

THE MEDIATING EFFECT OF JOB EMBEDDEDNESS ON THE RELATIONSHIP BETWEEN
NURSING CULTURE AND PATIENT SAFETY CLIMATE AMONG MEDICAL-SURGICAL
WARD NURSES IN SELECTED PRIVATE HOSPITALS IN DAVAO DEL NORTE

Donna Grace B. Palen, RN

Davao Doctor's College, Inc.
Davao City, Philippines

Abstract

This study aimed to investigate the mediating role of job embeddedness on the relationship between nursing culture and patient safety climate among medical-surgical ward nurses in secondary private hospitals in Davao del Norte, Philippines. Conducted from August to December 2025, the study used a quantitative correlational design with convenience sampling to select 164 full-time nurses with at least one year of clinical experience, which may limit generalizability. Data were collected using validated instruments—the Job Embeddedness Scale (JES), the Nursing Culture Assessment Tool (NCAT), and the Safety Climate Survey (SCS)—and analyzed using descriptive statistics and partial least squares structural equation modeling (PLS-SEM). Nursing culture demonstrated a high level overall (mean = 3.45, SD = 0.58), particularly in professional commitment (mean = 3.56). Job embeddedness was also high (mean = 3.89, SD = 0.91), especially in the fit dimension (mean = 4.14). Patient safety climate was positively perceived with a high overall mean of 3.99 (SD = 0.80). Significant positive correlations were found between nursing culture and job embeddedness ($r_s = .551$ to $.722$, $p < .001$), job embeddedness and patient safety climate ($r_s = .709$, $p < .001$), and nursing culture and patient safety climate ($r_s = .570$, $p < .001$); these r_s values represent bivariate associations and should be interpreted alongside the PLS-SEM structural paths. Mediation analysis confirmed that job embeddedness partially mediated the relationship between nursing culture and patient safety climate (indirect effect $\beta = 0.417$, $p < .001$). These findings imply that strengthening nursing culture (e.g., reinforcing professional commitment, supportive norms, and teamwork) may deepen nurses' embeddedness and support a stronger patient safety climate; therefore, nurse leaders and hospital administrators should prioritize culture-building and retention-focused strategies (such as supportive leadership practices, recognition systems, and communication structures) to improve both safety outcomes and workforce stability in private hospital settings.

Keywords: *Nursing Culture, Job Embeddedness, Patient Safety Climate, Mediation Analysis, PLS-SEM, Davao del Norte*

Corresponding email: mspalenrn@gmail.com
ORCID ID: <https://orcid.org/0009-0009-5894-3419>

Introduction

Nurses working in medical-surgical wards often face patient safety challenges because of poor work environments and low job commitment. When communication is top-down and errors are met with discipline, nurses may be less likely to report hazards, contributing to underreporting and missed

learning opportunities (Liu, 2021; Chen et al., 2023). Nurses who handle complex and unpredictable cases may also feel less committed to their organizations, particularly when they perceive weak person–organization fit or believe they would lose little by leaving, which can reduce sustained adherence to

safety protocols and participation in safety routines (Coetzer et al., 2024; Rivera et al., 2024). Problems with communication during handovers and medication administration further increase patient risks by creating preventable gaps in coordination and information transfer.

Globally, nursing culture, job embeddedness, and patient safety climates vary across health systems. North American systems often emphasize individual responsibility, whereas European models more strongly emphasize collective behaviors and shared team accountability (Arias-Botero et al., 2023; Brubakk et al., 2021). Strong job embeddedness has been associated with reduced turnover and improved workforce stability (Coetzer et al., 2024). In several Asian contexts, hierarchical structures may still suppress error reporting despite formal safety measures, potentially weakening psychological safety and limiting learning from near misses (Kim et al., 2023). Some published figures (e.g., medication error reduction linked to positive work environments and mentorship) are frequently cited and should be verified against the specific primary report and setting to ensure accurate attribution (Williams & Harris, 2022).

