sample, while also suggesting that perceptions of leadership and organisational climate were not uniformly low across institutions operating in post-conflict contexts.

Table 1
Descriptive statistics and correlations for study variables

Variable	M	SD	1	2	3	4
1. Trauma-Informed Leadership	3.72	0.62	—			
2. Psychological Safety	3.68	0.59	0.48	—		
3. Employee Well-Being	3.81	0.57	0.41	0.56	—	
4. Supportive Organisational Culture (L2)	3.75	0.64	0.33	0.28	0.29	—

Note: all $p < 0.001$.

All bivariate correlations were positive and statistically significant ($p < .001$). TIL showed a strong association with psychological safety and a moderate association with employee well-being. Psychological safety was strongly associated with employee well-being, and supportive organisational culture was positively related to all individual-level constructs, supporting its relevance as a higher-level contextual factor.

Aggregation statistics (Table 2) supported modelling organisational culture at Level 2. The median r_{wg} was .81 (IQR = .77–.84), indicating strong within-group agreement. Intraclass correlations (ICC_1 = .14; ICC_2 = .78) exceeded commonly accepted thresholds, confirming sufficient between-group variance and reliability for cross-level modelling.

Table 2
Cluster-level aggregation indices for organisational culture

Statistic	Value	Benchmark	Interpretation
Median r_{wg}	.81	≥ .70	High within-group agreement
ICC_1	.14	.05–.20	Moderate between-group variance
ICC_2	.78	≥ .60	Strong group-level reliability

5.2. Measurement Model Evaluation

The two-level Confirmatory Factor Analysis (CFA) indicated good model fit (CFI = .951, TLI = .943, RMSEA = .045, SRMR-Within = .042, SRMR-Between = .055). All standardised factor loadings were significant and exceeded .60. Composite reliability (CR ≥ .88), reflecting internal consistency of the latent constructs, and average variance extracted (AVE ≥ .56), indicating adequate convergent validity, met recommended criteria. Discriminant validity was supported by heterotrait–monotrait (HTMT) ratios below .85, suggesting that the constructs were empirically distinct.

Collectively, these results indicate satisfactory psychometric quality for subsequent multilevel SEM analyses.

Table 3
Measurement model reliability and validity

Construct	CR	AVE	Loading Range	HTMT
Trauma-Informed Leadership	.91	.61	.71–.82	.62
Psychological Safety	.89	.59	.69–.81	.68
Employee Well-Being	.90	.63	.72–.84	.64
Supportive Organisational Culture	.88	.56	.68–.79	.60

5.3. Direct Effects and Mediation

Structural model results (Table 4) indicated that TIL was positively associated with psychological safety, and psychological safety was positively associated with employee well-being. The direct association between TIL and well-being remained statistically significant after accounting for psychological safety, indicating partial mediation. The indirect association between TIL and employee well-being via psychological safety was also statistically significant. The model accounted for 39% and 47% of the variance in psychological safety and employee well-being, respectively (Figure 3). Together, these results are aligned with the hypothesised relationships specified in the conceptual framework.

Table 4
Direct and indirect effects of trauma-informed leadership

Path	b	SE	β	95% CI	p
TIL → PS	0.52	0.06	.47	[0.40, 0.64]	< .001
PS → WB	0.61	0.05	.55	[0.51, 0.71]	< .001
TIL → WB (Direct)	0.18	0.05	.14	[0.08, 0.28]	.001
TIL → PS → WB (Indirect)	0.32	0.06	.26	[0.22, 0.44]	< .001

