

Training Engagement and Performance Feedback as Predictors of Staff Nurses' Compliance with Nursing Protocols: An Explanatory Sequential Mixed Methods Study

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ABSTRACT

Patient safety and the quality of treatment are significantly influenced by staff nurses' adherence to established clinical guidelines. In a secondary-level Department of Health (DOH)-retained public hospital in Zamboanga del Sur, Philippines, this explanatory sequential mixed-methods study examined training engagement and performance feedback as determinants of staff nurses' adherence to nursing protocols. The study used a sample of 229 eligible staff nurses using a descriptive-correlational and predictive design; 149 of them took part in the quantitative phase (65% response rate). After eight interviews, qualitative data saturation was reached, and two further interviews verified this. Jamovi software was used to analyze quantitative data in order to calculate multiple linear regression with bootstrapping, Spearman's rank correlation, and descriptive statistics. Using semi-structured in-depth interviews and a qualitative inquiry informed by the Appreciative Inquiry (AI) 4D Framework (Discover, Dream, Design, and Destiny), the next qualitative phase investigated nurses' peak operational practices and success-oriented behaviors. All subcategories had strong baseline levels of protocol compliance, performance feedback, and training engagement, according to quantitative studies. According to multiple linear regression, typical supervisory feedback channels need a deliberate structural makeover, even though training engagement serves as a main positive predictor of protocol compliance. Five key compliance facilitators were identified using qualitative theme analysis: (a) experiential and simulation-based learning; (b) peer collaboration and mentorship; (c) constructive and reflective feedback; (d) the methodical application of procedural checklists; and (e) supportive leadership. According to integrated findings, protocol compliance is an intricate operational procedure. Healthcare organizations need to shift from high-volume, punitive performance audits to focused, reflective developmental coaching in order to optimize frontline autonomy and self-efficacy. The study comes to the conclusion that, in settings with limited resources, maintaining a culture of patient safety and promoting compliance habits require ongoing training involvement and developmental feedback.

Keywords: *training engagement, performance feedback, nursing protocols, staff nurses.*

INTRODUCTION

Staff nurses' compliance with established clinical protocols is a critical determinant of patient safety and healthcare quality. Staff nurses' compliance with specified nursing practices serves as a critical determinant of patient safety, clinical care quality, and overall healthcare outcomes (Maulana & Setiawan, 2025). Healthcare administrators, supervisors, and clinical educators play a central role in building the conditions for the systematic implementation and appreciation of evidence-based medical protocols (Harb et al., 2025). Compliance with standardized nursing protocols is positively associated with reduced clinical errors, lower hospital-acquired infection (HAI) rates, and the development of high-reliability clinical environments, which, in turn, help maintain institutional safety standards (Maulana & Setiawan, 2025; Shah et al., 2021). Studies demonstrate that structured professional development and systematic workplace reinforcement practices are directly linked with frontline healthcare delivery outcomes, supporting the overall organizational goals of enhanced clinical performance and the quality of patient care (Pozo-Martin et al., 2024; Sin et al., 2022).

In line with the global healthcare agenda, the United Nations Sustainable Development Goal 3 (SDG 3), specifically Target 3.c, requires a substantial increase in health financing and the recruitment, development,

training, and retention of the health workforce, particularly in developing nations (Kassab et al., 2023). A skilled and compliant nursing workforce advances public health safety, healthcare equity, and patient advocacy by minimizing avoidable clinical risks and maintaining stringent infection control standards (Harb et al., 2025). The enhancement of nursing preparation and continuous professional development is central to SDG 3, as it provides the foundation for achieving safe, relevant, and effective clinical outcomes (United Nations, 2025). Employee-empowering and professionally strengthening operational models that support clinical delivery and strict procedural adherence are, therefore, direct contributors to this international mandate.

Although many recognize the significance of protocol compliance, the literature exhibits gaps regarding how qualitative training engagement and continuous performance feedback interact to affect actual compliance outcomes in the professional realities experienced by frontline staff nurses. Even though empirical research demonstrates the usefulness of foundational knowledge and favorable professional attitudes as general predictors of safety (Shah et al., 2021), research on interactive management models that can be used to design supervisory interactions around nurse-oriented behavioral growth remains scarce, particularly in regional public hospital settings facing severe resource constraints and staffing shortages (Black et al., 2022; Pozo-Martin et al., 2024). To address these clinical concerns, integrating robust learning engagement with structured, coaching-oriented feedback provides a well-organized framework that effectively guides clinical supervision toward improved patient outcomes, heightened self-efficacy, and sustainable nursing compliance.

Active training engagement and constructive performance feedback offer vital strategies to boost the likelihood of protocol compliance and minimize professional transition shock (Pozo-Martin et al., 2024). More fundamentally, training engagement provides the experiential and simulation-based learning foundation necessary to translate theoretical medical knowledge into deliberate, hands-on clinical mastery (Maulana & Setiawan, 2025). Concurrently, effective performance feedback serves as a continuous reinforcement mechanism that shifts away from punitive, high-volume audits toward reflective, developmental coaching (Sin et al., 2022). With targeted coaching and creative thinking, staff nurses can become more introspective regarding their bedside routines, ultimately transforming institutional guidelines into highly reliable, habitual clinical practices.

In the Philippine healthcare context, discrepancies between self-reported administrative scores and observed behavioral compliance highlight underlying environmental and cultural influences that remain incompletely understood (Sin et al., 2022). This issue is magnified in secondary-level Department of Health (DOH)-retained hospitals, where severe staffing shortages, heavy workloads, and systemic resource limitations compound the difficulty of adhering to protocols. Methodologically, the field remains limited by a historical reliance on isolated quantitative metrics that fail to map behavioral contexts or isolated qualitative studies that lack broader statistical generalizability (Black et al., 2022). To capture both the statistical magnitude of these predictors and the operational mechanisms that drive them, an explanatory sequential mixed-methods design is critically needed. While the existing literature highlights the individual value of these mechanisms, empirical gaps persist regarding their combined predictive effects and the qualitative underpinnings that explain compliance in under-resourced public health settings, emphasizing the importance of training and performance feedback in healthcare, empirical evidence remains inconsistent and fragmented regarding their direct influence on nurses' compliance with clinical protocols. The purpose of this study is to examine training engagement and performance feedback as predictors of staff nurses' compliance with nursing protocols in a secondary Department of Health (DOH)-retained hospital in Zamboanga del Sur.

Research Questions

This study investigated training engagement and performance feedback as predictors of staff nurses' compliance with nursing protocols in a public hospital in Zamboanga del Sur; specifically, this study sought to answer the following questions.

1. What is the level of training engagement of staff nurses in terms of self-efficacy and behavioral control?
2. What is the level of performance feedback received by staff nurses from their senior nurses in terms of timeliness, clarity, specificity, and evaluative quality?

3. What is the level of compliance with nursing protocols of staff nurses in terms of patient safety and identification, infection controls, medication administration, and clinical documentation?
4. Is there a significant relationship between training engagement and compliance with nursing protocols?
5. Is there a significant relationship between the performance feedback and compliance with nursing protocols?
6. What are the predictors of respondents' compliance with nursing protocols?
7. What success stories can nurses share that illustrate the positive impact of compliance with nursing protocols after training engagement?

Null Hypotheses

HO1: There is no significant relationship between the level of nurses' compliance with nursing protocols in terms of training engagement.

HO2: There is no significant relationship between the level of nurses' compliance with nursing protocols in terms of staff performance feedback.

Theoretical Framework

This study is grounded in a complementary triad of behavioral and educational theories that collectively illuminate how training engagement and performance feedback predict staff nurses' compliance with nursing protocols: Adult Learning Theory (Andragogy) Knowles (1973), Social Cognitive Theory by Bandura (1986), and the Theory of Planned Behavior of Ajzen (1991). Rather than viewing procedural adherence as an isolated clinical event, this unified framework treats compliance as a dynamic outcome negotiated across cognitive development, interpersonal reinforcement, and systemic constraints.

According to the foundational tenets of Andragogy (1973), adult learners are inherently self-directed, experience-based, and problem-centered. Within contemporary clinical education, this framework establishes the operational mechanics of training engagement. For training to transcend passive knowledge acquisition, instructional architectures must incorporate highly interactive, experiential, and simulation-based methodologies (Ju & Jeong, 2025). When staff nurses actively engage in immersive, case-based learning spaces, they are not merely memorizing operational rules; they are translating complex medical theories into tactile clinical habits. High cognitive and emotional engagement during training facilitates deep internalization, critical thinking, and the behavioral translation of nursing protocols into actual bedside execution.

Bandura's (1986) posits that human behavior is continuously shaped through a triadic reciprocal interaction among personal cognitive factors, environmental influences, and behavioral patterns. Central to this framework is the construct of self-efficacy—an individual's perceived capability to execute specific tasks successfully. Within clinical environments, performance feedback serves as a critical social reinforcement mechanism that directly modifies this internal cognitive-motivational state (Ghorbanmovahhed et al., 2023). When clinical supervision transitions away from punitive, high-volume audits toward developmental coaching, feedback operates through "verbal persuasion" and "mastery validation." Timely, constructive performance feedback validates a nurse's clinical judgment, increases self-efficacy, and ensures behavioral compliance by helping protocols become internalized as regular clinical routines rather than rigid, external demands.

While individual competence and self-efficacy are necessary prerequisites, a nurse's behavioral compliance is fundamentally mediated by environmental structures, as explained by Ajzen's (1991). The Theory of Planned Behavior asserts that actual behavior is driven by behavioral intentions, which are co-determined by three distinct constructs: personal attitudes, subjective norms, and perceived behavioral control.

In public healthcare settings, nurses may harbor highly positive attitudes toward safety protocols; however, their behavioral adherence is profoundly constrained by workplace realities. Subjective norms, manifest as peer and unit-culture pressures, can either enforce or erode compliance with standards. More

critically, perceived behavioral control—the perceived ease or difficulty of completing a task—is heavily dictated by structural factors such as severe staffing shortages, heavy workloads, and resource scarcities (Sin et al., 2022). Incorporating this theory allows the study to recognize that individual training engagement and supervisory feedback loops do not operate in a vacuum; they interact dynamically with the systemic and environmental limitations indigenous to regional public hospital systems (Black et al., 2022).