In the Philippines, nursing culture continues to face challenges related to hierarchy, staffing, and resource availability. Reports describing these challenges often present specific proportions (e.g., hierarchy concerns, staffing shortages, and limited resources) and these statistics should be cross-checked with the original source documents and clearly attributed to the correct population and setting (Alibudbud, 2023). Among ward nurses, concerns that administrative rules emphasize metrics over clinical judgment may limit flexibility to implement safety improvements, particularly under time pressure (Santana, 2024). Burnout and resource constraints are also frequently cited as factors that can weaken commitment and reduce willingness to support broader organizational goals; however, these

estimates likewise require clear sourcing and careful linkage to the appropriate study context (Rivera et al., 2024).

In private hospitals in Davao del Norte, nurses have described barriers consistent with hierarchical communication that can limit open discussions about safety and contribute to under-attention to errors when staffing is constrained (Arias-Botero et al., 2023; Gonzalez, 2023). Long-standing practices and limited resources may also make safety interventions difficult to adopt and sustain, particularly when unit routines are fixed and improvement efforts compete with workload demands (Nguyen et al., 2023). Reports of “quiet quitting” and declines in near-miss reporting have been interpreted as signals that cultural barriers may be undermining the safety climate, although the specific percentages cited should be verified and explicitly tied to the correct dataset and setting (Chen et al., 2023).

Despite growing evidence that nursing culture, job embeddedness, and patient safety climate are interrelated, many studies continue to examine these variables separately, with limited work testing *how* nursing culture may influence patient safety climate through an attachment mechanism such as job embeddedness—especially in resource-limited private hospitals in the Philippines and in Davao del Norte in particular (Coetzer et al., 2024; Elsaid et al., 2024; Rivera et al., 2024; Brubakk et al., 2021). In addition, findings on the influence of hierarchical structures on safety behaviors (e.g., speaking up, near-miss reporting) remain mixed, warranting context-specific testing in settings where hierarchy is salient (Brubakk et al., 2021; Chan et al., 2024). Finally, the role of professional commitment—a central nursing culture component—remains underexamined in relation to safety behaviors among medical-surgical nurses, despite its relevance to both retention and practice standards (Elsaid et al., 2024).

This study is anchored on the view that nursing culture functions as a contextual driver that shapes nurses’ connections to their work and organization, while job embeddedness represents a mechanism (fit, links, and sacrifice) through which cultural conditions can translate into sustained engagement with safety expectations and daily safety practices. Accordingly, job embeddedness is

positioned as a theoretically plausible mediator linking nursing culture to patient safety climate because embedded nurses are more likely to maintain stable relationships, invest in local safety routines, and remain engaged in communication and coordination processes that support safe care (Coetzer et al., 2024; Rivera et al., 2024; Brubakk et al., 2021).

This study aimed to examine the relationships among nursing culture, job embeddedness, and patient safety climate among medical-surgical ward nurses in selected private hospitals in Davao del Norte, and to test whether job embeddedness mediates the relationship between nursing culture and patient safety climate.

Method

This study adopted a quantitative, cross-sectional correlational design to examine the associations among nursing culture, job embeddedness, and patient safety climate among medical-surgical ward nurses. A correlational approach was appropriate because the variables of interest represent naturally occurring organizational and workforce conditions that cannot be ethically manipulated in clinical settings, while still allowing empirical testing of theoretically specified relationships, including mediation. Because measurements were obtained at a single time point, the results were interpreted as statistical associations consistent with the proposed model rather than evidence of causality or temporal direction. Because the design was cross-sectional and sampling was convenience-based, the findings are interpreted as associations and may not represent all medical-surgical nurses in Davao del Norte or other settings.

The study was conducted from August to December 2025 in the medical-surgical wards of selected secondary private hospitals in Davao del Norte, Philippines. Study sites were included based on administrative cooperation, institutional permission, the presence of eligible medical-surgical nursing staff, and fulfillment of

ethical requirements for research involving human participants. Medical-surgical wards were selected because they represent high-acuity, high-volume practice environments in which teamwork, communication, and staffing stability are closely linked to patient safety practices and safety climate perceptions.