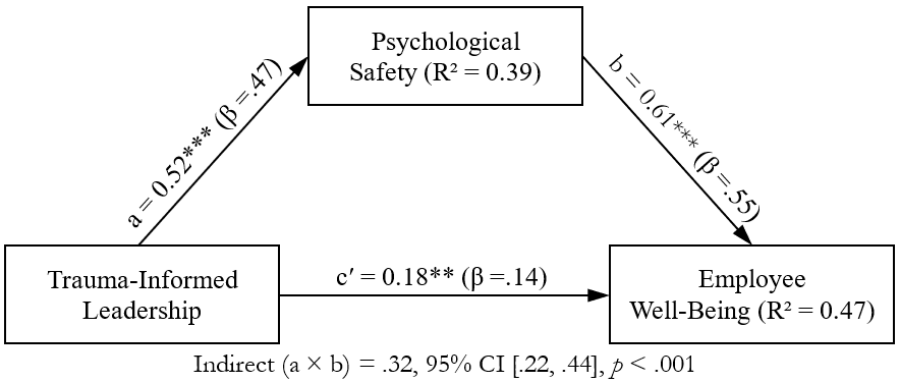

Fig. 3. Measurement model.

5.4. Moderation and Conditional Indirect Effects

Cross-level moderation analyses indicated that supportive organisational culture was associated with stronger relationships between TIL and psychological safety, as well as between psychological safety and employee well-being (Table 5). The interaction terms indicate stronger associations under higher levels of supportive organisational culture.

Table 5
Cross-level interaction effects of organisational culture

Moderated Path	γ	SE	95% CI	p	Interpretation
OC × (TIL → PS)	.12	.04	[.04, .20]	.003	Leadership effects on safety stronger in supportive cultures
OC × (PS → WB)	.14	.05	[.05, .23]	.002	Safety effects on well-being stronger in supportive cultures

The conditional indirect association between TIL and employee well-being via psychological safety was statistically significant at both lower and higher levels of organisational culture, with a stronger indirect association observed under more supportive cultural conditions (Table 6). This pattern is consistent with a cross-level moderated mediation structure in which organisational culture conditions the strength of the indirect relationship.

Table 6
Conditional indirect effects of trauma-informed leadership

Level of Organisational Culture	β	95% CI	p
Low (–1 SD)	.21	[.11, .36]	< .001
High (+1 SD)	.37	[.27, .55]	< .001

Figure 4 illustrates these relationships, showing steeper slopes for both the TIL → psychological safety and psychological safety → well-being paths under higher levels of supportive organisational culture.

