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ORIGINAL RESEARCH MEDICAL EDUCATION

Effectiveness of nursing training program regarding SBAR on patient outcomes

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ABSTRACT

Background & objective: Effective communication is essential to ensure patient safety and quality care. The SBAR model (Situation, Background, Assessment, and Recommendation) provides a structured approach for exchanging information in clinical settings. This study investigates the impact of SBAR education on nurses' knowledge and its role in enhancing patient outcomes in critical care units**.**

Methodology: This quasi-experimental study included 80 nurses and 80 patients from two public hospitals in Najaf. Nurses were non-randomly divided into two groups: an intervention group (n = 40) that received SBAR training, and a control group (n = 40) with no training. Patients were equally assigned to each group based on the nurses providing their care. Data were collected using a structured questionnaire assessing demographics, nurses' SBAR knowledge, and patient clinical outcomes at the bedside.

Results: Post-test results revealed a notable improvement in nurses' SBAR knowledge, with an average score rising to 1.85 compared to 0.25 in the pre-test. Patient outcomes also improved within the intervention group, where more patients were classified as "not critically ill" and showed better respiratory and cardiovascular function (80% and 65%, respectively).

Conclusion: Implementing an SBAR training program for nurses in Najaf Governorate hospitals can significantly enhance their knowledge of structured communication and lead to positive improvements in patient outcomes in critical care settings.

Abbreviations: SBAR: Situation, Background, Assessment, Recommendation

Keywords: Communication; Education; Hospital; Knowledge; Nurses: Nursing, Patient Handoff, SBAR; Treatment Outcome

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1. INTRODUCTION

Effective communication among healthcare providers is essential to ensuring patient safety and delivering high-quality care. Among the structured communication strategies in clinical settings, the Situation, Background, Assessment, and Recommendation (SBAR) technique stands out as a widely adopted tool. It provides a standardized framework for information exchange during handoffs and in critical situations, aiming to minimize errors and enhance patient outcomes.[1,2] Handoff communication, the process of transferring responsibility for patient care between providers, is a pivotal component of hospital operations. Variability in

this process—based on shift timing, clinical unit, or staff experience—can affect the continuity and safety of care. Structured communication tools like SBAR have proven particularly effective in high-risk settings, where timely and accurate information transfer is critical.[3,4] The SBAR model enhances communication by organizing critical patient data into four key components, ensuring clarity and consistency in verbal or written exchanges. By standardizing the way nurses convey essential patient details, SBAR improves decision-making, promotes collaboration, and reduces communication-related errors.[5,6]

In high-pressure environments such as intensive care units and emergency departments, the need for accurate and concise communication is even greater. Inadequate handover practices have been linked to increased errors and compromised patient outcomes. Studies have shown that training in SBAR improves nurses' communication skills, increases confidence, and leads to greater job satisfaction.[7,8]

Evidence from both local and global studies supports the effectiveness of SBAR-based interventions. For example, Abadi H, Hassan H. (2021) demonstrated significant knowledge gains among Iraqi nurses following SBAR training.[9] Similarly, Al-Ashour (2024) emphasized the importance of continuous SBAR education in critical care settings.[10] Internationally, tools like SBAR are associated with enhanced patient satisfaction, safety, and improved patient-reported outcomes.[11,12] However, despite these benefits, challenges persist. In Egypt, Al-Murshedi AAR (2024) found that a majority of nurses were dissatisfied with existing handover practices, with many attributing errors to poor communication.[14] Also identified gaps in triage communication knowledge among emergency nurses, highlighting the ongoing need for structured communication training.

2. METHODOLOGY

A quasi-experimental design was applied, involving both pre- and post-intervention assessments. This approach is widely supported in nursing research evaluating educational interventions.[15] The study was conducted from December 3, 2024, to January 25, 2025, at Al-Manathera and Al-Mishkhab General Hospitals in Iraq. A purposive sample of 80 nurses was selected, with 40 assigned to the study group and 40 to the control group. All participants were drawn from emergency departments in the two hospitals.

2.1. Inclusion Criteria

Nurses required participants to hold a valid nursing license from the Iraqi Ministry of Health, have at least one year of clinical experience in an emergency department, be currently working in an adult care unit within the emergency department, and express willingness to provide informed consent and participate in both the pre- and post-training phases. Similarly, the patient inclusion criteria specified that participants must be adults aged 18 years and above, admitted to the emergency department of either hospital during the study period, conscious, oriented, and clinically stable to permit assessment within one to two hours of admission, and able to provide verbal consent to participate. Participants who did not meet any of these inclusion criteria were excluded from the study.

