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SIMULATED CLASSROOM IN THE TEACHING OF NURSING ACTIONS IN INTUBATION

AULA SIMULADA NO ENSINO DE AÇÕES DE ENFERMAGEM NA INTUBAÇÃO CLASE SIMULADA EN LA ENSEÑANZA DE ACCIONES DE ENFERMERÍA EN LA INTUBACIÓN

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ABSTRACT

Objective: to evaluate the use of the simulated class for the teaching of Nursing actions in tracheal intubation. *Method*: a quasi-experimental, quasi-experimental, pre-and post-test study with 26 Emergency and Emergency Nursing professionals using a questionnaire with 12 multiple choice questions, based on Pre-Hospital Trauma Life Support guidelines applied before and after the simulated class. The collected data were analyzed by simple frequency and presented in tables. *Results*: predominantly female (73%), age between 20-39 years (77%), Nursing technicians category (50%), one to five years of training (46%), tracheal intubation (77%) and without periodic training (81%). It was verified that 81% had knowledge about tracheal intubation and, after the teaching strategy, through simulated class, 98% expanded their knowledge. *Conclusion*: the simulated class is an effective strategy for the teaching of Nursing professionals about actions in tracheal intubation contributing to the advancement of scientific knowledge. *Descriptors*: Emergency Nursing; Intervice Training; Intubation; Simulation; Teaching; Knowledge.

RESUMO

Objetivo: avaliar o uso da aula simulada para o ensino de ações de Enfermagem na intubação traqueal. *Método*: estudo quantitativo, quase experimental, tipo pré e pós-teste, realizado com 26 profissionais de Enfermagem dos serviços de urgência e emergência utilizando um questionário com 12 questões de múltipla escolha, baseado nas diretrizes do Pre-Hospital Trauma Life Support, aplicado antes e depois da aula simulada. Os dados coletados foram analisados por frequência simples e apresentados em tabelas. *Resultados*: verificou-se predominância do sexo feminino (73%), idade entre 20-39 anos (77%), categoria de técnicos de Enfermagem (50%), um a cinco anos de formação (46%), atuantes em intubação traqueal (77%) e sem capacitação periódica (81%). Verificou-se que 81% possuíam conhecimento sobre intubação traqueal e, após a estratégia de ensino, por meio de aula simulada, 98% ampliaram seus conhecimentos. *Conclusão*: a aula simulada é uma estratégia efetiva para o ensino de profissionais de Enfermagem sobre ações na intubação traqueal contribuindo para o avanço do conhecimento científico. *Descritores*: Enfermagem em Emergência; Capacitação em Serviço; Intubação; Simulação; Ensino; Conhecimento.

RESUMEN

Objetivo: evaluar el uso de la clase simulada para la enseñanza de acciones de Enfermería en la intubación traqueal. *Método*: estudio cuantitativo, casi experimental, tipo pre y post-test, realizado con 26 profesionales de Enfermería de los servicios de urgencia y emergencia, utilizando un cuestionario con 12 preguntas de múltiple elección, basado en las directrices del Pre-Hospital Trauma Life Support, aplicado antes y después de la clase simulada. Los datos recolectados fueron analizados por frecuencia simple y presentados en tablas. *Resultados*: se verificó predominancia del sexo femenino (73%), edad entre 20-39 años (77%), categoría de técnicos de Enfermería (50%), uno a cinco años de formación (46%), actuantes en intubación traqueal (77%) y sin capacitación periódica (81%). Se verificó que el 81% poseía conocimiento sobre intubación traqueal, y después de la estrategia de enseñanza, a través de clase simulada, el 98% amplió sus conocimientos. *Conclusión*: la clase simulada es una estrategia efectiva para la enseñanza de profesionales de Enfermería sobre acciones en la intubación traqueal, contribuyendo al avance del conocimiento científico. *Descriptores*: Enfermería de Urgencia; Capacitación em Servicio; Intubación; Simulación; Enseñanza; Conocimiento.

