



Association Between Compliance with SBAR Communication During Handover and Patient Safety at Anugerah Regional General Hospital Tomohon, Indonesia

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ARTICLE INFO

Article history:

Received Jun 10, 2026

Revised Jun 20, 2026

Accepted Jul 06, 2026

Keywords:

Handover;
Hospital nursing;
Nurse compliance;
Patient safety;
SBAR communication.

ABSTRACT

Communication failures during handovers contribute to more than 60% of adverse events in hospitals. The implementation of SBAR (Situation, Background, Assessment, Recommendation) communication is a key strategy for improving patient safety. This study aimed to analyze the relationship between compliance with SBAR communication during handovers and patient safety among nurses at Anugerah Regional General Hospital. A quantitative cross-sectional analytical design was employed. Total sampling was used to recruit 53 nurses from four inpatient wards (Anyelir, Upper Aster, Lower Aster, and Alamanda). Data were collected using the Ministry of Health SBAR Observation Checklist (2022) and the Hospital Survey on Patient Safety Culture (HSOPSC) 2.0. Data were analyzed using the Chi-Square test and Spearman correlation. The results showed that most nurses demonstrated good compliance with SBAR communication (58.5%), experienced a heavy workload (49.1%), and reported a moderate level of patient safety (41.5%). A significant relationship was found between SBAR communication compliance and patient safety ($\chi^2 = 21.202$; $p = 0.0003$; Cramér's $V = 0.447$). Nurses who complied with SBAR communication demonstrated a good patient safety level of 38.7%, compared to 0% among those who were non-compliant. Compliance with SBAR communication during handovers was significantly associated with patient safety. Continuous supervision and regular SBAR training are recommended to improve compliance and enhance patient safety.

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1. Introduction

Patient safety is one of the main indicators of the quality of healthcare services in hospitals. Patient safety aims to prevent avoidable injuries resulting from errors in the healthcare process (Anders, 2025; Domer et al., 2022). Despite various efforts to improve service quality, adverse events remain a global problem, resulting in increased morbidity, mortality, length of stay, and healthcare costs (Al-Assaf et al., 2024). The World Health Organization reports that millions of patients worldwide experience

preventable incidents while receiving healthcare services, with the majority of cases occurring in developing countries (World Health Organization, 2024).

One contributing factor to patient safety incidents is communication failures between healthcare professionals (Bressan et al., 2020a). Ineffective communication can lead to errors in conveying clinical information, medication errors, delayed interventions, and even errors in clinical decision-making (Walshe & Boaden, 2005). Various studies show that more than 60% of adverse events in hospitals are related to communication problems, particularly during the handover process between nurses and other healthcare professionals (Fuchshuber & Greif, 2022). Handover is the process of transferring responsibility and information regarding a patient's condition from one healthcare professional to another to ensure continuity of care (Odone et al., 2022). Poor handover quality can potentially lead to the loss of critical information regarding the patient's condition, increasing the risk of care errors (Bressan et al., 2020b). Therefore, a structured and standardized communication method is needed to ensure the information conveyed is more complete, clear, and accurate.

One recommended communication method for handovers is SBAR (Situation, Background, Assessment, Recommendation). The SBAR method helps healthcare professionals systematically convey patient information based on the patient's current condition, relevant history, clinical assessment results, and necessary follow-up recommendations (Müller et al., 2018; Simamora & Fathi, 2019). Implementing SBAR communication has been shown to improve communication effectiveness, strengthen teamwork, reduce the risk of miscommunication, and support improved patient safety in various healthcare facilities (Bonds, 2018). Although SBAR communication has become standard practice in many hospitals, nurses' adherence to each component of SBAR varies. Non-adherence to SBAR can result in incomplete communication of important information, potentially compromising the quality of care and patient safety (Toumi et al., 2024). Several previous studies have shown a positive relationship between the implementation of SBAR communication and improved patient safety (Bonds, 2018; Müller et al., 2018; Shinta & Bunga, 2024; Simamora & Fathi, 2019). However, research findings may vary depending on hospital characteristics, patient safety culture, and organizational factors influencing nursing practice.