2.2. Educational Program Details

The SBAR educational program spanned four weeks and combined lectures, case-based discussions, simulation exercises, and group feedback sessions.

- Week 1: SBAR foundations (definition, history, components).
- Week 2: Clinical use of SBAR, role clarity, overcoming barriers.
- Week 3: Simulation-based role-playing and real case scenarios.
- Week 4: Implementation and post-training evaluation.

Control group nurses continued standard practice without structured training.

2.3. Data collection tools:

- **Section I:** A self-reported questionnaire focused on nurses' demographic and occupational details, including age, sex, level of education, years of experience in critical care, work shifts, and prior participation in nursing documentation training.[16]
- **Section II:** A 27-item multiple-choice test designed to assess nurses' knowledge about the SBAR communication method. The format and focus align with contemporary nursing education studies.[17]
- **Section III**: A bedside outcome checklist evaluating three key patient domains—neurological status, respiratory function, and cardiovascular stability based on the tool developed by.[18]

2.4. Data collection phases:

- **Phase 1** (January 1–February 10, 2025): Nurse pre-test, SBAR training for the intervention group, and post-test.
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Table 1. Overview of the socio-demographic and job-related characteristics of nurses in both the intervention and control groups (total sample = 80; 40 participants per group).

Demographic data	Rating and Intervals	Study Group (n = 40)	Control Group (n = 40)	Chi-square (df)	P-value (Sig)
Age Groups (Years)	<= 25	8 (20)	10 (25)	0.66 (4)	0.956
	26 - 35	27 (67.5)	24 (60)		
	36 and more	5 (12.5)	6 (15)		
	Mean ± SD (Min-Max)	29.2 ± 5.07 (22-42)	29.4 ± 4.96 (22-42)		
Gender	Males	18 (45)	21 (52.5)	0.602 (2)	0.740
	Females	22 (55)	19 (47.5)		
Level of education	High school nursing	3 (7.5)	7 (17.5)	3.905 (6)	0.689
	Nursing institute	14 (35)	16 (40)		
	College of Nursing	21 (52.5)	16 (40)		
	Postgraduate certificate	2 (5)	1 (2.5)		
Years of nursing experience	≤ 5	21 (52.5)	16 (40)	1.683 (4)	0.794
	6 - 10	14 (35)	18 (45)		
	≥ 11	5 (12.5)	6 (15)		
	Mean ± SD (Min-Max)	6.5 ± 4.4 (1-19)	6.6 ± 4.4 (1-20)		
Years of experience in critical units	≤ 5	31 (77.5)	27 (67.5)	1.64 (4)	0.802
	6 - 10	7 (17.5)	11 (27.5)		
	≥ 11	2 (5)	2 (5)		
	Mean ± SD (Min-Max)	4.2 ± 3.6 (1-17)	4.8 ± 3.8 (1-18)		
Work shift	Morning	22 (55)	19 (47.5)	0.602 (4)	0.740
	Evening	18 (45)	21 (52.5)		
Have you entered nursing doc. courses	Yes	30 (75)	22 (55)	4.929 (2)	0.085
	No	10 (25)	18 (45)		
If Yes, How Many	1	11 (36.67)	14 (63.64)	7.855 (4)	0.097
	2	12 (40)	8 (36.36)		
	3	7 (23.33)	0 (0)		

Data presented as n (%); P < 0.05 considered significant.

- **Phase 2** (February 12–March 5, 2025): Patient assessments conducted 1–2 hours post-admission.

The study also involved 80 patients, evenly split between the two groups. Those in the study group received care from nurses who had undergone the SBAR education and followed the structured communication approach. In contrast, the control group received routine nursing care from nurses who had not participated in the program.

Data were analyzed using SPSS version 20. Descriptive and inferential statistics, including frequency, percentage, mean, standard deviation, chi-square test, independent sample t-test, and paired t-test, were employed to interpret the results.

The present study was carried out in several phases. First, the SBAR training program was designed and developed based on a thorough needs assessment of the participating nurses, alongside insights drawn from relevant scientific literature, previous research findings, and the researcher's clinical experience.[9,18] Second, the program was implemented within the emergency departments between December 4th, 2024, and January 5th, 2025.

