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The Effect of Structured Communication on Enhancing Nursing Students' Patient Handover Skills: A Pilot Study

Abstract

Background: Effective, structured communication among healthcare professionals is essential for patient safety and continuity of care. The SBAR (Situation–Background–Assessment–Recommendation) framework is an internationally recognized method that standardizes clinical information exchange. Although SBAR has been widely used and validated in clinical settings, its integration into undergraduate nursing education remains limited and inconsistent.

Aim: This study aimed to assess the impact of an educational intervention using the SBAR tool on undergraduate nursing students' ability to deliver structured patient handovers and to explore their attitudes toward its use.

Methods: A pilot experimental study was conducted with 32 seventh-semester nursing students from a university. Participants were randomly assigned to an experimental group (SBAR training) or a control group. Performance was evaluated in a simulated handover scenario based on structure and content. Additionally, completion time and attitudes were assessed via questionnaire. Descriptive statistics (means, standard deviations) and independent samples t-tests were used for data analysis.

Results: The experimental group achieved significantly higher scores in the "Situation" and "Background" components of SBAR, with large effect sizes. Although no statistical significance was found for "Recommendation," the effect size was moderate. Handover duration was significantly longer in the experimental group, potentially indicating a more analytical approach. Acceptance of the tool was universal, with positive attitudes regarding its usefulness and curricular integration.

Conclusion: Students found the SBAR tool easy to understand, reported fewer errors during simulated handovers, and expressed strong support for its inclusion in undergraduate nursing education.

Keywords: Clinical competence, education, nursing, patient handoff, Situation–Background–Assessment–Recommendation, students, undergraduate

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Introduction

Effective communication among healthcare professionals is a critical factor in ensuring patient safety and enhancing the functional efficiency of healthcare services. A significant proportion of adverse events in clinical settings has been attributed to communication failures during patient handovers.[1] Strengthening communication within and between multidisciplinary teams is therefore a fundamental component of high-quality and safe healthcare delivery.[2]

Structured communication tools such as SBAR (Situation–Background–Assessment–Recommendation) have been widely adopted to enhance the clarity, accuracy, and completeness of information transfer among healthcare professionals.[3] SBAR has been recognized internationally as a best-practice framework for standardized clinical communication.[4] Because effective communication is a cornerstone of professional nursing practice, it is essential that these competencies be cultivated early during undergraduate education. Within the field of education, SBAR has demonstrated notable utility. Recent studies have shown that training in the use of SBAR improves communication clarity, enhances students' confidence, and strengthens their clinical decision-making skills.[5,6] In particular, a systematic review of 12 studies found that SBAR-based simulations significantly improved the communication competence of nursing students.[7] Moreover, experimental research has reported substantial gains in students' self-efficacy and clinical decision-making abilities following SBAR-centered educational interventions.[5]

Despite the growing recognition of structured communication tools in clinical practice, the incorporation of SBAR into undergraduate nursing education remains inconsistent and insufficiently standardized across institutions.[8,9] Only a limited number of empirical studies have systematically evaluated its educational outcomes, and most existing initiatives are fragmented, lacking a uniform pedagogical framework. This gap may hinder the development of key competencies among nursing students, such as clinical prioritization, information synthesis, and interprofessional communication—skills that are essential for patient safety and effective teamwork.[9] Addressing this educational gap is therefore critical to preparing future nurses for real-world clinical challenges. The aim of this study is to evaluate the effectiveness of the SBAR tool on nursing students' handover skills and to explore their attitudes and acceptance of the tool regarding its integration into the undergraduate nursing curriculum. Given the limited integration of structured communication tools into undergraduate nursing curricula, this study was designed as a pilot investigation to assess the feasibility and educational

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impact of SBAR-based training on nursing students. Conducting the study on a small scale allowed the researchers to test the intervention process, identify potential methodological challenges, and obtain preliminary evidence of its effectiveness before implementing the program in a larger and more diverse student population.

Accordingly, the study addressed the following research questions:

1. Does SBAR-based training improve the ability of nursing students to perform structured and comprehensive patient handovers?
2. How do students perceive the usefulness and applicability of the SBAR tool in their clinical education?
3. What is the level of acceptance and intention to integrate SBAR into undergraduate nursing curricula?

Materials and Methods

Study Design

This study was designed as a pilot randomized experimental study aiming to evaluate the effectiveness of an educational intervention based on the SBAR tool in enhancing structured communication skills among undergraduate nursing students. Participants were randomly allocated to an intervention group or a control group using computer-generated simple randomization. Given the pilot nature of the study, the primary aim was to assess feasibility and obtain preliminary estimates of effect sizes rather than to conduct a fully powered randomized controlled trial. Reporting of the study followed the CONSORT extension for pilot and feasibility randomized trials, where applicable. The study was conducted in March 2025 during the spring academic semester.