The target population comprised full-time nurses assigned to medical-surgical wards in the participating hospitals. Nurses were eligible if they were employed full time, currently assigned to a medical-surgical ward, and had at least one year of clinical experience to ensure adequate exposure to unit norms, safety routines, and organizational practices. Nurses with less than one year of experience, those not assigned to medical-surgical units, temporary or contractual staff, and nurses on extended leave during the data collection period were excluded. Due to operational constraints and the limited availability of complete sampling frames across facilities, convenience sampling was employed. This sampling approach improved feasibility but may limit representativeness and external validity; therefore, generalization beyond similar private hospital contexts should be undertaken with caution. Approximately 320 eligible nurses were estimated across participating sites, and 164 nurses provided complete responses, corresponding to a 51.3% response rate. Questionnaires were screened upon retrieval; incomplete questionnaires were excluded from analysis, resulting in no missing data in the final dataset.

Sample size adequacy was established a priori using G*Power 3.1 for the planned mediation model estimated through PLS-SEM. The analysis indicated a minimum required sample of 150, assuming a medium effect size ($f^2 = 0.15$), 0.80 power, $\alpha = 0.05$, and three predictors; the final sample of 164 exceeded this threshold, supporting sufficient power for model estimation.

Data were collected using a structured, self-administered questionnaire composed of four sections. The first section captured demographic characteristics (age, sex, civil status, religion, educational attainment, designation, and years of clinical experience). Job embeddedness was measured using an adapted 30-item Job Embeddedness Scale assessing fit, links, and sacrifice on a 5-point Likert response format; pilot testing demonstrated strong internal consistency ($\omega = 0.911$ –

0.945). Nursing culture was assessed using the 19-item Nursing Culture Assessment Tool covering expectations, behaviors, teamwork, communication, satisfaction, and professional commitment on a 4-point Likert scale, with reported reliability and construct validity ($\alpha = 0.71\text{--}0.94$; CFI = 0.932; RMSEA = 0.078). Patient safety climate was measured using the 19-item Safety Climate Survey on a 5-point Likert scale, with reported reliability and construct validity ($\alpha = 0.78\text{--}0.86$; CFI = 0.94; RMSEA = 0.05). Required permissions to use the instruments were obtained, and the measures were selected based on established psychometric performance and conceptual alignment with the study variables.

Ethical approval was granted by the Davao Doctors College Institutional Review Board (Protocol #DDC-IRB-2025-087). Prior to participation, eligible nurses received an information sheet describing the study purpose, procedures, anticipated risks and benefits, confidentiality protections, and the voluntary nature of participation, including the right to decline or withdraw without penalty. Written informed consent was obtained from all participants. To protect confidentiality, no personal identifiers were collected; questionnaires were coded numerically, stored securely in password-protected files accessible only to the research

team, and reported in aggregate form to minimize the risk of identification. No incentives were provided to reduce the possibility of undue influence, and participants were assured that their responses would not affect employment status or performance evaluation.

Descriptive statistics were computed to summarize participant characteristics and the levels of nursing culture, job embeddedness, and patient safety climate. The hypothesized mediation model was tested using partial least squares structural equation modeling (PLS-SEM), selected for its suitability in prediction-oriented models, its ability to estimate complex mediation pathways efficiently, and its robustness in applied survey research with modest sample sizes and potential deviations from multivariate normality. Model evaluation followed a two-stage procedure. The measurement model was assessed for indicator reliability (outer loadings), internal consistency (composite reliability), convergent validity (average variance extracted), and discriminant validity (Heterotrait–Monotrait ratio). The structural model was evaluated by examining collinearity (variance inflation factors), explanatory power (R^2), predictive relevance (Q^2), and approximate model fit (SRMR). Statistical significance of direct and indirect effects was determined using bootstrapping with 5,000 resamples to generate confidence intervals for path coefficients and mediation effects.

Results and discussion

Table 1. The Nurses' Level of Nursing Culture.