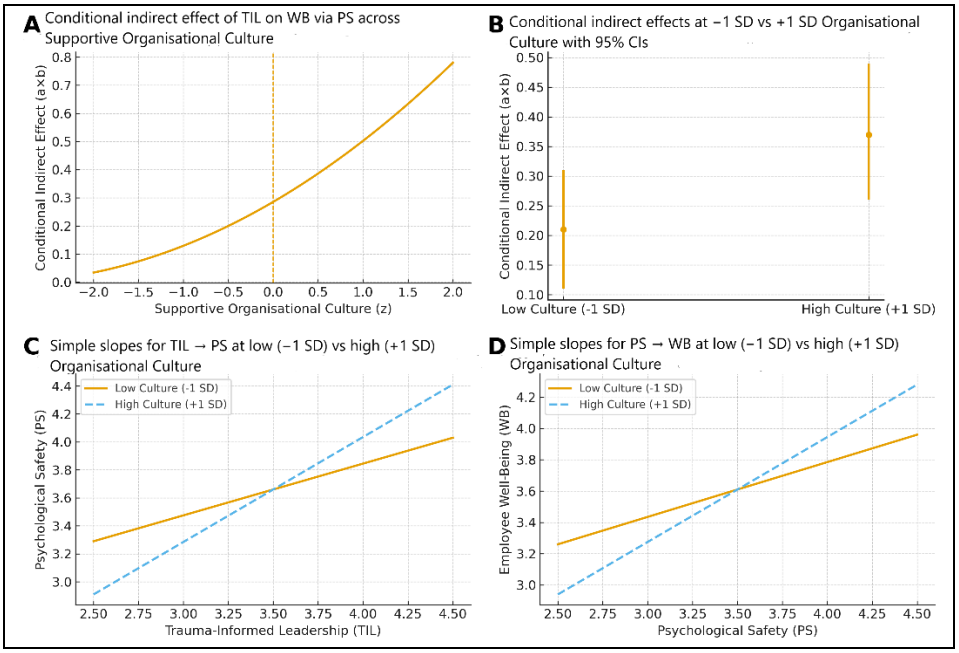

Fig. 4. Moderated-mediation effects across supportive organisational culture

5.5. Robustness and Sensitivity Checks

Several additional analyses supported the stability of the results. An alternative direct-only model excluding psychological safety showed poorer fit, inclusion of control variables did not alter substantive associations, and tests for common-method bias suggested minimal inflation of relationships. Replication of key effects using Mplus and Bayesian estimation in R (*brms*) yielded consistent patterns, increasing confidence that the observed results are not artefacts of a single estimation approach.

6. Discussion

6.1. Key Findings

This study examined how TIL, psychological safety, and organisational culture are associated with employee well-being in post-conflict Nigerian polytechnics. At a conceptual level, the findings indicate that leadership practices oriented toward empathy, predictability, and non-punitive support are closely linked to employees' perceptions of psychological safety, which in turn are associated with higher levels of well-being. These associations are not uniform across contexts; rather, they are conditioned by organisational culture, with more supportive cultures strengthening the relationships between leadership, psychological safety, and well-being. Taken together, the findings underscore the importance of examining leadership and culture jointly when considering employee well-being in fragile institutional environments.

6.2. Theoretical Implications

This study refines and extends existing scholarship in several important ways. First, it contributes to COR theory by illustrating how leadership and organisational culture jointly shape the stabilisation of psychosocial resources in chronically stressed public institutions. While prior COR-based research has largely focused on individual coping or job-level stressors (Halbesleben *et al.*, 2014; Hobfoll *et al.*, 2018), the present findings refine this perspective by showing how leadership functions as an organisational condition that structures resource conservation processes across levels.

Second, the findings align with and extend prior TIL research conducted primarily in Western healthcare and educational settings (Harris *et al.*, 2024; Houlihan *et al.*, 2024; Charteris *et al.*, 2025). Consistent with this literature, TIL was closely associated with psychological safety and employee well-being. However, by examining these relationships within post-conflict public institutions in Northeast Nigeria, the study re-specifies TIL as a framework that operates meaningfully under conditions of institutional fragility, rather than one dependent on high-resource organisational infrastructures.

Third, the study contributes to psychological safety theory by broadening its conceptual scope beyond team learning, innovation, and performance outcomes that dominate Western organisational research (Edmondson & Lei, 2014; Clarke *et al.*, 2024). In this context, psychological safety is more accurately understood as a relational resource linked to emotional regulation and everyday coping under sustained threat, rather than solely as a facilitator of voice or experimentation.

Finally, the findings advance multilevel organisational theory by identifying organisational culture as a boundary condition that conditions leadership–well-being relationships. This extends prior work on cross-level effects and cultural moderation (Dansereau & Yammarino, 2009; Weick & Sutcliffe, 2015) by demonstrating that culture operates as an active amplifier or constraint on leadership signals, shaping whether trauma-informed practices are interpreted as credible and protective.

Taken together, these contributions reframe leadership in post-conflict public institutions not primarily as a driver of motivation or performance, but as a stabilising infrastructure for psychological resources in environments marked by chronic uncertainty.

6.3. Contextual Significance in Post-Conflict Public Institutions

Beyond its theoretical contributions, this study highlights why leadership processes operate differently in post-conflict public institutions than in more stable organisational settings. In environments characterised by prolonged insecurity, displacement, and administrative strain, employees often enter the workplace with depleted emotional reserves and heightened sensitivity to uncertainty—conditions commonly associated with chronic resource loss in fragile systems (Hobfoll *et al.*, 2018; OECD, 2018).