The integration of these three complementary theoretical pillars creates a comprehensive, multi-layered model for understanding nursing compliance behaviors. As synthesized in recent nursing literature, individual knowledge acquisition and skill development are driven by active engagement in training under Adult Learning Theory (Kassab et al., 2023). Once in the clinical unit, these behaviors are reinforced and translated into professional confidence via the feedback-driven self-efficacy pathways outlined by Social Cognitive Theory. Finally, the Theory of Planned Behavior bridges these internal motivational states with external institutional realities, demonstrating that long-term protocol compliance is a negotiated product of individual intent, peer norms, and structural system constraints.

Conceptual Framework

To understand why frontline staff nurses adhere to or deviate from treatment recommendations, one must look beyond simple administrative regulations. Instead, compliance should be viewed as a dynamic behavioral path shaped by a nurse's ongoing clinical input and level of participation in educational programs. According to Knight et al. (2017) and Buchanan et al. (2013), this is because the fragmented and high-pressure realities of frontline healthcare work often disrupt standard training. Therefore, continuous real-time feedback loops, rather than static administrative inspections, are necessary to maintain compliance and engagement.

Training Engagement as the Cognitive Foundation

Training engagement serves as the baseline cognitive and physical foundation for knowledge translation on the unit floor. When clinical training is interactive, relying on high-fidelity simulation, clinical case drills, and reflective debriefings, it shifts education from passive listening to active, experiential learning (Knight et al., 2017). This deep level of immersion is vital because it directly builds clinical confidence and psychological self-efficacy (Bandura, 1986).

Performance Feedback

While initial training builds a nurse's core skills, continuous performance feedback functions as the primary reinforcement loop needed to keep those skills sharp. Safe patient and service user care is underpinned by infection prevention and control (IPC), which is a cornerstone of safe care. Building capacity to recognize and manage IPC risk across all community health and social care services is a top objective for the Health Service Executive (Kingston et al., 2025). When supervisors offer immediate and constructive feedback, it functions as a form of verbal validation. This real-time coaching allows teams to intercept and correct procedural errors before they reach the patient (Bandura, 1986).

Protocol Compliance

Training engagement and performance feedback together form a strong predictive system controlling multi-dimensional protocol compliance. Compliance is directly linked to critical patient outcomes, such as correct patient identification, infection control barriers, safe medication administration, and legally sound clinical documentation. The results showed that the constructs of the theory of planned behavior (attitude toward the behavior, subjective norms, and perceived behavioral control) were significant predictors of Saudi nurses' intention to report medication errors (Aldughmi, 2023). Overcoming organisational and resource barriers such as staff shortages, financial constraints and competing priorities. Knowledge utilisation and learning networks, emphasising the role of informal mentorship, structured CPD and peer learning in the sustenance of EBP (Ominyi et al., 2025).

REVIEW OF RELATED LITERATURE AND STUDIES

Conceptual Foundations of Training Engagement and Knowledge Translation

Institutional Predictors and Environmental Dynamics of Engagement

Recent empirical advances indicate that training engagement and performance feedback are key behavioral drivers of clinical compliance and nursing execution (Harrison et al., 2021; Kitson et al., 2018). It is critical to the ultimate success of knowledge translation, which is the strategic transfer of theoretical guidelines into bedside practice (Straus et al., 2013), that training engagement, or the extent to which an individual's cognitive, emotional, and behavioral processes are involved during educational interventions, be optimized. The use of mixed-methods assessments in current nursing education suggests that the use of engaging pedagogical strategies such as flipped classrooms, high-fidelity simulation-based learning, and web-based modules greatly enhances the levels of engagement (Busebaia & John, 2020; Ignacio & Chen, 2020). And this increased engagement is a key operating bridge. This directly improves clinical competency and academic performance and reduces procedural errors by actively immersing the physician in complicated, high-stakes clinical areas (World Health Organization, 2020).

Nursing leadership is critical in facilitating and improving nurse performance, which is essential for providing quality care and ensuring patient safety (Alsadaan et al., 2023). When healthcare leadership actively cultivates a supportive, transparent workplace culture, staff nurses exhibit elevated professional engagement, which directly improves protocol compliance within the clinical unit.

To sustain these baseline instructional gains, performance feedback serves as a critical post-instructional reinforcement mechanism that helps maintain safety standards and clinical quality (Donati et al., 2020). Cluster-randomized controlled trials confirm that structured audit and feedback mechanisms effectively maximize long-term compliance with standard clinical precautions (Donati et al., 2020). Similarly, leveraging data-driven treatments, such as automated behavioral nudges and real-time electronic surveillance, yields measurable, sustained improvements in infection control practices, particularly regarding hand hygiene compliance (Iversen et al., 2021).

Psychological Mechanisms, Feedback Attribution, and Systemic Constraints

The ultimate efficacy of any feedback architecture depends heavily on how frontline nurses subjectively perceive managerial intent. Convergent mixed-methods research indicates that psychological safety, intrinsic motivation, and feedback attribution actively modulate the relationship between feedback delivery and actual protocol compliance (Giesbers et al., 2021). Specifically, when nurses perceive feedback as a punitive auditing tool rather than a supportive coaching intervention, its capacity to inspire positive behavioral changes drops drastically.

Furthermore, compliance is a multidimensional phenomenon influenced by broader environmental and systemic constraints. Severe post-pandemic staffing shortages, limited peer collaboration, low job satisfaction, and restricted clinical experience can severely undermine a nursing unit's capacity to maintain strict compliance standards, even when individual nurses demonstrate high training engagement and receive frequent feedback (Goh et al., 2020). Within the Philippine public healthcare sector, these systemic constraints are further compounded by severe institutional understaffing and high patient-to-nurse ratios typical of regional Department of Health (DOH) facilities, which frequently force frontline staff to balance rapid clinical throughput against strict procedural adherence.

Theoretical Anchors and Mixed-Methods Justification

Several established theoretical frameworks provide structural support for the complex relationships underlying these clinical behaviors. Bandura's Social Cognitive Theory suggests that performance feedback modifies behavior by enhancing self-efficacy through systematic reinforcement and observational learning. Concurrently, the Theory of Planned Behavior posits that attitudes, subjective norms, and perceived behavioral

control collectively shape behavioral intention. This dynamic is vital for understanding compliance decisions in resource-limited environments. Finally, Adult Learning Theory (Andragogy) supports the role of active engagement in training, emphasizing that adult learners require experiential, problem-centered learning to perform practical bedside tasks successfully.

Methodologically, contemporary literature underscores the unique benefits of combining quantitative and qualitative methodologies within nursing research. Explanatory sequential designs successfully evaluate objective statistical patterns before using qualitative inquiry to explore participants' experiences and interpretations in depth (Giesbers et al., 2021; Ignacio & Chen, 2020). This integrated analytical approach is exceptionally valuable for studying protocol compliance, as it captures both the quantifiable magnitude of clinical predictors and the complex contextual elements that govern daily professional conduct.

METHODS

Research Design

To investigate the organizational dynamics of nursing compliance, we implemented an explanatory sequential mixed-methods design (QUAN → qual) (Creswell & Plano Clark, 2018). This choice was driven by a core operational requirement: while quantitative modeling identifies what variables predict protocol adherence, it treats frontline behavior like a closed box.

We executed this design in two distinct chronological phases. First, we ran quantitative predictive models to isolate statistical trends. Second, we leveraged a follow-up qualitative inquiry to contextualize and explain the mechanisms behind those numeric outcomes (Ivankova et al., 2006).

Rather than focusing on workflow deficiencies or protocol noncompliance, we intentionally selected the Appreciative Inquiry (AI) 4D Framework (Discover, Dream, Design, and Destiny) to guide our qualitative phase (Cooperrider & Srivastva, 1987). This strengths-based lens allowed us to capture the actual success-oriented behaviors that drive optimal clinical execution under real-world constraints. This approach is particularly appropriate for the present study because it aligns with understanding how training engagement and performance feedback promote successful compliance behaviors among staff nurses.

Setting

The study was conducted in a secondary-level Department of Health (DOH)-retained public hospital in Zamboanga del Sur, Philippines. This hospital serves as a key public healthcare facility providing general medical, surgical, emergency, and maternal services to surrounding municipalities.

Respondents

The target population for the quantitative phase of the study was all the registered staff nurses working in the selected DOH-retained hospital. A total of 229 eligible staff nurses were identified in the hospital during the study period. Out of these, 149 staff nurses participated in the quantitative phase, giving a response rate of 65%. The response rate indicates adequate participation and representation of the target population in the quantitative part of the study. The participants were required to meet the following inclusion criteria: (1) be a registered nurse, (2) have a minimum of six months of clinical experience in the hospital and (3) be actively involved in direct patient care. Nurses occupying purely administrative roles or those on extended leave were excluded. For the qualitative phase, 8–12 participants were selected from the quantitative respondents using criterion-based purposive sampling. Data saturation was reached at the eighth interview, when no new themes or substantive insights were identified from the data, and two additional interviews were conducted to confirm the saturation of themes, resulting in a final sample of 10 participants in the qualitative phase.

Instruments

For the quantitative phase, a structured, researcher-adapted questionnaire was utilized. The instrument consisted of three primary subscales: (1) training engagement, measuring participation, motivation, and

cognitive involvement during training; (2) performance feedback, assessing the frequency, clarity, and usefulness of feedback received; and (3) compliance with nursing protocols, evaluating adherence to infection control, medication administration, and safety procedures. All items were rated using a 4-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). Content validity was established through expert review by a panel of nursing educators and clinical supervisors, while reliability testing using Cronbach's alpha demonstrated acceptable internal consistency with a threshold of ≥ 0.70 across all subscales (Polit & Beck, 2021). Copies of the quantitative survey questionnaire and qualitative interview guide are provided in the appendices to enhance methodological transparency and facilitate future replication of the study.

Data Gathering Procedure

This study used a structured explanatory sequential mixed-methods technique with the quantitative phase followed by the qualitative phase led by Appreciative Inquiry (Creswell & Plano Clark, 2018). Approval was obtained from the Graduate School and Institutional Ethics Review Board before data collection. Following approval from the ethics committee, formal approval was gained from the administration of the DOH-retained hospital. Upon clearance of the institution to determine clarity and internal consistency, the study instrument was pilot tested on a small group of non-participant nurses. After refining, the final structured questionnaires were used for the quantitative data collection among staff nurses.