Anugerah Regional General Hospital (RSUD Anugerah) is one of the hospitals that has implemented SBAR communication in the nurse handover process. However, an evaluation of the level of compliance with SBAR and its relationship to patient safety is still needed as a basis for developing strategies to improve the quality of nursing services. Information on the relationship between compliance with SBAR communication and patient safety in the hospital environment is expected to provide insight into the relationship between SBAR implementation and supporting patient safety. Based on this description, this study aims to analyze the relationship between compliance with SBAR communication during handovers and patient safety among nurses at Anugerah Regional General Hospital.

2. Methods

2.1 Study Design and Setting

The research was structured within a quantitative analytical scheme and operationalized through a cross-sectional observational approach. The cross-sectional design was selected because it enables the assessment of the relationship between SBAR communication compliance during handovers and patient safety at a single point in time. The study was conducted at Anugerah Regional General Hospital, involving four inpatient wards: Anyelir, Upper Aster, Lower Aster, and Alamanda.

2.2 Population and Sample

The study population comprised all nurses stationed in the selected inpatient wards. To maximize participant representation, a total sampling strategy was employed, allowing the inclusion of all nurses who satisfied the established eligibility criteria. Ultimately, 53 nurses qualified for enrollment and contributed to the study. Participants were required to be registered nurses actively involved in handover procedures and to provide voluntary consent for participation. Nurses who were on leave or otherwise absent during the data collection interval were excluded from the study cohort.

2.3 Research Variables

The independent variable was compliance with SBAR communication during handovers, while the dependent variable was patient safety. Nurse workload was also assessed as a descriptive characteristic of respondents.

2.4 Instruments

Data on SBAR communication adherence were collected using the SBAR Observation Checklist developed by the Indonesian Ministry of Health (2022). This checklist evaluates nurses' adherence to the four components of SBAR communication: Situation, Background, Assessment, and Recommendation during the handover activity. Patient safety culture was measured using the Hospital Survey on Patient Safety Culture (HSOPSC) 2.0. This instrument assesses perceptions of patient safety culture across several dimensions and provides an overall patient safety culture score. This instrument has been widely used in healthcare settings and has demonstrated acceptable validity and reliability for measuring patient safety culture.

2.5 Data Collection Procedure

Data collection was conducted chronologically in several stages. First, permission to conduct the study was obtained from the hospital management and relevant authorities. Second, eligible participants were informed about the study objectives and procedures, and informed consent was obtained. Third, researchers observed handover activities using the SBAR Observation Checklist to assess nurses' compliance with SBAR communication. Fourth, participants completed the HSOPSC 2.0 questionnaire to evaluate patient safety culture. All completed instruments were checked for completeness before data entry.

2.6 Data Processing

Collected data were coded, edited, entered into a computerized database, and cleaned to ensure accuracy and completeness. The data were then categorized according to predetermined scoring criteria. SBAR compliance scores were classified into compliant and non-compliant categories, while patient safety scores were categorized into low, moderate, and high levels based on the established scoring guidelines.

2.7 Data Analysis

Statistical analyses were undertaken using dedicated analytical software. Descriptive indicators, including frequencies, percentages, means, and standard deviations, were generated to characterize the study population and research variables. The association between SBAR compliance during handover and patient safety was examined using the Chi-square test, with Cramér's V employed to ascertain the effect size of the relationship. In addition, Spearman's rank correlation analysis was performed to elucidate the directionality and extent of the association. A significance level of $p < 0.05$ was adopted for all inferential analyses.

2.8 Measurement and Evaluation of Results

SBAR communication compliance was measured based on nurses' adherence to all components of the SBAR framework during handovers. Patient safety was evaluated through the HSOPSC 2.0 scoring system, which reflects the overall level of patient safety culture perceived by nurses. The effectiveness of SBAR implementation was evaluated by examining its statistical association with patient safety outcomes. A significant p-value (<0.05) indicated the presence of a meaningful relationship between SBAR communication compliance and patient safety.