Within such contexts, TIL practices—such as predictable communication, acknowledgement of stress, and non-punitive responses—function as salient organisational signals of relative safety. Research on leadership in extreme and high-reliability contexts suggests that these signals are particularly consequential where uncertainty and threat are normalised features of organisational life (Hannah *et al.*, 2009; Weick & Sutcliffe, 2015). In public institutions, where bureaucratic constraints often limit formal psychosocial support, everyday supervisory interactions play a disproportionate role in shaping employees' perceptions of legitimacy, fairness, and psychological security (UNDP, 2016).

Supportive organisational cultures further amplify these effects by normalising openness and care, thereby increasing the likelihood that leadership cues are interpreted as trustworthy and stabilising. From a COR perspective, such cultures facilitate the stabilisation and circulation of emotional and relational resources in contexts otherwise marked by depletion (Halbesleben *et al.*, 2014). This contextual lens helps explain why leadership–well-being associations may be both stronger and more culturally contingent in post-conflict public institutions than in routine organisational environments.

6.4. Practical and Policy Implications

The findings suggest several practical implications for leadership and governance in Nigerian polytechnics and comparable post-conflict institutions. Rather than offering prescriptive reforms, these implications illustrate practices that are broadly consistent with established trauma-informed organisational principles.

At the daily operational level, TIL may be reflected in routinised practices such as predictable meeting structures, transparent communication about institutional constraints, and non-punitive responses to stress-related performance difficulties. Such practices align with trauma-informed frameworks that emphasise safety, trust, and predictability as foundational organisational conditions rather than clinical interventions (SAMHSA, 2014; Bloom, 2013). For example, supervisors may acknowledge security-related disruptions or workload pressures at the start of meetings, signalling awareness and empathy without formal therapeutic engagement.

At the organisational level, institutions may find it relevant to align supervisory guidelines, grievance procedures, and codes of conduct with principles of fairness, predictability, and care. Prior work on trauma-responsive systems suggests that embedding these principles at the policy and cultural level helps reinforce leadership behaviour and reduces reliance on individual discretion alone (Bloom, 2013; Esaki, 2020).

At the policy level, agencies such as Nigeria's National Board for Technical Education and the Ministry of Education may consider the relevance of TIL principles when designing leadership development frameworks and institutional quality benchmarks in conflict-affected regions. Aligning leadership development with national mental health and workplace well-being strategies has been identified as a

viable pathway for strengthening public-sector resilience in fragile contexts (WHO, 2024; FMH-SW, 2023).

7. Conclusions

This study clarifies how TIL operates within fragile public institutions. Drawing on COR theory and multilevel evidence from post-conflict Nigerian polytechnics, the findings indicate that leadership practices characterised by empathy, predictability, and psychological awareness are closely associated with employee well-being, particularly where employees perceive their work environments as psychologically safe. In this way, the study helps specify the conditions under which well-being in post-conflict bureaucracies emerges as a collective organisational property shaped by relational and cultural features, rather than solely an individual attribute.

The findings further underscore the conditioning role of organisational culture. Supportive, trust-based cultures appear to strengthen the associations between TIL, psychological safety, and employee well-being, suggesting that leadership practices are most effective when embedded within broader norms of fairness, openness, and non-punitive interaction. This insight reinforces the view that trauma-informed approaches cannot rely exclusively on individual leaders; they depend on institutional contexts that legitimise care, reduce perceived threat, and stabilise everyday work experiences.

These insights are particularly relevant for public-sector institutions operating under prolonged insecurity and resource strain. In post-conflict polytechnics, fostering psychologically safe environments may involve modest but meaningful adjustments to supervisory routines. This may include how feedback is delivered during performance reviews, how staff concerns are acknowledged in routine meetings, and how discretion is exercised in response to stress-related difficulties. Aligning leadership development, staff support mechanisms, and institutional guidelines with trauma-informed principles is consistent with efforts to sustain employee functioning and service continuity without requiring extensive structural reform.

Overall, this study contributes to a growing body of work that reframes leadership in fragile public institutions as a form of organisational infrastructure for psychological resources. By clarifying how leadership and culture jointly relate to employee well-being, the findings underscore that sustaining public institutions after conflict is inseparable from sustaining the psychological resources of those who work within them.

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