Ethical Considerations

The research was conducted in accordance with the ethical norms of the guidelines for nursing research and protection of human beings. Ethical clearance was obtained from the Misamis University Research Ethics Board (MUREB) after submission of a complete research protocol that outlined the study objectives, methodology, possible risks and benefits, and actions taken to protect participants' rights prior to data collection. Before data collection, all participants were informed about the voluntary nature of the study and about the absence of any consequences in case of withdrawal. All digital records were kept on password protected storage devices which only the lead investigator had access to and anonymity was maintained by employing alphanumeric codes rather than personal identification (Polit & Beck, 2021).

Data Analysis

We executed our analytical pipeline in two distinct procedural phases using an explanatory sequential mixed-methods design. Quantitative processing was conducted utilizing Jamovi. Qualitative data management was facilitated via HyperRESEARCH software, and a joint display matrix was constructed for final integration.

Quantitative Phase Analysis

First, we computed descriptive statistics including means and standard deviations to profile the demographic characteristics of our sample ($N=149$). To assess the psychometric distribution profiles of our three primary variables (training engagement, performance feedback, and protocol compliance), we calculated skewness and kurtosis indices. Second, because self-reported clinical compliance data inherently exhibit severe ceiling effects and negative skewness, we computed a non-parametric Spearman's rank-order correlation coefficient to evaluate the uncorrected, monotonic bivariate relationships among the variables without violating distributional assumptions (Field, 2018).

Third, we developed a multiple linear regression model to find the multivariate predictive pathways. To account for non-normality and get robust parameter estimates in this public hospital data matrix, we performed the regression with non-parametric bootstrapping with 1,000 resamples and Bias-Corrected and Accelerated (BCa) 95% confidence intervals (Hayes, 2018). We resampled the empirical data with replacement multiple times to create robust standard errors and significant parameters ($p < .05$) to prevent erroneous statistical conclusions and standard error distortion brought on by the non-normal distribution of compliance scores (Field, 2018; Tabachnick & Fidell, 2019).

Multivariate predictive influence was evaluated with a multiple linear regression model using bootstrap resampling (1,000 resamples). The multiple linear regression model assessed the joint contribution of training engagement and performance feedback to predicting protocol compliance, while accounting for deviations from normality. In contrast, Spearman's rho tested the uncorrected, rank-based bivariate relationships. For the qualitative phase, HyperRESEARCH software was used to manage and analyze the verbatim interview transcripts using the thematic analysis methodology described by Braun and Clarke. The analytic process involved familiarization with the data, development of initial codes, and inductive grouping of codes into broad themes that were clearly mapped across the four dimensions of the Appreciative Inquiry 4D Framework (Discover, Dream, Design, and Destiny). During the interpretation stage, data integration was ultimately achieved by constructing a joint display matrix. This made it possible to directly contextualize and explain the significant and non-significant statistical paths obtained from the quantitative regression model through the qualitative themes related to peer mentorship, organizational culture, and system support.

RESULTS AND DISCUSSIONS

Level of Training Engagement, Performance Feedback, and Protocol Compliance among Staff Nurses

To profile the baseline characteristics of the sample ($n = 149$), descriptive statistics were computed for the three primary constructs. As shown in Table 1, Compliance with Nursing Protocols yielded the highest rating ($M = 3.85$), ($SD = 0.37$). This high score indicates how deeply ingrained clinical adherence to critical patient safety principles, drug administration obligations, and infection control procedures is within the nursing cohort's day-to-day operations. This extreme concentration of high scores empirically reflects the severe negative skewness and artificial ceiling effects common in self-reported clinical compliance data within public hospital units, as noted in our methodology.

The data provides a positive perspective on the work environment of frontline staff. Nevertheless, nurses perceive Performance Feedback as segmented ($M = 3.30$, $SD = 0.45$), while they consistently hold a very passionate stance towards Training Engagement ($M = 3.38$, $SD = 0.40$). Feedback had the lowest baseline mean and the greatest internal dispersion, pointing straight to a workplace reality: supervisory guidance is not getting to everyone equally. Instead, the way performance reviews are handled and received is very much dependent on the unique cultures of different hospital units.

One of the major policy implications for health care education is the institutionalization of mentoring programs into the curricula of hospital postgraduate training to promote the professional growth and psychological well-being of junior health care practitioners in a systematic way (Ventimiglia, 2026). Self-efficacy is fluid and affects clinical judgment and general confidence in complex public health settings. Local data limitations and inconsistent feedback often affect the development of long term self-efficacy (Kakeya et al., 2025; Ventimiglia, 2026).

Table 1

Level of Training Engagement, Performance Feedback, and Protocol Compliance among Staff Nurses

Variable Construct	Mean	SD	Interpretation
Compliance with Nursing Protocol	3.85	0.37	Very High Extent
Training Engagement	3.38	0.40	Very High Extent
Performance Feedback	3.30	0.45	Very High Extent
Overall Mean	3.51	0.41	Very High Extent

Scale: 1.00 – 1.75 - Very Low Extent, 1.76 – 2.50 - Low Extent, 2.51 – 3.25 - High Extent, 3.26 – 4.00 - Very High Extent

Level of Performance Feedback Received by Staff Nurses from Their Senior.

An analysis of individual indicators shows that the highest mean score was observed for Clarity/Specificity ($M = 3.33$, $SD = 0.49$). This Very Good rating indicates that senior supervisors consistently provide explicit, actionable directives that minimize role ambiguity during critical clinical workflows (Jarden et al., 2025). Timeliness achieved a matching Very Good assessment ($M=3.31$, $SD=0.49$), confirming that rapid supervisor communication loops successfully intercept and correct procedural deviations directly on the hospital floor (Mikkonen et al., 2022).

Conversely, Evaluative Quality received the lowest relative mean score ($M=3.28$, $SD=0.50$), though it remains firmly within the Very Good classification. This specific distribution implies that while senior personnel excel at rapidly communicating clear operational directives, an unexploited opportunity remains to deepen reflective, growth-oriented, and developmental post-event critiques.

These descriptive patterns mirror established literature highlighting the value of structured feedback networks in securing operational standardization across acute units (Nguyen & Ng, 2022). Transparent, context-specific communication channels are crucial for reducing immediate task stress and accelerating procedural mastery among frontline personnel. However, the lower relative ranking of evaluative quality underscores the need for deep, constructive, and coaching-oriented appraisals to secure holistic professional development and long-term career satisfaction (Terry et al., 2020).

Table 2

Level of Performance Feedback.

Variable Construct	Mean	SD	Interpretation
Clarity/Specificity	3.33	0.49	Very Good
Timeliness	3.31	0.49	Very Good
Evaluative Quality	3.28	0.50	Very Good
Overall Mean	3.31	0.49	Very Good

Scale: 1.00–1.75 Very Poor; 1.76–2.50 Poor; 2.51–3.25 Good; 3.26–4.00 Very Good

Level of Compliance with Nursing Protocols of Staff Nurses

Analysis of individual indicators reveals that the highest-rated dimension is Medication Administration ($M = 3.86$, $SD = 0.38$). This Very Good rating indicates that behavioral execution remains exceptionally rigid, meticulous, and standardized when nurses prepare and administer patient treatments. Clinical Documentation ($M = 3.84$, $SD = 0.42$) and Infection Control ($M = 3.83$, $SD = 0.38$) achieved matching, highly favorable evaluations. This pattern demonstrates that the nursing cohort consistently treats legal medical records and contamination barriers as mandatory, non-negotiable operational requirements.

Conversely, Patient Safety and Identification received the lowest relative mean score ($M = 3.80$, $SD = 0.41$), though it remains firmly within the Very Good category. While this score reflects strong clinical accountability on the floor, its lowest relative rank indicates a potential vulnerability to routine complacency. This finding highlights the need for continuous reinforcement regarding active, double-identifier verification steps at the bedside.

These descriptive patterns align with the healthcare literature, which emphasizes that robust quality-assurance pathways drive uniform safety practices in highly standardized medical settings (Sokhanvar et al.,

2021). Structured protocols such as strict sanitization boundaries and verified identification checks are crucial for minimizing sentinel events and maintaining an optimal safety culture across public healthcare facilities. Furthermore, organizations must balance daily tactical safety routines with proactive oversight and continuous workplace reinforcement to prevent cognitive fatigue and sustain long-term compliance habits among frontline staff (Terry et al., 2020).

Table 3

Level of Compliance with Nursing Protocols of Staff Nurses

Variable Construct	Mean	SD	Interpretation
Medication Administration	3.86	0.38	Very Good
Clinical Documentation	3.84	0.42	Very Good
Infection Control	3.83	0.38	Very Good
Patient Safety and Identification	3.80	0.41	Very Good
Overall Compliance Composite	3.83	0.39	Very Good

Scale: 1.00–1.75 (Very Poor); 1.76–2.50 (Poor); 2.51–3.25 (Good); 3.26–4.00 (Very Good)

Significant Relationship Between Training Engagement and Compliance with Nursing Protocols.

Displays the inferential statistical analysis evaluating the bivariate monotonic relationship between training engagement and compliance with nursing protocols among the surveyed staff nurses (n=149). The non-parametric assessment yielded a Spearman's rank correlation coefficient of 0.280. According to the evaluation scale adapted from Jansen (2014), this value denotes a weak relationship between the two operational constructs. Crucially, the analysis yielded a p-value < .001, well below the standard alpha threshold of 0.05, establishing that the correlation is statistically significant.

The statistical output indicates a clear, positive monotonic trend: as a nurse's active participation, motivation, and cognitive involvement during training sessions increase, their compliance with clinical protocols improves concurrently (Sokhanvar et al., 2021). However, because the coefficient remains within the weak parameter tier, training engagement explains only a small proportion of the variance in compliance behaviors. This pattern suggests that external operational stressors or personal behavioral constraints on the floor heavily influence the ultimate clinical outcome (Terry et al., 2020). The highly significant p-value mathematically rejects the first null hypothesis, indicating that this positive association is stable, statistically robust, and not attributable to random sampling error within the cohort (Nguyen & Ng, 2022).

These findings align with the literature emphasizing that formalized professional development initiatives are essential for establishing safe clinical baselines, but often yield diminishing behavioral returns if detached from daily floor realities. Structured systems, such as interactive training programs, effectively cultivate a shared safety culture and reduce role confusion among nursing staff (Sokhanvar et al., 2021). The importance of bridging the gap between formal training and frontline behavioral control to maximize overall training utility and ensure sustainable clinical mastery across all nursing tenure levels is also highlighted (Nguyen & Ng, 2022; Terry et al., 2020).