3. Results and Discussion

The findings in table 1 indicate that most nurses were assigned to Anyelir Ward (32.1%), with the educational background predominantly consisting of Bachelor of Nursing with professional nurse qualification (S1-Ners, 41.5%), followed closely by Diploma in Nursing (39.6%), and nearly half of the respondents being civil servants (49.1%), although a notable proportion had unrecorded employment

status (18.9%), suggesting gaps in human resource documentation. Regarding communication practices, the majority of nurses demonstrated good compliance with SBAR communication during handover (58.5%), with an overall mean compliance score of 73.9%, indicating that structured communication is generally implemented but still requires improvement to achieve full adherence across all units. In terms of workload, almost half of the nurses experienced heavy workload (49.1%), with an overall NASA-TLX mean score of 62.5%, reflecting a relatively high cognitive and operational burden in daily nursing practice, while patient safety levels were mostly moderate (41.5%), with an overall mean score of 61.8%, and only a minority achieving a high safety category (24.5%). Overall, a consistent pattern emerges across wards, where higher SBAR compliance, as observed in Upper Aster Ward, is associated with better patient safety outcomes, whereas wards with heavier workload and lower communication compliance tend to report poorer patient safety levels, suggesting a meaningful alignment between communication compliance, workload intensity, and patient safety performance in inpatient care settings.

Table 1.
Summary of Respondent Characteristics, SBAR Compliance, Workload, and Patient Safety in Anugerah Regional General Hospital (n = 53)

Variable	Category / Indicator	n	%	Mean Score (%)
Ward Placement	Anyelir	17	32.1	-
	Upper Aster	12	22.6	-
	Lower Aster	12	22.6	-
	Alamanda	12	22.6	-
Education Level	S1-Ners	22	41.5	-
	Bachelor of Nursing (S1)	8	15.1	-
	Diploma in Nursing (D3)	21	39.6	-
	Other / Not recorded	2	3.8	-
Employment Status	Civil Servant (PNS)	26	49.1	-
	Government Contract (PPPK)	8	15.1	-
	Contract Staff	9	17.0	-
	Not recorded	10	18.9	-
SBAR Compliance	Non-compliant	9	17.0	73.9
	Moderate	13	24.5	
	Compliant	31	58.5	
Workload (NASA-TLX)	Light	3	5.7	62.5
	Moderate	24	45.3	
	Heavy	26	49.1	
Patient Safety (HSOPSC 2.0)	Low	18	34.0	61.8
	Moderate	22	41.5	
	High	13	24.5	

Table 2 illustrates a clear distribution pattern between SBAR communication compliance and patient safety levels among nurses. Nurses who were compliant with SBAR demonstrated the highest proportion of good patient safety outcomes (38.7%), while those with moderate compliance showed a considerably lower proportion (7.7%), and no nurses in the non-compliant group achieved a good patient safety category (0.0%). Conversely, the non-compliant group had the highest proportion of poor patient safety outcomes (66.7%), indicating a negative safety profile associated with low adherence to SBAR. Overall, the pattern suggests a consistent gradient, where increasing levels of SBAR compliance are accompanied by improved patient safety performance, while lower compliance is associated with poorer safety outcomes.

Table 2.
Cross-tabulation of SBAR Compliance and Patient Safety (n = 53)

SBAR Compliance	Patient Safety Low n (%)	Patient Safety Moderate n (%)	Patient Safety High n (%)	Total n (%)
Non-compliant	6 (66.7%)	3 (33.3%)	0 (0.0%)	9 (100%)
Moderate	9 (69.2%)	3 (23.1%)	1 (7.7%)	13 (100%)
Compliant	3 (9.7%)	16 (51.6%)	12 (38.7%)	31 (100%)
Total	18 (34.0%)	22 (41.5%)	13 (24.5%)	53 (100%)

Table 3 presents the results of the Chi-Square test and correlation analysis examining the relationship between SBAR communication compliance and patient safety. The Chi-Square test showed a statistically significant association between the two variables ($\chi^2 = 21.202$; $df = 4$; $p = 0.0003$), indicating that SBAR compliance is significantly related to patient safety culture outcomes among nurses. The strength of this association, as measured by Cramér's V (0.447), indicates a moderate to strong relationship. Additionally, Spearman's correlation coefficient ($r_s = 0.593$; $p < 0.0001$) confirms a significant positive correlation, suggesting that higher SBAR compliance is associated with better patient safety culture levels. These findings collectively demonstrate that structured communication during handover plays an important role in improving patient safety culture in inpatient care settings.