Indicators	Mean	SD	Interpretation
1. Expectations	3.45	0.55	Very High
2. Behaviors	3.47	0.56	Very High
3. Teamwork	3.43	0.61	Very High
4. Communication	3.54	0.53	Very High
5. Satisfaction	3.25	0.70	High
6. Professional Commitment	3.56	0.55	Very High
Overall	3.45	0.58	Very High

Note: 3.26–4.00---Very High; 2.51–3.25---High; 1.76–2.50---Low; 1.00–1.75---Very Low; SD- Standard Deviation; n=164

Table 1 indicates that respondents reported a very high overall level of nursing culture, with strong ratings across all six dimensions ($M = 3.45$, $SD = 0.58$). Professional commitment had the highest mean ($M = 3.56$, $SD = 0.55$), while satisfaction had the lowest mean ($M = 3.25$, $SD = 0.70$).

The pattern of very high professional commitment alongside comparatively lower satisfaction suggests that nurses may sustain strong professional identity and standards even when workplace

conditions (e.g., recognition, workload balance, and organizational support) are less favorable. This is consistent with evidence that professional commitment can function as a stabilizing factor for retention and quality care in strained systems (Bragadóttir et al., 2023), while dissatisfaction is commonly linked to staffing, compensation, and administrative responsiveness concerns (Parizad et al., 2021).

From a leadership perspective, these findings indicate that strong professional commitment should not be treated as a proxy for high satisfaction. Targeted strategies that improve satisfaction (e.g., structured recognition, fair workload allocation, supportive supervision, and resource support) may strengthen retention and reinforce sustained engagement with unit expectations and safety routines.

Finally, the prominence of professional commitment in this sample highlights that nursing culture profiles can vary by institutional and local context. This supports the need for context-specific assessment and tailored interventions that address the lowest-scoring domain (satisfaction) rather than relying on generalized assumptions about culture strength across settings (Zeng et al., 2025; Yeshaw et al., 2025)

Table 2. The Nurses' Level of Job Embeddedness.

Indicators	Mean	SD	Interpretation
1. Fit	4.14	0.78	High
2. Links	3.76	1.00	High
3. Sacrifice	3.78	0.95	High
Overall	3.89	0.91	High

Note: 4.21-5.00---Very High ;3.41-4.20---High; 2.61-3.40---Moderate; 1.81-2.60---Low; 1.00-1.80---Very Low; SD- Standard Deviation; n=164

As shown in Table 2, nurses reported a high overall level of job embeddedness ($M = 3.89$, $SD = 0.91$), with fit, links, and sacrifice all in the high category. Fit had the highest mean ($M = 4.14$, $SD = 0.78$), while links had the lowest mean ($M = 3.76$, $SD = 1.00$).

The high job embeddedness scores suggest that nurses perceive meaningful reasons to remain in their organizations, which is consistent with evidence linking embeddedness to retention-related outcomes in healthcare settings (Wang et al., 2024). The prominence of fit indicates stronger perceived alignment between nurses' roles, values, and job demands—an element commonly associated with organizational commitment and sustained engagement (Wang et al., 2024; Aunguroch, 2024; Zhong et al., 2025), while sacrifice may further reinforce staying by increasing the perceived costs of leaving (Wang et al., 2024; Setthakorn et al., 2024).

Although links remained high, it was the lowest-rated embeddedness dimension, which may reflect comparatively weaker interpersonal or network-based attachment at work. This pattern aligns with literature noting that hierarchical or authoritative workplace features can limit the development or influence of workplace connections (Wang et al., 2024), yet organizational strategies that strengthen links—such as mentoring, team-based structures, and collaboration opportunities—may enhance embeddedness and support stability (Fuchs, 2022). From a leadership perspective, these findings support maintaining role–skill alignment and professional development opportunities (to protect fit) while deliberately building relational supports (to strengthen links) through structured peer support and unit-level communication routines (Aunguroch, 2024; Zhong et al., 2025; Fuchs, 2022).

Table 3. The Nurses' Level of Patient Safety Climate.