Participants and Inclusion Criteria

Participants were recruited through convenience sampling from a fourth-year nursing course at a public university. The participants were senior (seventh-semester) nursing students enrolled in an eight-semester undergraduate program, ensuring that all had completed the majority of their theoretical and clinical coursework. A total of 38 students were enrolled in the "Diagnostic Nursing" course during the study period, of whom 32 met the inclusion criteria and agreed to participate voluntarily. They were randomly assigned to two equal groups (n=16 per group): an intervention group, which received SBAR-based training, and a control group, which received no relevant instruction. Group allocation was performed using simple randomization generated by a computer-based random number system. The randomization procedure was carried out by an independent researcher to ensure objectivity.

The sample size was determined in accordance with methodological guidance for pilot studies, which typically emphasize feasibility testing and preliminary effect estimation rather than hypothesis testing. Although no formal power analysis was conducted, the inclusion of 32 participants (16 per group) was considered appropriate to obtain preliminary data and assess feasibility for a future full-scale study. Of these, 32 met the inclusion criteria and agreed to participate. The inclusion criteria were:

1. Enrollment as a senior (seventh-semester) student in an eight-semester undergraduate nursing program,
2. Completion of at least one clinical placement, ensuring prior exposure to clinical communication environments, and
3. Willingness to participate voluntarily.

All eligible students who met these criteria and provided informed consent were included in the study.

Data Collection Tools

The data collection tool included the SBAR framework. The SBAR framework is an existing, internationally validated communication model originally developed by Kaiser Permanente to improve the clarity and accuracy of clinical information exchange.[10] It has since been widely adopted by major healthcare organizations such as the Agency for Healthcare Research and Quality (AHRQ)[1] and the Canadian Patient Safety Institute (CPSI).[3] In the present study, SBAR was used as an educational framework to guide training design rather than as a newly developed instrument or measurement tool. Students' handover responses were evaluated using a four-point SBAR performance rubric assessing content completeness and structural clarity. Each SBAR component (Situation, Background, Assessment, Recommendation) was rated on a binary scale (0=not adequately addressed, 1=adequately addressed), resulting in a total score ranging from 0 to 4. A perfect score (4/4) indicated complete and systematic application of the SBAR framework. The rubric was developed based on previously validated tools used in SBAR-related educational research,[5,7] ensuring content validity. Inter-rater reliability was assessed between two independent evaluators, yielding a high level of agreement (Cohen's κ=0.86).

Intervention Procedure

The intervention was conducted in a simulation laboratory at a university and implemented by two faculty members experienced in clinical nursing education. The SBAR training session lasted approximately 90 minutes and was delivered in a classroom-based workshop format. Prior to the exercise, the intervention group attended a structured 45-minute educational session on the SBAR communication framework, which included a short theoretical lecture, a demonstration of an SBAR-based handover, and guided discussion. The SBAR framework consists of four structured components: Situation (a concise statement of the patient's current status), Background (relevant clinical history and contextual information), Assessment (the healthcare provider's interpretation or judgment of the situation), and Recommendation (the proposed plan of action or intervention). Students were trained to apply these four steps systematically when organizing and delivering patient handovers. Following the training, students were asked to complete a written patient handover scenario based on a standardized hypothetical case. The control group completed the same handover exercise without prior exposure to SBAR training. Both groups performed the task under identical conditions to ensure consistency and fairness. Students in the control group also received SBAR instruction to ensure ethical parity. All participants subsequently completed an anonymous electronic questionnaire assessing the clarity, usability, and perceived educational value of the SBAR method. Their performance was assessed based on the four SBAR components and the total time taken to complete the patient handover scenario.

Statistical Analysis

Statistical analysis was conducted using IBM SPSS Statistics for Windows, version 28.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (means, standard deviations) were calculated for all measured variables. Independent samples t-tests were used to examine between-group differences, while effect sizes (Cohen's d) were computed to estimate the magnitude of observed effects. Statistical significance was set at $p<0.05$.

Ethical Considerations

The study received ethical approval from the Ethics and Deontology Committee of the Department of Nursing, University of Patras (Approval Number: 44531/24-022025, Date: 24.02.2025). All participants were thoroughly informed about the aims and procedures of the research and provided written informed consent prior to participation. Anonymity and confidentiality of data were strictly maintained throughout the study. The research was conducted in full accordance with the principles outlined in the Declaration of Helsinki.[11]

Results

Quantitative Findings on SBAR Performance

A total of 32 nursing students participated in the study, all of whom were enrolled in the 7th semester of the undergraduate program. The participants' mean age was 22.1±0.8 years (range: 21–23), with 87.5% female (n=28) and 12.5% male (n=4). These demographic characteristics were similar across the intervention and control groups.

