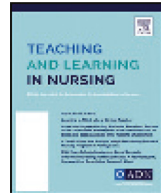




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Full Length Article

Findings From Oral Communicative Competence During Simulation Among Nursing Students

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ABSTRACT

Background: Acquiring oral communication skills is essential in the academic training of nursing students. This will undoubtedly influence students' safety in caring for people.

Objectives: A diagnosis of the communicative competence of students enrolled in the course Nursing Care in Adults II (laboratory practice) was proposed.

Method: A preliminary descriptive observational study has been carried out regarding oral communicative competence in clinical practice, based on the structure Situation, Background, Assessment, Exploration, and Recommendation (SAVER/SBAR) of the TeamStepps® methodology, to which other indicators considered necessary for oral communication.

Results: Cronbach's alpha (0.743) tested the scale's reliability. The set of 6 criteria analyzed shows that the group generally shows a limited ability and inability to communicate and transmit information, ranging from primary (33.35%) to adequate (41.6%). A significant relationship is detected between this criterion and the Organization of structured data according to the SAVER/SBAR method ($p=.005$)

Conclusions: This analysis highlights the need to train communication skills in critical situations where data collection and transmission accuracy are crucial.

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Background

Skills acquisition should be used to solve situations associated with the professional reality of nursing, which requires adaptability and problem-solving skills. These are vital within the educational process of acquiring the knowledge, skills and attitudes necessary to effectively undertake a task or project. These may include cognitive skills, such as comprehension and processing information related to field-specific knowledge, or socioemotional skills linked to interpersonal skills such as critical thinking, communication, leadership, teamwork, motivation and self-discipline.

The future working environment of a nursing student can differ significantly from that expected during training. A nursing student may learn nursing procedures and care in a classroom, a controlled environment not matching that which may be

encountered in a genuine professional setting. The reality of the profession primarily includes working long hours and dealing with emotionally challenging situations requiring quick decision making under pressure, along with many other features. Understanding the professional reality involves adapting to the working environment and creating an individual professional identity. Knowing future challenges and opportunities may help students to feel more connected and committed to their profession (Mata et al., 2021; O'Daniel & Rosenstein, 2008; Reith-Hall & Montgomery, 2023; Riley et al., 2011; Rosa et al., 2023; Sánchez-Marco et al., 2023).

Within this conceptual framework, receiving training in communication skills is vital for effective and assured interaction with team members and patients. The profile of a qualified nurse includes the ability to work in a team and to communicate effectively with health care system users (Amaral et al., 2023; Cannity et al., 2021; Celeste et al., 2018; Gutiérrez-Puertas et al., 2020; Reith-Hall & Montgomery, 2023; Tejera-Concepción et al., 2012; Zota et al., 2023).

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Effective communication is achieved through structured procedures for information exchange and closed-loop communication. These have the advantage of facilitating data provision and acquisition (Cairó Battistutti and Bork, 2017; Herschel et al., 2001; Ordinola et al., 2023; Sánchez-Marco et al., 2023), as they require the accuracy of the information to be verified and confirmed.

Inadequate communication, incomplete data collection, failure to verify data, the transmission of incomplete data, or the unstructured transmission of data, create unsafe situations for the patient and care team which could lead to serious consequences for both parties. (Burges et al., 2020; O'Daniel & Rosenstein, 2008; Sánchez-Marco et al., 2023).

High-fidelity clinical simulation allows interactions similar to those within the work setting to be conducted within a controlled environment, which can contribute to bringing students closer to this reality. This is a dynamic and effective strategy for acquiring these skills generally and, in particular, for acquiring communication skills (Celeste et al., 2018; Farina et al., 2024; Harder, 2023; Karlsen et al., 2022; Mata et al., 2021; Núñez and Vázquez, 2019).

A crucial factor to take into account is the cognitive mastery of a skill. Within the cognitive model of skill, it is the theoretical understanding of concepts, ideas and practical evidence which is of interest. If a student has not sufficiently developed this, they will face difficulties to successfully attain the skill (Bernal, 2003).

In this way, the structure provided by the TeamStepps© framework improves communication by following a specific protocol which guarantees that the necessary data are effectively collected, processed and transmitted to the team.

Information gathering following a structured method, as set out by the TeamStepps© strategy, is based on the SOAP method (subjective/objective/assessment/plan) (Herschel et al., 2001). This provides a coherent procedure for the systematic gathering of essential patient information, leading students to understand the clinical situation.