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INTRODUCTION

Inability to protect the airways and cases of dysfunction in ventilation and oxygenation trigger the possibility of establishing artificial support, such as tracheal intubation, which is essential for the survival of critically ill patients.¹⁻²

Tracheal intubation is a method of choice in emergency care and requires the preparation of the Nursing team, considering the complexity of risks in the procedure for patient care.³

It should be emphasized that the direct action of tracheal intubation belongs to the medical professional, however, the Nursing team is involved in specific actions before, during and after the procedure, except in emergency situations in which the nurse, with technical training, can perform the tracheal intubation procedure.⁴

Risks and complications can be minimized through the fulfillment of adequate techniques and it is indispensable to apply frequent training to the professionals involved in the procedure.⁵

Raising levels of knowledge and skills is a challenge. Teaching strategies, with the implementation of active methodologies in the teaching-learning process, show a better effectiveness in reaching the proposed objectives. 5 Among them, the simulated class is highlighted. 6

In the simulated class it is possible to environment of create an cases favorable techniques, with interaction between students and teachers, creating an environment similar to the professional environment, resulting in a satisfactory learning experience in practical situations in a simulated way.6

Studies show that there are flaws in Nursing actions in the care of patients submitted to tracheal intubation, and that strategies that promote behavioral changes through continuous education offer opportunities to improve the quality of care provided.⁷⁻⁸

The relevance of this study lies in the fact of describing the possibility of teaching the actions of Nursing in tracheal intubation through the simulated class fomenting the possibility of qualified, reflexive and scientific assistance.

OBJECTIVE

• To evaluate the use of the simulated class for the teaching of Nursing actions in tracheal intubation.

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METHOD

A quantitative, quasi-experimental study of the pre- and post-test type, ⁹ developed with Nursing professionals of the Urgency and Emergency Services (UE) of a city in the interior of Minas Gerais, namely a small hospital, a (ECS) and a Basic Support Unit (BSU) of Urgency and Emergency Mobile Service (UEMS).

The sample consisted of 26 participants, including seven nurses, 13 Nursing technicians and six Nursing assistants. Participants were defined after the inclusion and exclusion criteria, respectively: professionals who work in the direct assistance to the patient in emergency situations and are not in the vacation period and / or leave.

Thirty-two Nursing professionals worked in emergency services in the city.

As a strategy for the recruitment of participants, the workshop entitled "Tracheal Intubation Nursing Actions" was developed. The event was released to the Nursing professionals in the EU services. On the day, time and place scheduled, the professionals were received and was exposed the purpose of the event. In agreement with the study, the Free and Informed Consent Term (FICT) was signed, and then the workshop was conducted with data collection.

The instruments used for data the collection elaborated the were by The instrument the researchers. characterization of the sociodemographic profile was composed of the following items: identification of the position; time operation; training time; age; refresher courses; frequency of care with tracheal intubation; safety in tracheal intubation. The instrument for assessing knowledge about Nursing actions in tracheal intubation was composed of a questionnaire with 12 multiple choice questions, based on the Pre-Hospital Trauma Life Support (PHTLS) guidelines, ¹ with a direct statement and responses with three alternatives.

simulated class was elaborated according to the guidelines of the PHTLS¹ where the actions of Nursing in tracheal intubation were approached. The actions were performed using a medium fidelity adult manikin for training of tracheal intubation made of rubberized plastic resin fixed on wooden plank comprising head, neck, trachea and lungs with device to control the effectiveness of the procedure; laryngoscope with slides in sizes three and four; disposable syringe of 20 milliliters; tracheal fixer; lubricant gel; guidewire for tracheal

intubation; tracheal tube in sizes seven, eight and nine; bag-valve-mask; pulse oximeter; disposable mask; glove of procedure; safety glasses, materials and equipment provided by a state public higher education institution in the interior of Minas Gerais.