During implementation, nurses in the intervention group completed the SBAR training and subsequently applied the SBAR communication protocol while providing care to patients in the study group. In contrast, nurses in the control group continued to use routine, unstructured communication methods with colleagues and staff. Patient assessments for both groups were conducted approximately one to two hours after admission to the emergency unit, ensuring consistency in evaluating the impact of SBAR-guided care.

Table 2: Mean Difference of the knowledge of two groups at two periods of measurement

Main Studied Domains	Group	Periods of Measurement	Mean ± SD	t-value	d.f.	p-value
Overall Nurses' Knowledge	Study	Pre-test	.25 ± .05	42.48	78	.0001 HS
		Post-test	.85 ± .07			
	Control	Pre-test	.22 ± .09	0.259	78	.797 NS
		Post-test	.23 ± .13			

The questionnaire's validity is needed to determine the questionnaire's ability to gather the data. Face validity can be used to complete the adoption of the questionnaire, which can be specified by using a panel of experts to assess the questionnaire's relevance, clarity, and adequacy.

The reliability of the study instrument was determined through the use of a test and re-test approach on ten nurses, and the interval period was one week to determine the interval consistency of the nurses' knowledge concerning SBAR. The reliability score revealed that the person correlation coefficient is (r = 0.88), which is considered statistically acceptable.

3. RESULTS

Table 1 presents a comparative overview of the socio-demographic characteristics of the intervention and control groups. Most participants across both groups were aged between 26 and 35 years, representing 67.5% of the study group and 60% of the control group. Males were slightly more in the control group (52.5%), while females were slightly more in the study group (55%).

In terms of education, a higher proportion of nurses in the study group held college-level nursing qualifications (65%) compared to 40% in the control group. Additionally, 35% of the study group held an institute-level qualification versus 40% in the control group.

Both groups had comparable professional experience, approximately 6.7 years. However, more nurses in the study group (52.5%) had ≤ 5 years of experience, compared to 40% in the control group. More nurses in the study group (77.5%) had limited experience in critical care compared to 67.5% in the control group.

More study group nurses work morning shifts (55%) compared to the control group (47.5%), while more control group nurses work Evening shifts (52.5%) compared to the study group (45%).

Finally, a higher percentage of nurses in the study group (75%) reported taking nursing documentation courses compared to the control group (55%). Among those who took courses, the study group had more nurses who completed multiple courses.

Statistically, there is no significant difference between the study and control groups (age group, sex, educational achievement, years of service in the nursing field, and training courses) when analyzed by the Chi-square test.

Table 2 presents the comparison of nurses' knowledge scores before and after the intervention. In the study group, the mean score improved significantly from 0.25 ± 0.05 in the pre-test to 0.85 ± 0.07 in the post-test, with a highly significant P-value (P < 0.01). This result indicates a substantial enhancement in nurses' knowledge following the SBAR education.

On the other hand, the control group showed insignificant change between the pre-test (0.22 ± 0.09) and post-test (0.23 ± 0.13), as reflected by (P > 0.05). This suggests that nurses' knowledge in the control group remained largely unchanged without the intervention.

Table 3: Mean difference of knowledge of the two groups at two periods

Studied domains	Periods of measurement	Groups	Mean ± SD	t-value	d.f.	p-value
Overall Nurses' Knowledge	Pre-test	study	.25 ± .05	1.732	78	.087 NS
		control	.22 ± .09			
	Post-test	study	.85 ± .07	25.695	78	.0001 HS
		control	.23 ± .13			