This systematic focus encourages full awareness of the situation, producing critical thinking which will guide students both in making decisions for a suitable intervention and in communicating with other team members. Various studies have shown the reliability and viability of this method of communication in improving clinical safety (Brooks et al., 2022; Cooke & Valentine, 2021; Heir et al., 2024; Mahmood et al., 2021).

The SBAR framework (Situation, Background, Assessment, Recommendation) allows the data required to undertake an intervention in line with the situation which has arisen to be gathered, while at the same time safely, reliably and fully facilitating their recording and communication (Burgess et al., 2020; Cooke & Valentine, 2021; Riley et al., 2011).

This provides certainty to students who are learning how to gather and transmit sufficient data for the receiver to be able to accurately imagine the situation described, thus increasing their confidence and certainty when making subsequent decisions (Karlsen et al., 2022).

In this respect, it is necessary to bear in mind that other elements are also essential within communication, such as the clarity of the message, voice volume, knowledge of that being conveyed, posture and eye contact with team members (Celeste et al., 2018; Ordinola et al., 2023; Mata et al., 2021; Rosa et al., 2023).

As a result, this study aims to describe the level of success of a group of third-year undergraduate nursing students regarding their execution of communication skills in a team. This is based on a structured methodology within a high-fidelity clinical simulation context.

Objectives

To describe the level of communicative competence of students taking the *Cuidados de Enfermería en Adultos II* [Nursing Adults II] module.

To describe the ability to handle information using the SBAR methodology found within the TeamStepps© framework.

To analyse the key features of data communication.

To describe the level of knowledge demonstrated by students in relation to the case presented.

Methodology

Participants

Students taking the 2021/22 third year *Cuidados de Enfermería en Adultos II* module within the undergraduate Degree in Nursing.

Variables and Research Instrument

The following variables were analysed: the ability to organise information according to the SBAR (TeamStepps©) framework; clarity of speech; the level of knowledge on the case presented (Table 1); the ability to answer questions; voice volume; and, finally, posture and eye contact (Table 2).

Ad hoc observation was used as the method for data collection and was adapted from the Campos-Bandrés et al. questionnaire (2021) on oral communicative competence in clinical practice, as well as from the SBAR framework (TeamStepps©). The evaluation criteria were awarded along a Likert scale between 4 (very adequate) and 1 (inadequate).

Method

A descriptive observational study was conducted based on the viewing of 14 videos (N=14) recorded during the subjects' practical laboratory exam sessions, in order to complete the designed scale. The exam involved resolving a clinical case in 15 minutes, following the TeamStepps©-SBAR teamwork strategy under high-fidelity clinical simulation conditions.

The Cronbach's alpha values were calculated in order to analyse the reliability of the scale. The absolute value, relative value, mean and standard deviation were also calculated. The association between variables was analysed using the chi-square statistic. The hypothesis test was considered statistically significant when p was less than .05. The SPSS V23 statistics programme was used to conduct the statistical analysis.

Ethical Considerations

Informed consent was requested and obtained from students for video and audio recordings to be made during the exam sessions. Authorisation was also requested from the University of Las Palmas de Gran Canaria Human Experimentation Ethics Committee. A favourable report was issued, with the reference number CEIH-2024-05.

Results

The total number of students participating was 56 (100%), with a median age of 20.50 years [21; 23]. There were 13 men (23.2%) and 43 women (76.8%) and they were arranged into 14 groups. The Cronbach's alpha value was 0.743. Therefore, the conditions for an exploratory principal component analysis (PCA) were verified and, following calculations, three components explaining 76.8% of the total variance were identified. On this matter and according to the SBAR method, the *organisation of structured information, knowledge of the subject* and *answering questions* form the first component, accounting for 37% of the total variance. Similarly, *speech* and *voice volume* form the second component, accounting for 23.3% of the total

Table 1

Parameters constituting the minimum level of knowledge to deal with a patient's clinical situation in a simulated situation.