the simulated class and in the instrument of evaluation of knowledge about Nursing actions in tracheal intubation, the following items were addressed: use of Personal Protection Equipment (PPE); need for pre-oxygenation of the patient prior to tracheal intubation; rigorous conferencing of the functionality of materials and equipment; assessing the need for the administration of sedatives; need to ensure sterility of the tracheal tube; adequate positioning of the patient for the tracheal intubation procedure; cervical immobilization of the patient in trauma victims; adequate patient monitoring during tracheal intubation; adequate volume of cuff pressure of the tracheal tube after intubation; compulsory pulmonary auscultation after tracheal intubation; adequate fixation of the tracheal tube and ensure positive pressure ventilation after tracheal intubation having as reference the guidelines of PHTLS.1

The instruments and the simulated class were presented to a professor of a state public higher education institution in Minas Gerais, responsible for disciplines related to the EU, and to twenty students of the fourth year of the undergraduate course in Nursing for analysis and adequacy. At the end, there were opportunities for improvements that were promptly adhered to by the researchers, as they were in line with the guidelines adopted.

The data collection took place on December 12, 2016 in three moments: pretest; workshop "Actions of Nursing in Tracheal Intubation" and post-test. The pre-test was applied immediately after the signing of the ICF and corresponded to the application of the instrument for the characterization of the participant and the questionnaire on the

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evaluation of knowledge about Nursing actions in tracheal intubation. The second moment corresponded to the application of the workshop, with the accomplishment of the actions of Nursing in the tracheal intubation, using adult mannequin of average fidelity and had duration of 60 minutes. The third and final phase, the post-test, was performed immediately after the simulated class was completed with the reapplication of the questionnaire on the evaluation of knowledge about Nursing actions in tracheal intubation.

The collected data were stored and processed in Microsoft Excel® Electronic Spreadsheet and, for the analysis, the descriptive statistics were used, being analyzed by simple frequency and presented in tables.

The research was approved by the Research Ethics Committee (CEP) 10 of the Passos Higher Education Foundation (CAAE 56567916.7.0000.5112).

RESULTS

Participated in this study 26 Nursing professionals, 19 (73%) female; with a very varied age range, between 20 and 29 years, with ten (38.5%) participants from 30 to 39 years old. The majority (17 = 65%) of the participants worked in the hospital. Regarding the professional category, 13 (50%) were Nursing technicians. About the time of training, (12) 46% of the participants finished the training between one and five years ago.

Concerning the time of action in the EU, it was evidenced that 16 (62%) participants worked in the period from one to five years and the predominant work shift was the morning, with 18 (69%) participants.

It was also identified that the majority of the participants (20 = 77%) had a tracheal intubation at least once a month, and that only five (19%) reported having received training on tracheal intubation after professional training. Twelve (46%) participants answered that they feel safe when working in tracheal intubation.

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Table 1. Evaluation of knowledge of Nursing actions in tracheal intubation. Passos (MG),

	Pre-Test		Post-Test	
Variables	Correct n (%)	Incorrect n (%)	Correct n (%)	Incorrect n (%)
Use of Personal Protective Equipment (PPE)	24 (92)	02 (08)	25 (96)	01 (04)
Need for patient pre-oxygenation	25 (96)	01 (04)	25 (96)	01 (04)
Material and equipment functionality conference	25 (96)	01 (04)	26 (100)	-
Assessment of the need for sedative administration	24 (92)	02 (08)	26 (100)	-
Need for sterility of the tracheal tube	21 (81)	05 (19)	25 (96)	01 (04)
Proper patient positioning	12 (46)	14 (56)	25 (96)	01 (04)
Cervical immobilization of trauma victims	25 (96)	01 (04)	26 (100)	-
Monitoring during the procedure	25 (96)	01 (04)	25 (96)	01 (04)
Properly inflate the tracheal tube cuff	09 (35)	17 (65)	26 (100)	-
Pulmonary auscultation after tracheal intubation	22 (86.5)	04 (15.5)	26 (100)	-
Proper attachment of the tracheal tube	21 (73)	05 (19)	26 (100)	-
Positive-pressure ventilation after tracheal intubation	24 (92)	02 (08)	26 (100)	-

It highlights the correct use of PPE. Even with the increase in relation to the pre-test, in the post-test it was evidenced that one (4%) participant is not aware of the use of PPE. Regarding pre-oxygenation of the patient before tracheal intubation, both pre-test and post-test had a predominance in correct responses, with 25 (96%) participants.