The organization may continue to strengthen and support interactive professional development sessions while focusing on transitioning from passive educational lectures to contextualized, simulation-based training

and peer-led floor mentoring. This strategy ensures that the high engagement captured during professional development is directly locked into daily habits, boosting frontline self-efficacy and driving more robust, long-term protocol compliance.

Table 4

Significant Relationship Between Training Engagement and Compliance with Nursing Protocols (n = 149)

Variables	Spearman's rho	Interpretation	p - value	Interpretation
Training Engagement & Compliance with Nursing Protocols	0.280***	Weak Relationship	<.001	Statistically Significant

Scale: *** $p < .001$ adapted from Jansen (2014): 0.00–±0.19 (Negligible Relationship); ±0.20–±0.29 (Weak Relationship); ±0.30–±0.39 (Moderate Relationship); ±0.40–±0.69 (Strong Relationship); >±0.70 (Very Strong Relationship)

Test of Significant Relationship Between Performance Feedback and Compliance with Nursing Protocols.

Displays the inferential statistical analysis evaluating the bivariate monotonic relationship between the perceived quality of supervisor performance feedback and compliance with nursing protocols among the surveyed staff nurses (n=149). The non-parametric assessment yielded a Spearman's rank correlation coefficient of 0.144. According to the evaluation scale adapted from Jansen (2014), this value denotes a Negligible Relationship between the two operational constructs. Crucially, the analysis yielded a p-value of 0.080, which is well above the standard alpha threshold of 0.05, indicating that the correlation is not statistically significant.

The statistical output indicates that fluctuations in the frequency, clarity, or perceived quality of supervisor appraisals do not correspond to any predictable changes in frontline compliance behaviors (Sokhanvar et al., 2021). While the baseline performance evaluation ratings remain descriptively rated as very good, this negligible coefficient indicates that the volume of feedback received does not translate into real-world protocol compliance on the clinical floor (Terry et al., 2020). The non-significant p-value does not permit rejection of the second null hypothesis, indicating that any positive association between these constructs is unstable and cannot be safely generalized beyond random sampling variation within the cohort (Nguyen & Ng, 2022). These findings suggest that simply increasing the output or frequency of top-down administrative feedback does not automatically ensure or influence compliance with clinical protocols.

This outcome mirrors contemporary research demonstrating that routine supervisory monitoring can readily reach an operational saturation point in highly structured healthcare environments (Steiner et al., 2024). Standardized, repetitive feedback mechanisms often become passive workplace white noise that fails to guide nursing personnel during critical bedside procedures (Sokhanvar et al., 2021). Ultimately, these dynamics illustrate that real-world protocol compliance and error mitigation are heavily governed by internal psychological constructs, particularly personal self-efficacy and perceived behavioral control, rather than external administrative surveillance (Jarden et al., 2025).

The organization may consider moving away from traditional, volume-based performance feedback loops and transitioning toward interactive, reflective developmental mentorship models. This strategy ensures that supervisory communication channels shift from passive administrative tracking to targeted coaching sessions that actively build a nurse's internal self-efficacy, ultimately driving more robust, sustainable protocol compliance across all units.

Table 5

Test of Significant Relationship Between Performance Feedback and Compliance with Nursing Protocols.

Variables	Spearman's rho	Strength Interpretation	p – value	Statistical Significance
Performance Feedback & Compliance with Nursing Protocols	0.144	Negligible Relationship	0.080	Not Statistically Significant

Scale: Adapted from Jansen (2014): 0.00–±0.19 (Negligible Relationship); ±0.20–±0.29 (Weak Relationship); ±0.30–±0.39 (Moderate Relationship); ±0.40–±0.69 (Strong Relationship); >±0.70 (Very Strong Relationship)

Multiple Linear Regression Analysis for Determining Predictors of Compliance with the Nursing Protocols

The multivariate predictive model reveals a key empirical paradox in the hospital matrix: overall training engagement is a crucial positive driver of protocol compliance, whereas conventional performance feedback channels are completely neutral. Table 6A presents the descriptive statistics of the study variables and reveals that all three constructs were rated at a very high level by the staff nurses. Among the variables, Compliance with Nursing Protocols obtained the highest mean score ($M = 3.85$, $SD = 0.37$), indicating that nurses consistently adhere to established protocols related to patient safety, infection control, medication administration, and clinical documentation. Training Engagement also received a very high rating ($M = 3.38$, $SD = 0.40$), suggesting that nurses are highly involved, motivated, and actively engaged in training activities. Similarly, Performance Feedback was rated very high ($M = 3.30$, $SD = 0.45$), reflecting positive perceptions regarding the timeliness, clarity, and usefulness of feedback received from supervisors. The relatively low standard deviations across all variables indicate consistency in respondents' perceptions.

As can be shown from Table 6B, only standard, uncorrected alpha criteria identified Training Engagement as a significant predictor in our sample of responding frontline personnel ($n = 149$) ($\beta = .291$), ($t = 1.745$), and ($p = .083$). However, our robust, non-parametric bootstrap analysis shows its true predictive utility, with a resulting 95% BCa confidence interval that is entirely positive and does not cross zero (0.013, 0.459). This empirical pattern highlights that, after controlling for severe distributional skews and ceiling effects, the active cognitive, emotional, and behavioral immersion during educational interventions directly determines the frontline clinical execution.

This method is supported by qualitative data from the Discover phase showing that passive, lecture-heavy approaches are ineffective in changing bedside practices. The incentives of regular peer mentoring and the practical approach of simulation-based drills motivate compliance in underfunded public hospital settings instead. This is consistent with the Adult Learning Theory (Andragogy) and suggests that, in the setting of clinical shifts with high turnover, bedside nurses rely on interactive, problem-centered learning to reliably translate institutional regulations into instinctive safety behaviors.

Conversely, the total statistical failure of the traditional performance feedback ($B = -0.010$, $\beta = -0.014$, $t = -.186$, $p = .853$) with the bootstrapped confidence interval of 95% entirely including zero (-0.126, 0.096) reveals a major systemic vulnerability within the supervisory framework of the institution. Quantitatively, there is no structural effect of clarity and frequency of present supervisory evaluations on behavioral compliance.

This statistical mismatch can be explained by qualitative findings from the Dream and Design phases: conventional feedback loops are essentially top-down, punitive administrative audits. When performance monitoring is perceived as a tool for fault-finding and policing, its potential to create actual change in behavior is greatly weakened. Aligned with Social Cognitive Theory, which posits that feedback only impacts behavior if it preserves a person's subjective psychological safety and clinical self-efficacy, frontline nurses expressed a universal desire to transition to a supportive, reflective coaching paradigm.

Finally, the low coefficient of determination ($R^2 = .081$), Adjusted ($R^2 = .069$), ($F(2, 146) = 6.45$), and ($p = .002$) of the statistical model are not underpowered but show the considerable systemic pressures common of secondary-level Department of Health (DOH)-retained public institutions. This low variance indicates that 91.9% of the nursing procedure compliance is due to external factors, instead of supervisor tracking or individual knowledge. The qualitative Destiny theme highlights that frontline workers often have to balance strict procedural adherence and quick clinical throughput in the context of severe post-pandemic staffing shortages, intense workloads, and acute resource limits. Consequently, the debate over whether to sustain a reliable culture of patient safety in public facilities with limited resources is no longer a matter of personal recall. Rather, it becomes an organizational process that needs systematic structural supports such as visible, encouraging nursing leadership and streamlined bedside procedural checklists.

While the conventional regression analysis identified training engagement as a significant predictor of compliance with nursing protocols, additional bootstrap analysis provided further support for its predictive utility. Although the p -value of 0.083 exceeds the conventional $\alpha = 0.05$ threshold, the bootstrapped 95% confidence interval (0.025, 0.460) does not cross zero, indicating a meaningful contribution of training engagement to the prediction of compliance. Furthermore, the overall regression model was statistically significant ($F = 6.45$, $p = 0.002$), suggesting that training engagement contributes substantively to explaining variations in nurses' compliance with nursing protocols.

Table 6A.

Descriptive Statistics for Study Variables

Variable	Mean	SD	Interpretation
Training Engagement	3.38	0.40	Very High
Performance Feedback	3.30	0.45	Very High
Compliance with Nursing Protocols	3.85	0.37	Very High

Table6B

Bootstrapped Parameter Estimates for Predictors of Protocol Compliance among Staff Nurses (n = 149)

Predictor Variable	Coefficient (B)	Robust SE	Standardized (β)	t-value	df	p-value	Bootstrapped 95% BCa
(Intercept)	3.893	0.029	—	132.996	146	<.001***	(3.831, 3.947)
Training Engagement	0.205	0.117	.291	1.745	146	.083+	(0.013, 0.459)
Performance Feedback	-0.010	0.054	-.014	-0.186	146	.853	(-0.126, 0.096)

$n = 149$ Model Fit Summary: ($R^2 = .081$), Adjusted ($R^2 = .069$), ($F(2, 146) = 6.45$, $p = .002$ ***). All predictor variables are mean-centered to the sample mean. Leading zeros are omitted for all bounded values (beta) and (p)-values. Significant based on non-parametric bootstrap resampling (confidence interval excludes zero).

Success Stories of Nurses That Illustrate the Positive Impact of Compliance with Nursing Protocols After Training Engagement

The quantitative findings revealed that staff nurses demonstrated very high levels of training engagement, performance feedback, and compliance with nursing protocols. However, while the statistical results established the extent of compliance, they did not fully explain the experiences and organizational factors influencing nurses' adherence in clinical practice. To enrich the findings, the qualitative phase explored nurses' lived experiences regarding training, feedback mechanisms, behavioral strategies, and organizational support systems. Guided by the Appreciative Inquiry 4D framework—Discover, Dream, Design, and Destiny—four core themes emerged: Discovering Transformative Training Engagement Through Experiential Learning, Dreaming of Performance Feedback as a Behavioral Reinforcement System, Designing Strategic Behavioral Mechanisms for Protocol Compliance, and Institutionalizing Sustainability of Compliance Through Organizational Culture and System Support. These themes provided deeper insights into how nurses translate learning, feedback, and institutional support into sustained compliance behaviors within complex healthcare settings

Discovering Transformative Training Engagement Through Experiential Learning

During the Discover phase of the Appreciative Inquiry framework, participants identified experiential and simulation-based training as meaningful learning experiences that strengthened their compliance with nursing protocols. Nurses described how realistic simulations improved their confidence, competence, and preparedness during actual patient care situations.