1. Approaching the patient: Contact. Introduction and identification of the patient. Inquire about what is wrong. Maintain assertive communication (What is wrong? Since when? Where is it uncomfortable/sore? How were you this morning/afternoon/evening?...). Ask for help if needed.
2. Perform essential examination and take vital signs/monitoring. ASSESS: A B C D. A: Airway patency assessment. B: Assessment of respiratory status (type of breathing and ventilatory dynamics). C: Circulatory status assessment: Palpation of peripheral and central pulse and characteristics. Assessment of skin condition (pallor, cyanosis, temperature, turgor, humidity). D: Assessment of the level of consciousness. Take usual constants / cardiorespiratory monitoring (heart rate, respiratory rate, blood pressure, temperature, and glycemia, if needed). Oximetry(SatO ₂): Identifies/interprets normal or abnormal values (desaturation), depending on the environmental context. Cardiac monitoring: Place the chest leads correctly, following the RYGB sequence. Perform an ECG (if needed) to ensure the correct placement of limb and pre-cordial leads. Manual blood pressure acquisition: Identifies patterns of normality or abnormality (hypertension/hypotension). Take Temperature: Detects patterns of normality/abnormality, such as fever. Perform a capillary blood glucose control: Detects patterns of normality/abnormality (Hyper/hypoglycaemia). Structured description of the clinical process (SBAR). General assessment of the state of severity. Is the patient critical or non-critical patient?
3. Demonstrate skills in developing specific procedures and basic intervention techniques.
3.1 Oxygen therapy: Selection of the device according to: - Type of breathing - Ventilatory pattern - Prescribed FiO ₂ - Adjust flow (litres per minute) to prescribed FiO ₂ . Aspiration of oral, oropharyngeal, nasal secretions. Peripheral venous line cannulation. Insertion of feeding/aspiration catheter (NGT). Insertion of bladder catheters.
3.2 Airway patency: Insertion of oropharyngeal cannula. Handling of self-inflating bag-mask. Insertion of supraglottic device (laryngeal mask). Assistance during orotracheal intubation (OTI).
3.3 Administration of prescribed medication: Patient identification. Identification of the drug, route of administration, and effects.
3.4 Preparation and calculation of the dose of the drug to be administered. Prepare medication according to dosage, dilute it appropriately (s/p), and administer it correctly via the indicated route. Prepare medication for nebulization and use the appropriate device, indicating the litres per minute for nebulization.
4. Team management. Leadership. Organisation and distribution of functions. Activity prioritisation. Systematisation of work. Description of activities performed Communication with the patient and family Annotation and recording of actions in the patient's medical record. Transmission and data communication to other colleagues or professionals, as required. Type of communication used (agile, fluid, synthetic, structured, orderly, complete/incomplete).

SatO₂: Partial oxygen saturation; RYGB: Red, Yellow, Green, and Black; ECG: Electrocardiogram; FiO₂: Fraction of Oxygen Inhaled; NGT: Nasogastric Tube; SBAR: Situation, Background, Assessment, Exploration, Recommendation.

Table 2

Item reliability analysis.

Indicator	Cronbachs Alpha
Organisation of structured information according to the SBAR method.	0.725
Clear speech.	0.612
Knowledge of the subject with the ability to relate and integrate concepts, make inferences and give coherent answers.	0.667
Answering questions.	0.702
Voice volume.	0.782
Posture and eye contact.	0.729

variance and the third component, *posture and eye contact*, accounts for 16.5% of the total variance (Table 2).

As shown in Table 3, across the six set-criteria the majority of students are placed within the basic (33.35%) and adequate (41.6%) levels for communication and information transfer. Regarding the physical elements of communicating the message (*voice volume*), only 21.4% registered an inadequate volume. Concerning *knowledge of the subject with the ability to relate and integrate concepts, make inferences and give coherent answers*, results indicate basic (64.3%) or adequate (28.6%) levels of attainment for the majority of observations. Finally, regarding *organisation of structured information according to the SBAR method*, limited ability is observed with 50% showing a basic or adequate level in their ability to effectively collect, structure and transmit information (Table 3).

To analyse if there was any relationship between the *organisation of structured information according to the SBAR method* variable and the others analysed, the chi-square statistic was applied, detecting a significant relationship with *knowledge of the subject with the ability to relate and integrate concepts, make inferences and give coherent answers* ($p < .050$) and *answering questions* ($p < .005$) (Table 4).

Discussion

This study has identified that the communication skills of students in critical situations, acting to resolve a critical case within a high-fidelity clinical simulation, are deficient. This highlights the need to practice those skills within which data collection and the accuracy of communication are crucial in order for patients to receive a safe and adequate response (Cannity et al., 2021; Mata et al., 2021).