Statement	Mean	SD	Interpretation
1. The culture of this clinical area makes it easy to learn from the mistakes of others.	4.02	0.75	High
2. Medical errors are handled appropriately in this clinical area.	3.95	0.93	High

3. The senior leaders in my hospital listen to me and care about my concerns.	4.09	0.88	High
4. The physician and nurse leaders in my area listen to me and care about me.	3.89	0.84	High
5. Leadership is driving us to be a safety-centered institution.	4.10	0.78	High
6. My safety suggestions would be acted upon if I expressed them to management.	3.92	0.84	High
7. Management/leadership does not knowingly compromise safety concerns for productivity.	3.95	0.85	High
8. I am encouraged by my colleagues to report any safety concerns I may have.	4.17	0.82	High
9. I know the proper channels to direct questions regarding patient safety.	4.25	0.60	Very High
10. I receive appropriate feedback about my performance.	4.10	0.81	High
11. I would feel safe being treated here as a patient.	4.09	0.84	High
12. Briefing personnel before the start of a shift (i.e., to plan for possible contingencies) is an important part of safety.	4.17	0.74	High
13. Briefings are common here.	4.05	0.79	High
14. I am satisfied with the availability of clinical leadership.	4.07	0.89	High
15. This institution is doing more for patient safety now than it did one year ago.	4.16	0.75	High
16. I believe that most adverse events occur as a result of multiple system failures and are not attributable to one individual's actions.	3.99	0.79	High
17. The personnel in this clinical area take responsibility for patient safety.	4.18	0.71	High
18. Personnel frequently disregard rules or guidelines that are established for this clinical area.	2.25	0.91	Low
19. Patient safety is constantly reinforced as the priority in this clinical area.	4.37	0.73	Very High
Overall	3.99	0.80	High

Note: 4.21-5.00---Very High ;3.41-4.20---High; 2.61-3.40---Moderate; 1.81-2.60---Low; 1.00-1.80---Very Low; SD- Standard Deviation; n=164

As presented in Table 3, nurses reported a high overall perception of patient safety climate ($M = 3.99$, $SD = 0.80$). The highest-rated item was “Patient safety is constantly reinforced as the priority in this clinical area” ($M = 4.37$, $SD = 0.73$), while the lowest-rated item was “Personnel frequently disregard rules or guidelines that are established for this clinical area” ($M = 2.25$, $SD = 0.91$).

The high safety climate ratings indicate generally favorable perceptions that safety is prioritized and reinforced in daily practice, which is consistent with literature emphasizing that visible reinforcement and clear safety expectations are key features of strong safety climates in high-risk settings such as medical-surgical wards (Haskins, 2022). High agreement on knowing the proper channels for safety questions suggests perceived clarity in communication and escalation pathways, which can support timely reporting and learning-oriented responses to risk (de Brito Guirardello et al., 2024; Glarcher et al., 2022).

The low endorsement of rule-disregard behavior is a positive signal for protocol adherence; however, variability in responses (as reflected by the item's SD) may indicate uneven safety experiences across shifts or sub-units. This aligns with evidence that safety climate can differ within the same

organization, supporting the need for unit-level monitoring and targeted improvement strategies rather than assuming uniform conditions (Herrera et al., 2024).

Leadership-related items in the safety climate pattern highlight the operational importance of leaders' responsiveness to staff concerns and follow-through on safety issues. Prior studies show that leadership engagement and communication are strongly associated with stronger safety climate perceptions, suggesting that practices such as visible leadership rounds, non-punitive reporting reinforcement, and reliable feedback loops can help sustain and deepen safety behaviors over time (Haskins, 2022; de Brito Guirardello et al., 2024; Herrera et al., 2024).

Table 4. Test of relationship between nursing culture and job embeddedness, job embeddedness and patient safety climate, and nursing culture and patient safety climate using Spearman's rho (rs) (n = 164).