Table 4: Distribution of bedside patients' outcomes for the groups

Demographic data			Rating and Intervals	Patient study Outcome (n = 40)	Patient Control Outcome (n = 40)	Chi-square (df)	P-value (Sig)
A. Patient Category Assess		What is the patient's current category?	Not critically ill	30 (75.0)	10 (25.0)	26.41 (2)	<0.001 (HS)
			Potential critical illness	3 (7.5)	24 (60.0)		
			critically ill	7 (17.5)	6 (15.0)		
B. Clinical Observations	1. Appearance	Is the patient's appearance normal?	Yes	30 (75)	24 (60)	2.05 (1)	0.152 (NS)
			No	10 (25)	16 (40)		
		If abnormal, please describe the appearance	Sweaty	5 (12.5)	7 (17.5)	0.39 (4)	0.116 (NS)
			Pale	3 (7.5)	5 (12.5)		
			Anxious	0 (0)	6 (15)		
			Mlue	2 (5)	2 (5)		
			Mottled Skin	1 (2.5)	1 (2.5)		
	2. Neurological	Is the patient alert and cooperative?	Yes	38 (95)	34 (85)	2.22 (1)	0.136 (NS)
			No	2 (5)	6 (15)		
		If not, please describe the neurological response:	Agitated	1 (2.5)	2 (5)	0.34 (2)	0.556 (NS)
			Confused	1 (2.5)	3 (7.5)		
			Eyes open to voice only	1 (2.5)	4 (10)		
	3. Respirato	Respiratory Status	Improved	32 (80.0)	23 (57.5)	4.71 (1)	0.03 (S)
			Unimproved	8 (20.0)	17 (42.5)		
	4. Cardiovascular	Cardiovascular Status	Improved	26 (65.0)	15 (37.5)	6.05 (1)	0.014 (S)
			Unimproved	14 (35.0)	25 (62.5)		
		Is there evidence of cardiac arrest or death?	Yes	0 (0)	0 (0)	N/A	
			No	40 (100)	40 (100		
C. Summary of Finding		Based on your assessment, does the patient display signs of a critical illness?	Yes	3 (7.50%)	10 (25.0)	4.50 (1)	0.034 (S)
			No	37 (92.5%)	30 (75.0)		

Data presented as n (%); P < 0.05 considered significant.

The data indicate that, before the intervention, there was no statistically significant difference in knowledge scores between the study and control groups. However, following the implementation of the program, a significant improvement was observed in the study group compared to the control group.

Table 4 compares bedside outcomes between the study and control groups, revealing significant differences in criticality and clinical observations. A majority of the study group patients (75%) were "Not critically ill," compared to only 25% in the control group, while 60% of the control group were "Potential critically ill," highlighting a highly significant difference ($\chi^2 = 26.41$, $P < 0.001$). Respiratory and cardiovascular improvements were notably higher in the study group (80% and 65%, respectively) than in the control group (57.5% and 37.5%), with both showing statistical significance ($P = 0.03$ and $P = 0.014$). Although more study group patients had normal appearances (75%) and were alert and cooperative (95%) compared to the control group (60% and 85%), these differences were not statistically significant ($P > 0.05$). Moreover, the signs of

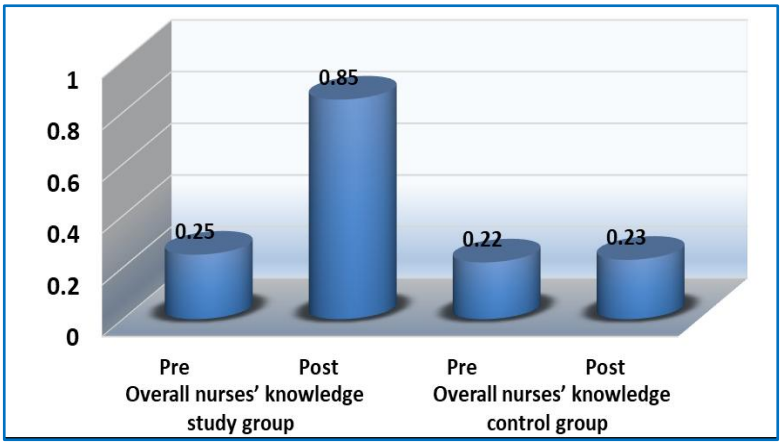

Figure 1: Mean overall knowledge of the control group at pre-test and post-test

critical illness were significantly lower in the study group (7.5%) than in the control group (25%, P = 0.034).

Overall, the study intervention demonstrated effectiveness in improving patient outcomes, particularly in reducing criticality and enhancing respiratory and cardiovascular status, though certain metrics, like appearance and neurological status, showed non-significant (P > 0.05).

4. DISCUSSION

The present study evaluated the impact of an SBAR-focused nursing education intervention on knowledge and patient outcomes within Iraqi hospitals. The results offer meaningful insights into the effectiveness of structured communication education. Similar findings have been reported in other programs aimed at improving patient readiness and nurse engagement, reinforcing the clinical value of nurse-led communication strategies.[19]

Analysis of baseline data confirmed that both groups were demographically and occupationally similar, with no significant differences in age, education, sex, or years of experience. This enhances the credibility of the findings by suggesting that post-education changes in the study group can be attributed to the intervention itself rather than participant characteristics.