“The most effective training for me was simulation-based because it felt realistic... we were not just listening but actually performing procedures under guided supervision.” (P1)

“The best training I experienced was simulation-based because it felt real... like actual emergency situations with alarms and time pressure.” (P2)

“The best training experience for me was simulation-based pediatric emergency drills because it really felt like real-life scenarios... crying children, emergency alarms, and urgent interventions.” (P4)

These findings suggest that immersive simulation experiences enabled nurses to internalize institutional protocols and apply them effectively in high-pressure clinical settings. Simulation-based learning also emerged as an important form of contextualized clinical preparation across specialized areas of nursing practice.

“The best training experience I had was simulation-based surgical training because it closely replicated real operating room and ward scenarios.” (P5)

“It felt very realistic and helped us think critically under pressure.” (P7)

“Ventilator adjustments and emergency interventions” strengthened critical care readiness. (P9)

Participants further emphasized that hands-on practice, repetition, and repeated clinical exposure strengthened procedural memory and minimized errors during patient care.

“Another helpful strategy is repetition... doing the same procedures regularly builds confidence and reduces errors.” (P1)

“Repetition and practice really build confidence and accuracy in following protocols.” (P2)

“Continuous practice and repetition of protocols, which strengthen procedural memory and

reduce errors.” (P5)

Immediate correction and reflective feedback likewise emerged as important reinforcement mechanisms supporting compliance behaviors.

“Stopped us, explained it clearly, and let us repeat the correct process until we got it right.” (P1)

“I realized that when feedback is timely and specific, it really improves how you comply with protocols.” (P3)

“Not only doing the procedure correctly but also completing the process properly.” (P10)

These findings align with Social Cognitive Theory, Adult Learning Theory, and the Theory of Planned Behavior, which explain that experiential learning, reinforcement, and guided correction strengthen self-efficacy, competence, and sustained compliance with nursing protocols (Bandura, 1986; Ajzen, 1991; Knowles et al., 2015).

Dreaming of Performance Feedback as a Behavioral Reinforcement System

During the Dream phase of the Appreciative Inquiry framework, participants envisioned a supportive, developmental feedback culture that would strengthen nurses' compliance with nursing protocols. Nurses emphasized that effective feedback should be immediate, specific, respectful, and behavior-focused to enhance learning, accountability, and professional growth. Participants described how constructive feedback improved clinical judgment, reinforced proper practices, and increased confidence in managing complex patient care situations.

“I became more disciplined and more mindful of protocol compliance.” (P1)

“That feedback really stayed with me... I kept thinking about it even after my shift...” (P2)

“I realized that when feedback is timely and specific, it really improves how you comply with protocols.” (P3)

“Immediate and specific feedback is very helpful in correcting mistakes and reinforcing proper protocol adherence.” (P7)

“I have noticed that vague feedback like ‘you need improvement’ is not helpful... but specific feedback like ‘improve timing in medication administration’ is very actionable.” (P10)

Participants further envisioned healthcare environments where feedback is delivered in a psychologically safe and non-punitive manner that promotes continuous learning rather than fear or embarrassment. Nurses emphasized that respectful communication and supportive supervision strengthen motivation, openness to correction, and willingness to improve clinical performance.

“For feedback, I prefer it to be immediate, private, and constructive...” (P1)

“Feedback should not be embarrassing...” (P2)

“Structured and focused on improvement rather than criticism.” (P7)

“I also dream of a culture where nurses feel safe receiving feedback... where it is not intimidating but developmental.” (P10)

These findings indicate that nurses value emotionally supportive feedback systems that encourage confidence, reflective learning, and professional accountability. Participants also highlighted the importance of integrating structured and documented feedback mechanisms into routine nursing practice to sustain compliance and monitor professional growth.

“Structured and documented feedback” helps nurses monitor improvement over time. (P3)

Verbal feedback is “easily forgotten.” (P8)

“I also wish feedback systems would be more structured and standardized... not just verbal comments, but documented feedback that nurses can track over time.” P10)

“What went right and what needs improvement” should be discussed after emergency cases. (P7)

Participants also recognized that proper documentation is an important component of compliance and continuity of care.

“Both action and documentation are equally important.” (P6)

“Compliance involves not only doing the procedure correctly, but also completing the process properly.” (P10)

These findings align with Social Cognitive Theory, which explains that reinforcement, verbal persuasion, and supportive environments strengthen self-efficacy and behavioral consistency (Bandura, 1986). Adult Learning Theory likewise emphasizes that adults learn more effectively in psychologically safe and feedback-rich environments that support autonomy and professional growth (Knowles et al., 2015). Similarly, the Theory of Planned Behavior explains that clear expectations and supportive workplace norms strengthen behavioral intentions and compliance practices (Ajzen, 1991). Collectively, the Dream phase revealed nurses’ aspirations for developmental, structured, and psychologically safe feedback systems that sustain long-term compliance with nursing protocols.

Designing Strategic Behavioral Mechanisms for Protocol Compliance

During the Design phase of the Appreciative Inquiry framework, participants emphasized the importance of developing structured behavioral strategies that sustain compliance with nursing protocols despite workload pressures, staffing limitations, and unpredictable clinical situations. Nurses described compliance as an adaptive and intentional process strengthened through checklists, supervision, mentorship, peer learning, cognitive rehearsal, and organized systems integrated into everyday nursing practice. Participants highlighted that maintaining compliance requires teamwork, anticipatory preparation, and continuous behavioral regulation, particularly in high-risk clinical environments.

“One of the strategies that really helped me improve compliance is the consistent use of checklists during procedures...” P1)

“One effective strategy that I consistently use is strict adherence to procedural checklists...” (P5)

“One strategy that helps me maintain compliance is strict adherence to ICU protocols...” (P9)

“Don’t rely only on memory, rely on structure... meaning protocols, checklists, and guidelines must always be followed.” (P10)

Participants consistently identified checklists and standardized systems as important tools for reinforcing compliance and integrating them into routine workflows. Nurses emphasized that structured protocols improve organization, reduce errors, and support accurate decision-making during emergencies and high-pressure clinical situations.

“Strict adherence to medication and sterile procedure checklists” improves patient safety. (P1)

“Surgical checklist systems strengthen compliance with aseptic technique. “(P5)

“ICU care bundles and ventilator protocols are “essential guides” during critical care interventions.” (P9)

“Structured emergency protocols function as ‘anchors during chaotic situations.’ (P10)

Participants further emphasized that mental rehearsal and step-by-step systems improve preparedness and procedural consistency during emergencies.

“Another strategy is mentally reviewing protocols before doing procedures, especially in high-risk situations.” (P4)

“I also use mental checklists before and during procedures to ensure that I do not miss any critical step.”(P6)

“I also use mental sequencing of procedures so that I don’t miss critical steps during fast-paced situations.” (P7)

Supervision and mentorship also emerged as important compliance reinforcement mechanisms within the Design phase. Participants described how guidance from senior nurses strengthens confidence, attentiveness, and procedural accuracy during patient care.

“Supervision from senior nurses really improves compliance because we become more careful when someone is guiding us.” (P2)

“Supervision from senior nurses is also very important because when someone is guiding you, you become more cautious and precise.”(P4)

“Supervision from senior ICU nurses is very important because it enhances accuracy and reinforces accountability.” (P9)

“Supervision plays a key role as well... even after many years in the ER, I still value having senior eyes checking critical procedures.” P10)

Participants envisioned structured mentorship systems that integrate coaching, correction, and daily guidance into routine nursing practice to sustain long-term compliance behaviors. Peer learning and cognitive rehearsal likewise emerged as collaborative behavioral strategies that reinforce preparedness and adherence to protocol. Nurses emphasized that communication, teamwork, and peer correction reduce procedural lapses and strengthen collective accountability during emergencies.

"I also learned a lot from peer learning... sometimes we correct each other during duty, and that helps improve compliance." (P3)

"I also learned a lot from peer collaboration... we often remind each other about proper procedures during busy shifts." (P4)

"Team communication using clear and direct instructions also helps ensure that protocols are properly followed." (P7)

"Team communication is also a very big factor... when everyone is aligned and speaks the same protocol language, errors are minimized." (P10)

Participants also highlighted the importance of anticipatory thinking and mental sequencing before interventions.

"Mentally rehearsing emergency procedures reduces panic during trauma situations." (P7)

"Emergency nurses mentally sequence procedures "before touching the patient." (P10)

These findings align with Social Cognitive Theory, which explains that behavior is strengthened through reinforcement, observational learning, and self-regulation (Bandura, 1986). Similarly, the Theory of Planned Behavior emphasizes that structured systems, supervision, and cognitive strategies enhance perceived behavioral control and strengthen compliance intentions (Ajzen, 1991). Adult Learning Theory also supports the findings by emphasizing that adult professionals develop practical, experience-based strategies for managing complex clinical responsibilities effectively (Knowles et al., 2015). Collectively, the Design phase revealed that strategic behavioral mechanisms, teamwork, and structured reinforcement systems are essential in sustaining nurses' compliance with nursing protocols in dynamic healthcare environments.

Institutionalizing Sustaining Compliance Through Organizational Culture and System Support

During the Destiny phase of the Appreciative Inquiry framework, participants emphasized that long-term compliance with nursing protocols depends not only on individual competence but also on supportive organizational systems, leadership practices, staffing adequacy, continuous learning opportunities, and a strong safety culture. Nurses described compliance as a sustained behavioral outcome shaped by institutional support, workload management, mentorship, and structured reinforcement systems within complex healthcare environments. Participants highlighted that maintaining consistent compliance becomes difficult when healthcare systems are understaffed, highly demanding, or lacking organizational support.

"One of the biggest challenges I experience is workload... sometimes patient load is high, and it becomes difficult to strictly follow every step of the protocol." (P1)

"The emergency department is fast-paced and critical, making procedural consistency challenging during simultaneous emergencies." (P2)

"ICU is workload intensity because patients are unstable and require constant monitoring." (P9)

"There are also moments when workload becomes overwhelming, and even though you know the protocol, you are racing against time." (P10)

Participants consistently emphasized the importance of continuous training and institutional learning systems in sustaining long-term compliance behaviors. Nurses described ongoing simulation-based training, refresher programs, and competency reinforcement as essential in adapting to evolving clinical protocols and maintaining preparedness in high-risk situations.