Nursing Culture	Job Embeddedness			
	r_s	p-value	Decision	Remarks
Expectations	.551	<.001	Reject H_{o1}	Significant
Behaviors	.591	<.001	Reject H_{o1}	Significant
Teamwork	.667	<.001	Reject H_{o1}	Significant
Communication	.562	<.001	Reject H_{o1}	Significant
Satisfaction	.722	<.001	Reject H_{o1}	Significant
Professional Commitment	.694	<.001	Reject H_{o1}	Significant
Overall	.631	<.001	Reject H_{o1}	Significant
Job Embeddedness	Patient Safety Climate			
	r_s	p-value	Decision	Remarks
Fit	.742	<.001	Reject H_{o2}	Significant
Links	.694	<.001	Reject H_{o2}	Significant
Sacrifice	.692	<.001	Reject H_{o2}	Significant
Overall	.709	<.001	Reject H_{o2}	Significant
Nursing Culture	Patient Safety Climate			
	r_s	p-value	Decision	Remarks
Expectations	.514	<.001	Reject H_{o3}	Significant
Behaviors	.567	<.001	Reject H_{o3}	Significant
Teamwork	.596	<.001	Reject H_{o3}	Significant
Communication	.578	<.001	Reject H_{o3}	Significant
Satisfaction	.609	<.001	Reject H_{o3}	Significant
Professional Commitment	.553	<.001	Reject H_{o3}	Significant
Overall	.570	<.001	Reject H_{o3}	Significant

Note: $p < .05^$; r_s = rho; IV-Nursing Culture; DV-Patient Safety Climate; Mediator-Job Embeddedness*

Table 4 shows statistically significant positive associations between nursing culture domains and job embeddedness ($r_s = .551$ to $.722$, $p < .001$), between job embeddedness dimensions and patient safety climate ($r_s = .692$ to $.742$, $p < .001$), and between nursing culture domains and patient safety climate ($r_s = .514$ to $.609$, $p < .001$). Overall, higher nursing culture and higher job embeddedness were associated with more favorable patient safety climate perceptions.

These bivariate correlations support the study's conceptual premise that unit-level cultural conditions and nurses' organizational attachment tend to move together with perceived safety climate. The

stronger associations observed for satisfaction and professional commitment with job embeddedness suggest that supportive and professionally meaningful environments may foster embeddedness through perceived fit, stronger links, and higher perceived costs of leaving, consistent with evidence positioning culture as a driver of workforce stability and engagement (Brubakk et al., 2021; Williams & Harris, 2022).

The significant associations between job embeddedness (fit, links, sacrifice) and patient safety climate indicate that embeddedness aligns not only with retention-related outcomes but also with how nurses experience safety priorities in everyday work. The comparatively stronger association of fit with safety climate is theoretically consistent with studies linking person–organization fit to safety compliance and safety-oriented behaviors (Thompson, 2022; Zhou, 2024). In practice, strategies that strengthen fit (e.g., role clarity, competency-aligned assignments, and professional development pathways) may support both retention and safety climate.

The direct correlations between nursing culture domains and patient safety climate further suggest that safety climate reflects cultural “signals” in the work environment, including expectations, teamwork norms, and communication practices. This is especially relevant in medical-surgical wards where coordination, handovers, and escalation are frequent, and prior work supports teamwork and communication as mechanisms that normalize and sustain safety behaviors (Brubakk et al., 2021; Peterson et al., 2024; Glarcher et al., 2022).

These findings should be interpreted with methodological caution because the data are cross-sectional and self-reported, limiting causal inference and potentially inflating associations due to common method or social desirability bias. For clearer alignment with the analytic approach, Table 4 should be labeled explicitly as Spearman bivariate correlations, while conclusions about mediation should be anchored primarily on the PLS-SEM path coefficients and bootstrapped indirect effect reported in Table 5.

From a leadership perspective, the combined pattern supports a dual-lever approach: strengthening nursing culture elements that shape daily norms (expectations, teamwork, communication, and professional commitment) while also strengthening embeddedness conditions that stabilize staffing and sustain participation in safety practices (fit, links, sacrifice). Because “links” may be sensitive to hierarchical structures, interventions that build relational coordination (e.g., mentorship, interdisciplinary huddles, shared governance, and psychologically safe reporting routines) may help translate cultural strengths into more consistent safety climate gains (Chan et al., 2024).