Another observation from this study is the lack of solid knowledge related to the physiopathological elements of the various clinical situations posed. This did not allow students to respond with certainty to the different questions raised by the situation and made it hugely complicated to conduct reflexive practice (MacAskill et al., 2023).

The interest of the cognitive model of skill - the necessary understanding of theoretical concepts and their practical application on the basis of reflection - in order to successfully attain the skill in question, has already been mentioned (Bernal, 2003).

On this matter, the data gathered for *knowledge of the subject with the ability to relate and integrate concepts, make inferences and give coherent answers*, highlight the relationship between the knowledge a student possesses on a specific subject, in this instance on the given clinical situation, and the ability of this student to organise information in a structured manner and to convey it confidently and effectively, as highlighted by Cairó Battistutti and Bork, (2017). This is seen in such a way that having the necessary knowledge to face the situation posed (a critical clinical case) would facilitate and improve communication because it offers the certainty and confidence that a student requires for that end (Ardakani et al., 2018; Brock et al., 2013; Brooks et al., 2022; Burgess et al., 2020).

In this regard, Herschel et al. (2001) and Cairó Battistutti and Bork, (2017) propose structured mental procedures which use mnemonic

Table 3
Description of all elements assessed for communicative competence in clinical simulations.

Indicator	1	2	3	4	M	SD
Organisation of structured information according to the SBAR method.	-	7 (50%)	7 (50%)	-	2.50	0.51
Clear speech.	3 (21%)	4 (28.6%)	6 (42.9%)	1 (7.1%)	2.36	0.92
Knowledge of the subject with the ability to relate and integrate concepts, make inferences and give coherent answers.	1 (7.1%)	9 (64.3%)	4 (28.6%)	-	2.21	0.57
Answering questions.	-	9 (64.3%)	5 (35.7%)	-	2.36	0.49
Voice volume.	3 (21.4%)	4 (28.6%)	5 (35.7%)	2 (14.3%)	2.43	1
Posture and eye contact.	-	4 (28.6%)	8 (57.1%)	2 (14.3%)	2.86	0.66
Total	7 (31.6%)	37 (33.35%)	35 (41.6%)	5 (0.83%)	2.45	0.69

Inadequate: 1; Basic: 2; Adequate: 3; Very Adequate: 4; M: Mean; SD: Standard Deviation.

acronyms to aid the recall of the sequence of steps and, therefore, of how data should be gathered, organised and communicated in the moment they are conveyed within a critical situation that generates a lot of stress.

The purpose of these strategies is to facilitate the integration of knowledge acquired from prior learning experiences, so that reflexive analysis may be conducted when applying this knowledge in clinical practice.

By having a sequential structure, the TeamSteps© methodology enables mental organisation which expedites communication. This is because following a series of structured steps guarantees the collection of required data and their efficient communication once processed, informing team members of the situation safely and in a structured manner, as shown by Brock et al. (2013) and Brooks et al. (2022). This allows focus to be placed on specific aspects of the communication process, which emphasises the essential elements required for the receiver of the message to understand what is happening within the clinical situation. Thus, decision making concerning the interventions to be carried out safely and as a matter of priority for both the team and the patient is expedited (Mahmood et al., 2021; Mata et al., 2021; Wikström & Svidén, 2011).

This study has confirmed the significant relationship between the importance of having sufficient and adequate information about the clinical situation, and the cognitive ability to structure the information obtained in order to effectively process and convey it. Therefore, having adequate and necessary knowledge concerning the situation in question would help to improve structured data communication, resulting in student and patient confidence and safety (Mata et al., 2021; Núñez & Vazques, 2019). This finding confirms the importance of using clinical simulations to improve training that combines theory and practice. This is through the use of active methodologies that stimulate reflexive thinking in students faced with different clinical situations for the purpose of understanding the physiopathological processes presented, through linking concepts learned in other learning situations so that the student succeeds in integrating them. This generates learning which will enable the communication process, once practiced through applying strategies during simulations. Thus,

working to actively implement the TeamSteps© methodology in clinical modules, using high-fidelity clinical simulations, will help to improve the acquisition of this skill (Cooke & Valentine, 2021; Farina et al., 2024; Harder, 2023; Mahmood et al., 2021).

While the research instrument used in this study has great potential for assessing the areas addressed, it is vital to properly validate it so as to confirm its utility and to extend it to Spanish-speaking university students on health sciences courses.