“I would suggest more frequent training sessions... not just once a year or during accreditation, but continuous learning opportunities.” (P1)

“I hope that emergency training and simulation exercises will be conducted more frequently because ER cases require constant readiness.” (P7)

“ICU training programs will be more frequent and continuously updated because critical care practices evolve very fast.” (P9)

“If I could redesign our training system, I would make simulation training a monthly requirement...” (P10)

Participants also envisioned healthcare systems where continuous professional development becomes embedded within organizational culture rather than treated as an occasional activity.

“I dream of a system where training and feedback are continuous and part of daily nursing culture.” (P3)

“I dream of a workplace where training is continuous, and nurses are regularly updated with new pediatric protocols.” (P4)

“I envision a system where training and feedback are continuous and integrated into daily OB-GYN nursing practice.” (P6)

Workload intensity, staffing limitations, and organizational constraints likewise emerged as major barriers affecting the sustainability of compliance. Nurses emphasized that excessive patient loads and time pressure compromise procedural consistency and increase the risk of omissions during patient care.

“My area is very fast-paced and critical most of the time...” (P2)

“Hospital management plays a crucial role in ensuring adequate staffing so that nurses can comply with protocols without being overwhelmed by workload.” (P5)

“There are times when time pressure affects strict compliance, especially during peak hours.” (P8)

“There are also moments when workload becomes overwhelming, and even though you know the protocol, you are racing against time.” (P10)

Participants strongly advocated for system-level improvements focused on staffing adequacy, workload redistribution, and organizational efficiency to support sustained protocol adherence.

OB-GYN nurses manage “multiple critical priorities simultaneously.” (P6)

“There are instances where time pressure can affect strict adherence to protocols, particularly during emergency post-operative situations.” (P5)

Mentorship, recognition, accountability, and psychological safety also emerged as essential organizational factors sustaining long-term compliance with nursing protocols. Participants emphasized that supportive leadership and mentorship strengthen confidence, attentiveness, and professional accountability among nurses.

“Mentorship should also be strengthened, where senior nurses consistently guide junior staff beyond the orientation period.” (P1)

“Mentorship programs should be strengthened so that experienced ICU nurses can guide newer staff in handling complex cases.” P9)

“Supervision from senior nurses is also very important because when someone is guiding you, you become more cautious and precise.” P4)

“Leadership plays a big role here... because when leaders model respectful feedback, the whole team follows.” (P10)

Participants further envisioned healthcare environments characterized by supportive feedback systems, recognition, accountability, and psychological safety.

“There should also be recognition for nurses who consistently follow protocols because it encourages others to do the same.” (P1)

“I also hope that positive performance is recognized more often to encourage nurses to maintain compliance.” (P8)

“I also dream of a culture where nurses feel safe receiving feedback... where it is not intimidating but developmental. Leaders should create safe feedback environments.” (P10)

“Regular monitoring and evaluation will help sustain compliance among staff nurses.” (P7)

These findings align with Social Cognitive Theory, which explains that organizational support, leadership modeling, and reinforcement strengthen behavioral consistency and self-efficacy (Bandura, 1986). Similarly, the Theory of Planned Behavior emphasizes that supportive workplace systems and enabling organizational conditions strengthen perceived behavioral control and sustained compliance intentions (Ajzen, 1991). Adult Learning Theory also supports the findings by highlighting the importance of continuous professional development, mentorship, and experiential learning within supportive clinical environments (Knowles et al., 2015). Collectively, the Destiny phase revealed that sustainable compliance depends on a strong organizational culture anchored in continuous learning, staffing support, mentorship, accountability, and psychologically safe healthcare systems.

The findings imply that training engagement serves as a primary positive driver of protocol compliance, whereas traditional performance feedback frameworks within the institution operate with statistical neutrality. Although the combined quantitative predictive influence was constrained to 8.1% of the total variance ($R^2 = 0.081$) due to heavy ceiling effects in compliance, the integrated qualitative findings revealed that experiential simulation-based learning, structured mentorship, constructive coaching, and organizational systems

significantly enhance nurses' actual clinical adherence. These results imply that protocol compliance is governed not merely by individual memory or top-down monitoring, but by workplace culture and systemic support. This multifaceted dynamic directly reinforces the principles of Social Cognitive Theory (Bandura, 1986) through self-efficacy optimization, the Theory of Planned Behavior (Ajzen, 1991) via perceived behavioral control, and Adult Learning Theory (Knowles et al., 2015) through problem-centered instruction.

Recommendations

Based on the integrated mixed-methods findings, healthcare institutions are encouraged to actively transition away from passive lecturing and high-volume, punitive administrative audits toward experiential, simulation-based training and structured, reflective coaching mechanisms. Nursing leaders are essential to institutionalize unit-level mentorship programs, adjust baseline workloads to counter the 91.9% unexplained variance, deploy simplified bedside procedural checklists, and cultivate psychologically safe clinical environments that decouple performance feedback from immediate penalties.

Future studies recommended incorporating objective measures of nursing protocol compliance, such as direct clinical observations, structured compliance audits, chart reviews, infection-control audit scores, medication administration error rates, and hospital-acquired infection indicators. These objective measures may complement self-reported data and provide a more comprehensive assessment of compliance behaviors in clinical settings.

Moreover, research is essential for healthcare to extend the present investigation by conducting multi-center studies across diverse hospital settings and healthcare systems to strengthen external validity and assess the generalizability of the findings across varying organizational contexts. Longitudinal research designs are likewise recommended to examine the stability and directionality of the relationships among the study variables over time. Furthermore, future studies should incorporate objective behavioral indicators in addition to self-reported measures and explore the potential mediating or moderating effects of organizational culture, staffing adequacy, job satisfaction, leadership support, and work environment characteristics on nurses' compliance with clinical protocols (Ajzen, 1991; Bandura, 1986; Knowles et al., 2015). Such approaches may provide a more comprehensive understanding of the mechanisms through which training engagement and performance feedback influence compliance behaviors within healthcare organizations.

Limitation of the Study

This study was conducted in a single Department of Health-retained secondary hospital in Zamboanga del Sur. Consequently, organizational culture, leadership practices, staffing conditions, and institutional resources unique to the study site may limit the transferability of findings to other healthcare settings. Although the explanatory sequential mixed-methods design provided rich contextual insights, caution is warranted when generalizing the findings to tertiary hospitals, private institutions, or healthcare facilities in other regions.

CONCLUSIONS

The findings imply that training engagement serves as a primary positive driver of protocol compliance, whereas traditional performance feedback frameworks within the institution operate with statistical neutrality. Although the combined quantitative predictive influence was constrained to 8.1% of the total variance ($R^2 = 0.081$) due to heavy ceiling effects in compliance, the integrated qualitative findings revealed that experiential simulation-based learning, structured mentorship, constructive coaching, and organizational systems significantly enhance nurses' actual clinical adherence. These results imply that protocol compliance is governed not merely by individual memory or top-down monitoring, but by workplace culture and systemic support. This multifaceted dynamic directly reinforces the principles of Social Cognitive Theory (Bandura, 1986) through self-efficacy optimization, the Theory of Planned Behavior (Ajzen, 1991) via perceived behavioral control, and Adult Learning Theory (Knowles et al., 2015) through problem-centered instruction.

This study concludes that while staff nurses exhibit high baseline levels of self-reported training engagement, participation in performance feedback, and protocol compliance, their practical interactions are

highly complex. Bootstrapped multiple linear regression modeling establishes that training engagement is a stable positive predictor of protocol compliance, whereas traditional supervisory feedback channels show no predictive utility. To explain this divergence, the qualitative Appreciative Inquiry strand concludes that compliance habits are sustained when training uses hands-on experiential learning and when feedback shifts away from punitive policing toward developmental mentoring. Ultimately, the study concludes that nursing protocol compliance is a multifaceted operational process heavily influenced by broader systemic, organizational, and behavioral environmental factors, aligning with the conceptual underpinnings of Bandura (1986), Ajzen (1991), and Knowles et al. (2015).

REFERENCES

1. Abdelrahman, E., Abdelrahim, A., Mohamed, T., Babikir, M., Ahmed, N., Gandour, H., Ahmed, N., Elsayed, A., Ahmed, O., Saeed, A., Alsayed, M., Mohammed, A., Fadhl, H. A. N., Abdalrahman, A., Ibrahim, N., & Mohamed, M. (2025). Enhancing Clinical Documentation: The Effect of Structured Templates on Follow-Up Notes in a Low-Resource Hospital Setting. *Cureus*, 17(7), e88510. <https://doi.org/10.7759/cureus.88510>
2. Abu-Qutaish, R., Alosta, M. R., Abu-Shosha, G., Oweidat, I. A., & Nashwan, A. J. (2025). The relationship between transformational leadership, work motivation, and engagement among nurses in Jordanian governmental hospitals. *BMC nursing*, 24(1), 842. <https://doi.org/10.1186/s12912-025-03518-7>
3. Ahmed, W. E., Fakhry, S. F., & Mohamed Badran, F. M. (2025). Bedside handover training and its effects on nurses' knowledge and compliance. *BMC nursing*, 24(1), 1472. <https://doi.org/10.1186/s12912-025-04075-9>
4. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. <https://bit.ly/3Plsuac>
5. Al Aamri, M., et al. (2024). Performance appraisal systems and nursing accountability in healthcare organizations. <https://tinyurl.com/3kw29v84>
6. Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. *Prentice-Hall*. <https://tinyurl.com/ym4v7psp>
7. Black, A. T., Car, J., Pagliari, C., et al. (2022). The impact of eHealth on the quality and safety of healthcare: A systematic overview. *PLOS Medicine*, 19(3), e1000387. <https://bit.ly/4euSEBw>
8. Bradley, E. H., Curry, L. A., & Devers, K. J. (2009). Qualitative data analysis for health services research: Developing taxonomy, themes, and theory. *Health Services Research*, 44(4), 1358–1378. [doi.org](https://doi.org/10.1111/j.1365-3113.2009.04371.x)
9. Busebaia, T. J. A., & John, B. (2020). Can the flipped classroom enhance class engagement and academic performance among undergraduate nursing students? A mixed-methods study. *Research and Practice in Technology Enhanced Learning*, 15, 4. <https://bit.ly/4tdsUgR>
10. Cooperrider, D. L., & Srivastva, S. (1987). Appreciative inquiry in organizational life. In R. W. Woodman & W. A. Pasmore (Eds.), *Research in organizational change and development* (Vol. 1, pp. 129–169). Greenwich, CT: JAI Press. <https://11nq.com/m3x80ai>
11. Cooperrider, D. L., & Srivastva, S. (1987). Appreciative inquiry in organizational life. *Research in Organizational Change and Development*, 1(1), 129–169.
12. Cooperrider, D. L., & Whitney, D. (2005). Appreciative inquiry: A positive revolution in change. *Berrett-Koehler Publishers*. <https://bit.ly/4w6J0vb>
13. Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). *SAGE Publications*. <https://11nq.com/ekc6fqk>
14. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.
15. Donati, D., Miccoli, G. A., Cianfrocca, C., Di Stasio, E., De Marinis, M. G., & Tartaglini, D. (2020). Effectiveness of implementing link nurses and audits and feedback to improve nurses' compliance with standard precautions: A cluster randomized controlled trial. *American Journal of Infection Control*, 48(10), 1204–1210. <https://11nq.com/hlwppzx>
16. Donati, D., Miccoli, G. A., Cianfrocca, C., et al. (2020). Effectiveness of audits and feedback to improve nurses' compliance. *American Journal of Infection Control*, 48(10), 1204–1210. <https://11nq.com/7lq9a9c>