The intervention group achieved higher mean scores across all SBAR components, indicating a positive impact of the educational intervention (Table 1). Specifically, for the *Situation* component, the trained nursing students had a mean score of 0.534 (standard deviation [SD]=0.192) compared to 0.319 (SD=0.241) in the control group. This difference was statistically significant (t=2.798, p=0.009), with a large effect size (Cohen's d=0.99), suggesting a strong educational impact. Similar results were observed in the *Background* component, where the difference was even more pronounced (0.916 vs. 0.544) and statistically significant (t=3.083, p=0.005), with a very large effect size (Cohen's d=1.09). In contrast, the *Assessment* component showed nearly identical means (0.616 vs. 0.606) with no statistically significant difference (t=0.096, p=0.924, Cohen's d=0.03), suggesting that the training had minimal influence on this aspect. For the *Recommendation* component, although the difference in mean scores (0.770 vs. 0.079) appeared substantial, it did not reach statistical significance (t=1.485, p=0.148), possibly due to variability and the small sample size. However, the effect size (Cohen's d=0.52) was moderate, indicating potential practical relevance in educational settings.

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Table 1. Mean scores and standard deviations in SBAR components and handover time by training group

Assessment category	Trained group (N=16) Mean±SD	Control group (N=16) Mean±SD
Situation	0.534±0.192	0.319±0.241
Background	0.916±0.235	0.544±0.421
Assessment	0.616±0.258	0.606±0.328
Recommendations	0.770±0.197	0.079±0.173
Handover duration*	18:56±3:52	10:30±4:00

*: Handover time expressed in minutes:seconds (mm:ss). SBAR: Situation–Background–Assessment–Recommendation, SD: Standard deviation.

Finally, regarding handover duration, the intervention group spent significantly more time (M=18:56, SD=3:52) compared to the control group (M=10:30, SD=4:00). Handover duration was recorded in minutes and seconds (mm:ss) for each participant. This difference was highly statistically significant (t=6.867, p<0.001), with a very large effect size (Cohen's d=2.43), possibly reflecting a more thorough, focused, and structured presentation of information by the trained students (Table 2).

Student Perceptions and Experiences After the Training

Following the assessment, all participants–including those in the control group who subsequently received SBAR training–completed an online questionnaire to evaluate their experiences and perceptions regarding the implementation of SBAR in undergraduate education. The findings were overwhelmingly positive (Table 3). All nursing students (100%) expressed a desire for SBAR to be formally integrated into their nursing curriculum and agreed that SBAR can reduce communication errors in clinical settings. A total of 87.5% reported increased confidence in their role as nursing students, and 71.9% believed that SBAR would improve their communication during clinical practice. The presentation of the SBAR method was rated as "very" or "completely" understandable by 97% of the participants, with an average comprehension score of 4.5/5. Regarding ease of use, 84.4% found the tool "easy" or "very easy" to use. Interestingly, while 46.9% of students stated they felt capable of applying SBAR in a real clinical setting, 53.1% responded "maybe," indicating a need for further support and hands-on training.

Finally, 96.9% of students rated the inclusion of tools like SBAR as "very" or "extremely important" to their professional development, and an equal percentage agreed that SBAR contributes meaningfully to patient safety improvement.

Discussion

This study evaluated the impact of SBAR training on undergraduate nursing students' ability to perform structured patient handovers. The results demonstrated that targeted training significantly improved specific aspects of structured communication. In particular, trained students scored significantly higher in the "Situation" and "Background" components, with large effect sizes. These findings suggest that education can enhance students' ability to effectively convey critical information related to the patient's current status and relevant clinical history–two essential pillars of clinical communication.[6,7]

These results align with previous studies that have supported the positive impact of SBAR training in educational settings. Integrating SBAR into simulation-based scenarios has been shown to increase clarity, completeness, and student confidence during handovers.[5,6] Additionally, the use of structured communication tools can improve the quality of interprofessional information exchange and reduce errors.[7] A particularly notable finding was the significant difference in the time spent completing the written handover. On average, the experimental group spent 8.5 minutes more than the control group. Although extended handovers may be viewed as a drawback in time-pressured clinical environments, within the context of education, this additional time reflects more systematic thinking, analytical reasoning, and diligence–characteristics that support the quality of learning and future clinical safety. This finding is consistent with studies suggesting that SBAR use may increase the time required for handovers but improves their overall quality.[5]

The post-training questionnaire results were also highly encouraging. The unanimous agreement among students regarding the inclusion of SBAR in the nursing curriculum highlights its perceived educational value. Most nursing students reported increased confidence, and the tool was rated as easy to understand and use. These findings reflect the low cognitive and emotional burden associated with SBAR, making it accessible and appealing to students with limited clinical experience.[12,13]

Table 2. Independent samples t-test results for SBAR components and handover time

Variable	t (df)	p	Cohen's d	Effect size interpretation
Situation	2.798 (30)	0.009	0.99	Significant, large
Background	3.083 (23.5)	0.005	1.09	Significant, large
Assessment	0.096 (30)	0.924	0.03	Not significant
Recommendations	1.485 (29.5)	0.148	0.52	Not significant, medium effect
Handover duration*	6.867 (30)	<0.001	2.43	Significant, very large effect

*: Handover time expressed in minutes:seconds (mm:ss). t: t-value (t-statistic), df: Degrees of freedom, Cohen's d: effect size measure.