Table 3.
Chi-Square Test and Correlation Analysis Between SBAR Compliance and Patient Safety

Statistical Test	Value	Interpretation
Chi-Square (χ^2)	21.202	Significant
Degrees of Freedom (df)	4	-
p-value	0.0003	$p < 0.05$ (Significant)
Cramér's V	0.447	Moderate to strong association
Spearman's rho (r_s)	0.593	Strong positive correlation
p-value (Spearman)	< 0.0001	Significant

The findings of this study demonstrate a significant relationship between SBAR communication compliance during handover and patient safety in inpatient care settings. Most nurses demonstrated good SBAR compliance (58.5%), moderate workload levels (49.1%), and moderate patient safety outcomes (41.5%). These findings suggest that although structured communication has been widely implemented, there are still variations in practice quality across wards that may influence patient safety culture. The cross-tabulation and Chi-Square analysis further confirmed that higher SBAR compliance is consistently associated with better patient safety culture, while lower compliance corresponds with poorer patient safety culture levels. Importantly, this study can only establish an association between SBAR compliance and patient safety culture, not causation; the cross-sectional design does not permit inferring that SBAR directly improves patient safety culture. This aligns with previous studies reported that incomplete SBAR implementation, particularly in the Recommendation component, significantly increases the risk of communication-related errors during handover in hospital settings (Ashcraft & Owen, 2017; Jeong & Kim, 2020; Yun et al., 2023).

Similar findings were emphasized that standardized communication tools such as SBAR improve clinical clarity and reduce information loss during transitions of care, ultimately enhancing patient safety outcomes (Müller et al., 2018). In addition, hospitals with higher adherence to structured handover communication protocols experienced lower rates of adverse events and medication errors (Abbaszade et al., 2021). The consistency of these findings supports the notion that SBAR serves as a critical communication framework that reduces ambiguity and ensures continuity of care (Martínez-Fernández et al., 2022). However, the present study also highlights that workload remains a significant contextual factor, with nearly half of nurses experiencing heavy workload (49.1%), which may negatively affect communication performance and patient safety culture. This is supported that high workload and staffing pressure significantly reduce adherence to patient safety practices, including structured communication during handovers (Alizadeh-risani et al., 2024; Lo et al., 2021; Nagammal et al., 2016).

From a theoretical perspective, these findings can be explained using the Swiss Cheese Model of patient safety proposed by Reason, which suggests that adverse events occur when multiple system defenses are weakened simultaneously (Wiegmann et al., 2022). In this context, SBAR communication functions as a safety barrier that reduces the likelihood of information failure during handover, while workload acts as a latent condition that may weaken this barrier. When SBAR is properly implemented, it strengthens the communication layer of defense, thereby reducing the probability of error propagation across care transitions (Bakr et al., 2023). Additionally, Donabedian's Structure–Process–Outcome model further supports these findings, where SBAR communication represents the process

dimension, workload reflects structural conditions, and patient safety outcomes are the final indicators of care quality. The interaction between these components explains why higher SBAR compliance is associated with improved patient safety outcomes in this study.

These findings should be interpreted with several limitations in mind, including the cross-sectional study design, potential bias from observational and self-reported data, and the single study site with a limited sample size. Future studies involving larger, multicenter cohorts and longitudinal designs are needed to increase generalizability and clarify causal relationships.

4. Conclusion

This study demonstrates a significant association between SBAR communication compliance during handover and patient safety among nurses at Anugerah Regional General Hospital. The findings underscore the importance of structured communication in enhancing care continuity and promoting patient safety. Furthermore, the study contributes empirical evidence supporting SBAR as an effective communication framework while highlighting workload as a contextual factor influencing safety performance. Practical implications include the need for continuous SBAR training, strengthened handover supervision, and effective workload management. Nevertheless, the findings should be interpreted cautiously due to the cross-sectional design, limited sample size, and single-hospital setting. Future studies are encouraged to employ longitudinal or interventional designs with larger and more diverse samples to further validate these findings.

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