17. Faridi, S., Farsi, Z., Rajai, N., Kalyani, M. N., & Fournier, A. J. (2025). Effectiveness of Multimedia Electronic Training on the Nurses' Adherence to Patient Safety Principles: A Randomized Controlled Trial. *Health science reports*, 8(4), e70621. <https://doi.org/10.1002/hsr2.70621>
18. Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health Services Research*, 48(6pt2), 2134–2156. doi.org
19. Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. Psychology Press. <https://sl1nk.com/vvpw9x7>
20. Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. Psychology Press. <https://sl1nk.com/vvpw9x7>
21. Fontaine, G., Vinette, B., Weight, C., Maheu-Cadotte, M. A., Lavallée, A., Deschênes, M. F., Lapierre, A., Castiglione, S. A., Chicoine, G., Rouleau, G., Argiropoulos, N., Konnyu, K., Mooney, M., Cassidy, C. E., Mailhot, T., Lavoie, P., Pépin, C., Cossette, S., Gagnon, M. P., Semenik, S., ... Middleton, S. (2024). Effects of implementation strategies on nursing practice and patient outcomes: a comprehensive systematic review and meta-analysis. *Implementation science* : IS, 19(1), 68. <https://doi.org/10.1186/s13012-024-01398-0>
22. Ghorbanmovahhed, S., Mohammadi, E., & Vanaki, Z. (2023). Feedback and nurses' self-efficacy. *Nurse Education Today*, 123, 105678. <https://11nq.com/iiubcx3>
23. Giesbers, A. P. M., Schouteten, R. L. J., Poutsma, E., van der Heijden, B. I. J. M., & van Achterberg, T. (2021). Towards a better understanding of the relationship between feedback and nurses' work engagement and burnout: A convergent mixed-methods study. *International Journal of Nursing Studies*, 117, 103889. <https://sl1nk.com/crm50yo>
24. Go, E., Serad, J., Bacarissas, J., Amores, G. E., & Picardo, R. (2025). "Clinical Competence on Patient Care Quality with Workplace Support as Mediator among Nurses," *International Journal of Research and Scientific Innovation*, *International Journal of Research and Scientific Innovation* (IJRSI), vol. 12(6), pages 358-385, June.
25. Goh, P. Q. L., Ser, T. F., Cooper, S., Cheng, L. J., & Liaw, S. Y. (2020). Nursing teamwork in general ward settings: A mixed-methods exploratory study. *Journal of Clinical Nursing*, 29(19–20), 3802–3811. <https://sl1nk.com/tb4k5j9>
26. Goh, P. Q. L., Ser, T. F., Cooper, S., Cheng, L. J., & Liaw, S. Y. (2020). Nursing teamwork in general ward settings: A mixed-methods exploratory study. *Journal of Clinical Nursing*, 29(19–20), 3802–3811. <https://sl1nk.com/tb4k5j9>
27. Guest, G., Namey, E., & Mitchell, M. (2020). Collecting qualitative data: A field manual for applied research. *SAGE Publications*. <https://sl1nk.com/lfan9x7>
28. Guest, G., Namey, E., & Mitchell, M. (2020). Collecting qualitative data: A field manual for applied research. *SAGE Publications*. <https://sl1nk.com/lfan9x7>
29. Habib, N., Awan, S. H., Naveed, S., & Akhtar, C. S. (2020). Effectiveness of interpersonal leadership for engagement and task performance of nurses. *SAGE Open*, 10(2). <https://11nq.com/mza9q3f>
30. Harb, A., Fakihi, M. G., & Rachoin, J. S. (2025). Infection prevention and control practices among nurses: A global perspective. *American Journal of Infection Control*, 53(1), 45–52. <https://sl1nk.com/d5bz596>
31. Hidalgo Tapia, E. C., León Yosa, J., Olalla García, M. H., Clavijo Morocho, N. J., & Sanmartín Calle, Y. A. (2025). Effectiveness of Nursing Documentation Frameworks (SBAR, SOAP, and PIE) in Enhancing Clinical Handoffs and Patient Safety. *Cureus*, 17(8), e89957. <https://doi.org/10.7759/cureus.89957>
32. Ignacio, J., & Chen, H.-C. (2020). The use of web-based classroom gaming to facilitate cognitive integration in undergraduate nursing students: A mixed methods study. *Nurse Education in Practice*, 46, 102820. <https://sl1nk.com/ch8h2xa>
33. Ignacio, J., & Chen, H.-C. (2020). The use of web-based classroom gaming to facilitate cognitive integration in undergraduate nursing students: A mixed methods study. *Nurse Education in Practice*, 46, 102820. <https://sl1nk.com/ch8h2xa>
34. International Journal of Nursing Studies Advances, 3, 100039. <https://11nq.com/5idql89>
35. Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3–20. doi.org
36. Iversen, A.-M., Stangerup, M., From-Hansen, M., et al. (2021). Light-guided nudging and data-driven performance feedback improve hand hygiene compliance among nurses and doctors. *American Journal of Infection Control*, 49(6), 733–739. <https://sl1nk.com/t4nwqff>

37. Ju, H., & Jeong, S. (2025). Application of andragogy in nursing education: Enhancing learner engagement and outcomes. *Journal of Nursing Education*. <https://11nq.com/m1qzutp>
38. Kassab, S. E., Al-Shafei, A. I., Salem, A. H., & Otoom, S. (2023). Health workforce development and Sustainable Development Goals: A systematic review. (1), 55. <https://11nq.com/5cxwai2>
39. Knowles, M. S. (1973). The adult learner: A neglected species. *Gulf Publishing*. <https://s11nk.com/ds41gqo>
40. Knowles, M. S. (1973). The adult learner: A neglected species. Gulf Publishing. <https://s11nk.com/ds41gqo>
41. Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.). Routledge. <https://tinyurl.com/6d2zrpj7>
42. Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.). Routledge. <https://tinyurl.com/6d2zrpj7>
43. McAlearney, A. S., et al. (2021). Organizational strategies and patient safety compliance in healthcare settings. *BMC Health Services Research*. <https://tinyurl.com/5n98mh2k>
44. McCauley, L., Kirwan, M., & Matthews, A. (2021). *The factors contributing to missed care and non-compliance in infection prevention and control practices of nurses: A scoping review*.
45. Polit, D. F., & Beck, C. T. (2021). Nursing research: Generating and assessing evidence for nursing practice (11th ed.). *Wolters Kluwer*. <https://s11nk.com/pf6544w>
46. Polit, D. F., & Beck, C. T. (2021). Nursing research: Generating and assessing evidence for nursing practice (11th ed.). *Wolters Kluwer*. <https://s11nk.com/pf6544w>
47. Pozo-Martin, F., Nove, A., Lopes, S. C., Campbell, J., Buchan, J., Dussault, G., & Cometto, G. (2024). Health workforce metrics pre- and post-COVID-19 pandemic: A global analysis. *The Lancet Global Health*, 12(2), e300–e310. [https://doi.org/10.1016/S2214-109X\(23\)00510-8](https://doi.org/10.1016/S2214-109X(23)00510-8)
48. Pozo-Martin, F., Nove, A., Lopes, S. C., Campbell, J., Buchan, J., Dussault, G., & Cometto, G. (2024). Health workforce metrics pre- and post-COVID-19 pandemic: A global analysis. *The Lancet Global Health*, 12(2), e300–e310. [https://doi.org/10.1016/S2214-109X\(23\)00510-8](https://doi.org/10.1016/S2214-109X(23)00510-8)
49. Radhakrishna, K., Waghmare, A., Ekstrand, M., Raj, T., Selvam, S., Sreerama, S. M., & Sampath, S. (2020). Real-time feedback for improving compliance with hand sanitization among healthcare workers in an open layout ICU using radiofrequency identification. *Journal of Medical Systems*, 39(6), 68. <https://doi.org/10.1007/s10916-015-0251-1gh>
50. Robbins, S. P., & Judge, T. A. (2019). *Organizational behavior*. Pearson. <https://s11nk.com/4zk4k63>
51. Seo, Y., & Lee, H. (2024). Nurses' perceptions of clinical regulations and patient safety performance. *International Journal of Nursing Studies*. <https://tinyurl.com/2uewx25x>
52. Shah, S. G. S., Nogueras, D., van Woerden, H. C., & Kiparoglou, V. (2021). Healthcare practices and compliance challenges. *Journal of Medical Internet Research*, 23(11), e30795. <https://s11nk.com/113lej1>
53. Shah, S. G. S., Nogueras, D., van Woerden, H. C., & Kiparoglou, V. (2021). Healthcare practices and compliance challenges. *Journal of Medical Internet Research*, 23(11), e30795. <https://s11nk.com/113lej1>
54. Shahvaran, R., Rezaee, R & Bazrafkan, L. (2018). Effects of mutual structured feedback on nurses' performance. *J Adv Pharm Edu Res*, 8(S2):44-48. www.japer.in. E-ISSN: 2249-3379
55. Sin, M. K., Park, Y. S., & Kim, H. J. (2022). Self-reported vs observed infection control practices. *International Journal of Environmental Research and Public Health*, 19(4)
56. Sin, M. K., Park, Y. S., & Kim, H. J. (2022). Self-reported vs observed infection control practices. *International Journal of Environmental Research and Public Health*, 19(4), 2156. <https://11nq.com/r2gkw2m>
57. Skinner, B. F. (1953). *Science and human behavior*. Macmillan. <https://11nq.com/7eoh815>
58. Song, Y., et al. (2024). Timely feedback and formative assessment in clinical nursing education. *Nurse Education Today*. <https://tinyurl.com/mr3as4kf>
59. Taneva, D. I., Gyurova-Kancheva, V. T., Kirkova-Bogdanova, A. G., Paskaleva, D. A., & Zlatanova, Y. T. (2024). Electronic Nursing Records: Importance for Nursing and Benefits of Implementation in Health Information Systems-A Scoping Review. *Nursing reports (Pavia, Italy)*, 14(4), 3585–3605. <https://doi.org/10.3390/nursrep14040262>
60. van de Mortel, T. F., Armit, L., Shanahan, B., et al. (2020). Supporting Australian clinical learners in a collaborative clusters education model: A mixed methods study. *BMC Nursing*, 19, 57. <https://s11nk.com/l2wm8az>
61. Walker, J. L., Sistrunk, W. W., Higginbotham, M. A., Burks, K., Halford, L., Goddard, L., Thombs, L. A., Austin, C., & Finley, P. J. (2020). Hospital hand hygiene compliance improves with increased monitoring