Table 3. Student perceptions after SBAR training

Question	Response summary
Participation in more SBAR seminars/workshops?	Yes: 87.5%, Maybe: 12.5%, No: 0%
Presentation understanding (mean score: 4.5) (Likert 1–5)	Completely: 56.3%, Very: 40.6%, Moderate: 3.1%
Ability to apply SBAR in a clinical setting?	Yes: 46.9%, Maybe: 53.1%, No: 0%
Ease of using SBAR (mean score: 4.2) (Likert 1–5)	Very easy: 37.5%, Easy: 46.9%, Difficult: 6.2%, Moderate: 9.4%
Importance for patient safety (mean score: 4.8) (Likert 1–5)	Extremely: 78.1%, Very: 18.8%, Moderate: 3.1%
Confidence boost after SBAR use?	Yes: 87.5%, Maybe: 12.5%, No: 0%
Improved clinical communication (mean score: 4.7) (Likert 1–5)	Agree: 71.9%, Neutral: 28.1%, Disagree: 0%
Should SBAR be part of the curriculum?	Yes: 100%
SBAR reduces clinical communication errors?	Yes: 100%
Importance of SBAR for professional development (mean score: 4.7) (Likert 1–5)	Extremely: 68.8%, Very: 28.1%, Moderate: 3.1%

Furthermore, the shared belief that SBAR can help reduce communication errors underscores students' awareness of the importance of safe and accurate information transfer in clinical settings. Their positive attitudes confirm that tools like SBAR can play a key role in advancing the professional competence of future nurses.[9,14,15]

Although the results demonstrated statistically significant improvements in the "Situation" and "Background" components, no significant differences were observed in the "Assessment" and "Recommendation" components. This pattern may reflect the inherent complexity of these stages, which require higher levels of clinical reasoning, prioritization, and decision-making—skills that typically evolve through advanced clinical exposure. Additionally, the relatively small sample size and short duration of the intervention may have limited the ability to detect more subtle effects. It is also possible that written rather than verbal handover scenarios restricted the authenticity and dynamic interaction typical of clinical communication, thereby influencing student performance. Future research incorporating larger samples, extended training, and realistic simulation-based environments could provide deeper insights into these aspects.

Limitations

Although the findings of the present study are encouraging, certain limitations should be acknowledged. The relatively small sample size (n=32) limits the generalizability of the results to broader student populations and may have affected the statistical power, particularly in components where no significant differences were observed. Additionally, the fact that the assessment was conducted in a simulated rather than a real clinical environment may affect the external validity of the findings.

Furthermore, the evaluation process may have been subject to potential observer bias, as the evaluators were aware of group allocation despite efforts to apply consistent scoring criteria. Another possible source of bias is the Hawthorne effect, whereby students might have modified their performance simply because they were aware of being observed during the intervention. Moreover, the evaluation relied on specific scoring tools and self-reported questionnaires, which may not fully capture the long-term educational impact of the training. Nevertheless, the study provides valuable insights into the educational utility of SBAR and lays the groundwork for future large-scale investigations in real clinical settings.

Conclusion

This pilot study highlighted the positive impact of SBAR training on nursing students' ability to deliver comprehensive, clear, and structured patient handovers. Trained participants demonstrated significantly higher performance in key components of the tool, such as presenting the patient's current condition and background, indicating the contribution of SBAR to enhancing students' communication competence. In parallel, the unanimous acceptance of the tool by the nursing students and their favorable attitude toward its integration into undergraduate curricula further support the need for systematic incorporation of standardized communication training in academic nursing education. The use of SBAR not only improves clinical communication but also serves as an educational strategy that enhances students' confidence and professional readiness. Based on these findings, the broader implementation of SBAR training in nursing programs is recommended. Future research involving larger and more representative samples may further strengthen the generalizability of the results and assess the long-term impact of the tool on graduates' clinical performance.

Ethics Committee Approval: The study was approved by the Ethics and Deontology Committee of the Department of Nursing, University of Patras (Approval Number: 44531/24-022025, Date: 24.02.2025).

Informed Consent: Written informed consent was obtained from the participants.

Conflict of Interest: The authors have no conflicts of interest to declare.

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