These outcomes align with earlier studies,[20] which emphasized the role of communication training among younger nurses in emergency settings. Additionally, the higher proportion of college-educated nurses in the study group may reflect a stronger inclination toward continuous professional development, in line with findings from Abadi H (2021) regarding the link between education and post-training communication performance.[9]

The assessment of nurses' knowledge regarding SBAR demonstrated a marked improvement in the study group following the education program. At pre-test, the majority of nurses in both groups had poor knowledge of SBAR. However, at post-test, the study group showed a highly significant increase in knowledge, with all nurses achieving a "good" knowledge level. This significant improvement in the study group's SBAR knowledge is consistent with findings from other studies.[9] The minimal change observed in the control group's knowledge underscores the necessity of structured training for improving understanding and application of SBAR principles.

The findings highlight the significant impact of SBAR-based communication education on improving patient outcomes in emergency care settings. One of the most notable results was the difference in patient acuity classification. In the study group, 75% of patients were categorized as "not critically ill," compared to only 25% in the control group. This suggests that nurses trained in SBAR were more effective in early detection and clinical judgment, leading to timely interventions. This aligns with findings that emphasized that SBAR promotes structured thinking during patient handovers, thereby supporting more accurate assessments.

Regarding respiratory status, 80% of patients in the study group showed improvement versus 57.5% in the control group, with a statistically significant difference (P = 0.03). The SBAR protocol likely contributed to faster recognition of respiratory distress and more coordinated care responses. Similar benefits were observed in a study by Irawati R, et al (2025), which concluded that SBAR implementation enhances team responsiveness and reduces the risk of clinical deterioration, especially in patients with compromised respiratory function.[8]

Cardiovascular status also improved significantly in the intervention group (65% vs. 37.5%, P = 0.014). This may be attributed to clearer communication between nurses and physicians, enabling the timely administration of appropriate interventions. A recent review supports this, noting that SBAR-enhanced handovers reduce treatment delays and improve hemodynamic stability in acute care patients.[8]

In terms of general signs of critical illness, only 7.5% of study group patients showed such signs compared to 25% in the control group (P = 0.034), indicating that SBAR helped in early identification of clinical warning signs and prompt escalation of care.

The lack of significant improvement in neurological status may be due to the short assessment window (1–2 hours post-admission), which is often insufficient to detect neurological changes. Additionally, neurological conditions are typically influenced by underlying issues like stroke or trauma, which cannot be quickly reversed through improved communication alone. The involvement of specialists and delayed clinical signs may also limit the immediate observable effect of SBAR on neurological outcomes.

5. LIMITATIONS

This study offers valuable insights into the effect of SBAR education on nurses' communication and patient outcomes; however, certain limitations should be noted. The quasi-experimental design, while appropriate for real-world clinical settings, may not fully control for external variables that could influence outcomes. Additionally, the study was limited to two general hospitals in a single geographic region, which may restrict the generalizability of the findings to other healthcare settings or populations.

Despite these limitations, the use of a control group, consistent implementation of the educational program, and strict data collection protocols helped enhance the internal validity and credibility of the findings.

6. CONCLUSION

The implementation of an SBAR communication education program for nurses in Najaf Governorate hospitals resulted in significant improvements in nurses' SBAR knowledge and measurable enhancement in patient outcomes. All nurses in the study group progressed from a "poor" pre-test level to a "good" level of SBAR knowledge post-training. These gains translated into better patient assessments, particularly with significant improvements in respiratory and cardiovascular stability among patients in the study group compared to the control group. However, neurological and appearance-related outcomes did not show significant improvement, suggesting the need for integrating more advanced neurological assessment skills into the training program.

This study contributes to the nurses' body of knowledge by reinforcing the importance of structured communication tools like SBAR in improving clinical understanding and decision-making. In terms of nursing practice, the findings support the integration of SBAR education into routine training protocols to promote standardized communication, reduce clinical errors, and improve patient safety. For nursing research, the results highlight the need for further studies that evaluate the long-term impact, sustainability, and adaptability of SBAR-based interventions across various departments and patient populations.

7. Data availability

The numerical data of this study are available from the authors.

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10. Conflict of interest

No conflict of interest is declared by the authors.

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