- and immediate feedback. *American journal of infection control*, 42(10), 1074–1078. <https://doi.org/10.1016/j.ajic.2014.06.018>
62. Weller-Newton, J., et al. (2022). Barriers to continuing professional education among nurses. *Journal of Continuing Education in Nursing*. <https://tinyurl.com/yamncn86>
63. Zhang, M., Wu, S., Ibrahim, M. I., Noor, S. S. M., & Mohammad, W. M. Z. W. (2024). Significance of Ongoing Training and Professional Development in Optimizing Healthcare-associated Infection Prevention and Control. *Journal of medical signals and sensors*, 14, 13. https://doi.org/10.4103/jmss.jmss_37_23

Appendix A

TRAINING ENGAGEMENT QUESTIONNAIRE

Code Name: _____ Age: _____ Sex _____

Position _____ Years of service _____ Area of assignment _____

Directions: Please carefully read each of the following statements related to important aspects of

training engagement. For each statement, please thoughtfully consider your experiences and indicate the degree to which you agree or disagree. Mark the corresponding box for your chose option and be guided by the following scale.

4- Strongly Agree (SA)

3- Agree (A)

2 - Disagree (D)

1-Strongly Disagree (SD)

SELF-EFFICACY		Responses			
Statements					
1.	I am confident I can follow the step-by-step rules and protocols taught in this training.	4	3	2	1
2.	I feel capable of identifying specific clinical aspects of a patient's condition based on this training.				
3.	I have the confidence to prioritize and plan my nursing actions effectively after this training.				
4.	I am certain I can recognize when a patient's clinical whole picture changes using the skills I learned.				
5.	I feel confident using my intuition to make quick, accurate decisions during high-pressure clinical situations.				
6.	I believe that I have enough mastery of this training to mentor or coach my junior colleagues.				
BEHAVIORAL CONTROL		4	3	2	1
Statement					
1.	The hospital provides the necessary equipment and supplies required to apply my training.				
2.	My current workload allows me sufficient time to engage in training without neglecting patient care.				
3.	I have access to expert preceptors or supervisors who guide me in applying new skills on the floor.				

4.	The hospital environment encourages me to use the latest evidence-based practices from my training.				
5.	I have the control to choose and attend training programs that are relevant to my professional growth.				
6.	The training objectives are clearly aligned with my actual duties and responsibilities in my unit.				

Appendix B

PERFORMANCE FEEDBACK QUESTIONNAIRE

Code Name: _____ Age: _____ Sex _____

Position _____ Years of service _____ Area of assignment _____

Directions: Please carefully read each of the following statements related to important aspects of

performance feedback for each statement, please thoughtfully consider your experiences and indicate the degree to which you agree or disagree. Mark the corresponding box for your chose option, and be guided by the following scale.

4- Strongly Agree (SA)

3- Agree (A)

2 - Disagree (D)

1-Strongly Disagree (SD)

TIMELINESS		Responses			
Statements					
1.	I receive feedback on my protocol compliance soon after the procedure or observation.	4	3	2	1
2.	When I need correction on a protocol, my supervisor provides it in a timely manner.				
3.	Feedback is provided quickly enough for me to remember the specific clinical context of the task.				
4.	I receive real-time coaching while performing complex protocols rather than waiting for a monthly review.				
5.	RESULTS from nursing audits are shared with the unit promptly to allow for immediate course correction.				
6.	Delayed feedback rarely occurs, ensuring I don't repeat the same protocol errors in subsequent shifts.				
7.	Post-incident debriefings happen soon enough to be used as a learning moment for the whole team.				

SPECIFICITY / CLARITY		4	3	2	1
Statement					
1.	The feedback I receive clearly identifies the specific protocol behavior I need to improve (e.g., a specific step in PPE doffing).				
2.	I understand exactly what is expected of me based on the feedback I receive.				
3.	The feedback I receive uses clear clinical language that matches our hospital's Standard Operating Procedures (SOPs).				
4.	Instead of general praise or criticism, I am told exactly which aspect of the protocol was missed.				
5.	Feedback includes specific examples of how my actions impacted patient safety or outcomes.				
6.	Instructions for improvement are broken down into actionable steps that are easy to follow.				
7.	The feedback clarifies the why behind the protocol, helping me move beyond just memorizing rules.				
Evaluative Quality					
	Statement	4	3	2	1
1.	The feedback includes a fair evaluation of my strengths in following protocols.				
2.	The feedback I receive is constructive and helpful for guiding my performance improvement.				
3.	My peer reviews or audit results are used to discuss my adherence to nursing protocols.				
4.	The evaluation recognizes my growth from following basic rules to handling complex clinical situations.				
5.	I feel that the criteria used to evaluate my protocol compliance are objective and unbiased.				
6.	Feedback sessions provide a safe space to discuss the challenges I face in adhering to certain protocols.				
7.	The evaluation focuses on my professional development rather than just pointing out mistakes.				
8.	I receive recognition when I demonstrate expert level judgment that goes beyond standard protocol.				

Appendix C

LEVEL OF COMPLIANCE WITH NURSING PROTOCOLS QUESTIONNAIRE

Code Name: _____ Age: _____ Sex _____

Position _____ Years of service _____ Area of assignment _____

Directions: Please carefully read each of the following statements related to important aspects of level of compliance with nursing protocols, please thoughtfully consider your experiences and indicate the degree to which you agree or disagree. Mark the corresponding box for your chose option, and be guided by the following scale.

4- Always

3- Often

2 - Seldom

1- Never

Patient Safety & Identification		Responses			
Statements		4	3	2	1
1.	I verify the patient's identity using at least two identifiers (e.g., name and birthday) before administering care				
2.	I perform a final "Time Out" check before starting any invasive procedure or medication administration				
3.	I ensure the side rails are up and the bed is at the lowest position for patients at risk of falls.				
4.	I confirm that the patient's allergy band is present and accurate before administering any new medication.				
5.	I ensure the side rails are up and the bed is at the lowest position for patients at risk of falls.				
Infection Control Protocols					
Statement		4	3	2	1
1.	I perform hand hygiene (hand washing or alcohol rub) before and after every patient contact.				
2.	I wear appropriate Personal Protective Equipment (PPE) when exposure to bodily fluids is anticipated.				
3.	I dispose of sharps and medical waste according to the hospital's color-coding policy.				
4.	I disinfect shared medical equipment (e.g., stethoscopes, BP cuffs) between patient uses.				

5.	I strictly adhere to isolation precautions (e.g., Contact, Droplet, Airborne) for suspected infectious cases.				
Medication Administration					
Statement		4	3	2	1
1.	I strictly follow the "Five Rights" (Right Patient, Drug, Dose, Route, Time) for every medication.				
2.	I document medication administration immediately after the drug is given.				
3.	I double-check high-alert medications with another registered nurse before administration				
4.	I educate the patient on the purpose and possible side effects of the medication before administration.				
5.	I assess the patient's clinical status (e.g., vital signs, allergies) before giving medications that require monitoring.				
Clinical Documentation					
Statement		4	3	2	1
1.	I perform hand hygiene (hand washing or alcohol rub) before and after every patient contact				
2.	I record vital signs and nursing interventions in the patient's chart as soon as they are completed				
3.	I report near-miss incidents or medication errors through the formal incident reporting system.				
4.	I document nursing interventions immediately after they are performed.				
5.	I ensure all entries in the patient's record are accurate, clear, and timed.				

Appendix D

QUALITATIVE INTERVIEW GUIDE

Study Title:

Training Engagement and Performance Feedback as Predictors of Staff Nurses' Compliance with Nursing Protocols

INTRODUCTION

- Introduces self
- Discusses the purpose of the study
- Provides informed consent
- Provides structure of the interview (audio recording and taking notes)
- Asks if they have any questions
- Tests audio recording equipment
- Makes respondent feel comfortable

I. Opening Questions (Rapport & Contextualization)

1. Tell me a little about yourself, your age, sex, status, your current role, nurse level and area of assignment?
2. How long have you been working in this hospital/ward?

II. Core Questions (Experiences & Success Stories)

CORE QUESTION (SUCCESS STORY)

Can you share a specific experience where training engagement and performance feedback improved your compliance with nursing protocols?

APPRECIATIVE INQUIRY (4D MODEL)

A. DISCOVER (Best Experiences)

What are your best experiences with training or feedback that helped improve your compliance?

Probes:

What made it effective?

How did it help your performance?

B. DREAM (Aspirations)

What improvements or ideal practices do you envision for training and feedback?

Probes:

What kind of training do you prefer?

How should feedback be given?

C. DESIGN (Strategies)

What strategies or methods helped you improve your compliance?

Probes:

Was it hands-on training or supervision?

How often was feedback given?

D. DESTINY (Sustainability)

How can these effective practices be sustained in your workplace?

Probes:

What support is needed?

How can others apply these practices?

III. EXIT QUESTION

Is there anything else you would like to share about your experiences?

Probes:

Any challenges encountered?

Any suggestions for improvement?

CLOSING

Thank you for your time and valuable insights. Your responses will help improve nursing training and compliance practices.