Table 5: The Mediation Analysis of Job Embeddedness on the Relationship Between Nursing Culture and Patient Safety Climate.

Path	β	SE	t	p	95 % CI		Decision
					LB	UB	
Direct Effects:							
JE $\rightarrow$ PSC (Path b)	0.539	0.063	8.535	0.000*	0.413	0.663	Reject Ho ₂ .
NC $\rightarrow$ JE (Path a)	0.772	0.034	22.743	0.000*	0.698	0.832	Reject Ho ₁ .
NC $\rightarrow$ PSC Path c' (direct effect)	0.276	0.070	3.946	0.000*	0.137	0.406	Reject Ho ₃ .
Indirect Effect:							
NC $\rightarrow$ JE $\rightarrow$ PSC	0.417	0.052	7.974	0.000*	0.322	0.529	Reject Ho ₄
Total Effect:							
NC $\rightarrow$ PSC	0.693	0.040	17.211	0.000*	0.606	0.761	Reject Ho ₃

Note: p-value <.05* (Significant); IV-NC (Nursing Culture; DV-PSC (Patient Safety Climate); Mediator-JE (Job Embeddedness); f^2 (Path a) = 1.478; f^2 (Path b) = 0.292; f^2 (Path c' direct effect) = 0.077; CI-Confidence Interval; LB- Lower Bound; UB-Upper Bound.

Table 5 shows that all hypothesized structural paths were significant: nursing culture predicted job embeddedness ($\beta = 0.772$, $p < .001$), job embeddedness predicted patient safety climate ($\beta = 0.539$, $p < .001$), and nursing culture predicted patient safety climate ($\beta = 0.693$, $p < .001$).

.001), and nursing culture retained a significant direct effect on patient safety climate (c' : $\beta = 0.276$, $p < .001$). The indirect effect of nursing culture on patient safety climate through job embeddedness was also significant ($\beta = 0.417$, $p < .001$), indicating partial complementary mediation.

The mediation pattern indicates that job embeddedness explains a meaningful portion of how nursing culture is associated with patient safety climate, while nursing culture also shows an independent association with safety climate beyond embeddedness. Conceptually, this supports two pathways: nursing culture may strengthen nurses' fit, links, and perceived sacrifice (embeddedness), which can support engagement with safety norms, and nursing culture may also shape safety climate directly through shared expectations, teamwork practices, communication norms, and leadership signals that reinforce safe care.

Practically, the results suggest that safety climate improvement efforts may be more sustainable when hospitals address both culture-building (e.g., reinforcing professional commitment, teamwork, and open communication) and embeddedness-building strategies (e.g., role clarity and alignment, development opportunities, and strengthening interpersonal ties), rather than treating safety climate as a compliance-only outcome. The significant direct effect (c') further implies that embeddedness is not the sole mechanism, and future models may consider additional pathways such as leadership behaviors, psychological safety, and unit learning practices.

Finally, contextual constraints may influence the strength of the pathway. In more hierarchical or punitive environments, psychological safety may be limited, potentially weakening speaking up and reporting behaviors that underpin safety climate (Liu, 2021), and resource constraints may simultaneously strain culture, embeddedness, and safety climate (Kim et al., 2023). For private, resource-constrained settings, pairing culture interventions with system supports (e.g., staffing adequacy, fair workload, and accessible reporting/feedback mechanisms) may help ensure that embeddedness translates into safer practice rather than reflecting attachment under strain.

Conclusion and Recommendations

This study found high nursing culture, job embeddedness, and patient safety climate among medical-surgical ward nurses in selected private hospitals in Davao del Norte. PLS-SEM results supported partial complementary mediation, indicating that nursing culture is associated with patient safety climate both directly and indirectly through job embeddedness. Practically, strengthening nursing culture (e.g., professional commitment, teamwork, and communication) while improving embeddedness conditions (fit, links, sacrifice) may support retention and a stronger safety climate. Future studies should use probability sampling and longitudinal designs to test causal directions and reduce self-report bias.

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