Conclusions

This study has identified that the communication skills of students in high-fidelity critical clinical situations are deficient.

The study indicates that the information emerging in the different clinical situations posed, which students need to gather in order to confidently tackle the situation, should be presented in a more structured manner than it is. The manner in which it is done does not allow the situation to be defined, as this requires precision and order.

On the other hand, the communication process for conveying these data also needs structuring, as a specific pattern enabling the parties receiving the information to agree on the situation is not followed.

The physical elements of communicating (speaking clearly, voice volume, posture and eye contact) are adequate.

The physiopathological knowledge demonstrated by participating students is not very established. This does not allow them to respond confidently to the different questions generated by the situation, making it hugely complicated to conduct a reflexive practice due to reactions which are uncertain and lacking in the ability to provide reasoning to justify them.

The SBAR structure, which forms part of the TeamSteps© framework, is a useful methodology for teaching students to communicate effectively. Learning this method can help students to gain confidence and to improve their patient care skills, which will benefit their future professional careers.

Table 4

The link between the organization of structured information according to the SBAR method and the rest of the indicators analysed.

Indicator		Inadequate	Basic	Adequate	Very Adequate	p
Clear speech.	Basic	2 (28.6%)	2 (28.6%)	3 (42.9%)	0 (0%)	.721
	Adequate	1 (14.3%)	2 (28.6%)	3 (42.9%)	1 (14.3%)	
Knowledge of the subject with the ability to relate and integrate concepts, make inferences and give reasoned answers.	Basic	1 (14.3%)	6 (85.7%)	0 (0%)	-	<.050
	Adequate	0 (0%)	3 (42.9%)	4 (57.1%)	-	
Answering questions.	Basic	-	7 (100%)	2 (28.6%)	-	<.005
	Adequate	-	0 (0.0%)	5 (71.4%)	-	
Voice volume.	Basic	2 (28.6%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	.247
	Adequate	1 (14.3%)	2 (28.6%)	4 (57.1%)	0 (0.0%)	
Posture and eye contact.	Basic	-	3 (42.9%)	3 (42.9%)	1 (14.3%)	.472
	Adequate	-	1 (14.3%)	5 (71.4%)	1 (14.3%)	

Inadequate: 1; Basic: 2; Adequate: 3; Very Adequate: 4.

Recommendations for the Future

It is recommended that work be actively undertaken to implement the TeamSteps© methodology in clinical modules, using high-fidelity clinical simulation or standardised patients, in order to improve communication skills in these clinical situations. This is necessary for the clinical safety of patients in professional environments.

Limitations

The limitations of this study include the bias of the observer, the objectivity of the instrument used and the number of observations made, as observations were only conducted for one of the two groups which comprise the total number of students enrolled in this module.

Be that as it may, the information obtained reinforces the need to strengthen communication skills related to clinical situations within undergraduate nursing degree programmes through applying a structured methodology during high-fidelity clinical simulation or with standardised patients. In this way, the communicative competence required by future professionals is strengthened.

CRedit Authorship Contribution Statement

All the authors contributed to the manuscript writing and preparation. JEHR is responsible for the study's conception and coordination, whereas JEHR, CDMC, and MDH are responsible for the study design process. JEHR, MDH, and LCP are accountable for data collection, and CNHF, DCMR, and JEHR are responsible for data analysis. JEHR, MDH, LCP, CNHF, and DCMR drafted the initial manuscript draft. All authors contributed substantially to the manuscript's revision and approved the final version.

Declaration of competing interest

The article reflects solely the opinions of the authors. The authors declare that they do not have any conflict of interest.

Generative AI

We also declare that we have not used AI to generate this article in any of its written parts.

CRedit authorship contribution statement

José Enrique Hernández-Rodríguez: Writing – review & editing, Resources, Project administration, Data curation, Conceptualization. **Lucía Cilleros-Pino:** Writing – review & editing, Visualization, Software, Project administration. **Maximino Díaz-Hernández:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Carmen Nieves Hernández-Flores:** Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Methodology, Investigation, Formal analysis, Data curation. **Carmen Delia Medina-Castellano:** Writing – review & editing, Visualization, Funding acquisition, Conceptualization. **Daniela Celia Montesdeoca-Ramírez:** Writing – review & editing, Visualization, Resources, Project administration, Funding acquisition.

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