It is evidenced that the answers regarding the conference of the functionality of materials and equipment, the evaluation of the need for administration of sedatives, the cervical immobilization in victims of trauma, adequate insufflation of the tracheal tube cuff, the pulmonary auscultation after tracheal intubation, adequate fixation of the tracheal tube and use of positive pressure ventilation after tracheal intubation had 100% positive responses in the post-test.

Regarding the item of need for sterility of the tracheal tube, the positioning of the patient in the supine position and the use of the cushion in the occipital region of the victim, an increase of correct responses was evidenced in the post-test.

Regarding the positioning of the tube with pulmonary auscultation, it was observed that there was prevalence in the correct alternatives both in the pre-test and in the post-test.

It was verified that, before the qualification, in the application of the pretest, 81% of the participants presented knowledge about the evaluated items of the Nursing actions in the tracheal intubation. Therefore, with the simulated class, in the

post-test, 98% of the knowledge of the participating Nursing team was reached.

DISCUSSION

It is indispensable the quantity of professionals sufficient to provide quality patient care and, in relation to the nurse, because the professional has many duties, can lead to insufficient care, if he does not have planning and organization of activities.¹¹⁻²

The age of Nursing professionals does not change or affect the quality of care. ¹³ Nursing professionals aged over 30 years tend to have more security to act in the emergency sector. ¹⁴

The feminine gender stands out, in this study and in the literature, fact related mainly by the historical trajectory of Nursing, although a movement in the insertion of the man in the profession already is perceived. However, there is a predominance of women in care and, mainly, in the UE.¹⁵

The process of training of Nursing professionals, whether technical or superior, should be aimed at acquiring skills by providing them with knowledge, reasoning, perception and sensitivity to human needs, and they should be able to intervene in contexts of uncertainties and complexities. ¹⁶

In Nursing actions in tracheal intubation, it is essential that nurses use PPE and make a conference on the operation of the necessary equipment for tracheal intubation.¹⁷

Frequent complications in the procedure, such as inadequate ventilation, difficulty or even the impossibility of tracheal intubation,

are not uncommon and require constant retraining and training of the professionals involved.¹⁷

Limitations regarding patient placement are evidenced in this study and in the literature. The patient should be in the supine position and using a cushion in the occipital region.¹⁸

Important deauthentication was regarding insufflation of the cuff of the tracheal tube adequately: the same should be with as little air as possible. The recommended pressure is less than the capillary perfusion pressure, ie less than 25mmHg. When superior, there are risks of ischemic injuries, therefore, the need to inflate the cuff with only enough air to seal the exit of air through the mouth.¹⁹

At the same time, the fixation of the tracheal tube should be done with a wide and appropriate lacing, preferable to the fixation by means of "four points" for better safety and minimization of risk of accidental extubation.²⁰

All patients submitted to tracheal intubation should be monitored with at least pulse oximetry, being attentive to tachycardia, as it is the first manifestation of hypoxemia and hypoxia, while bradycardia is a late sign requiring immediate measures for the improvement of oxygenation.²¹⁻²

In this context, training and skills should be regularly applied to the Nursing team so that there is no harm to the patient due to the team's failure to perform care.²³

The implementation of an adequate training system in tracheal intubation in UE services is fundamental to ensure better patient care outcomes.²⁴ At the same time, it is necessary for the nurse to provide permanent and adequate education to the needs of the team for care quality.²⁵

Innovative teaching strategies, such as the simulated classroom, using manikins for practical demonstration, facilitate learning, improve performance and skills when compared to conventional teaching strategies, as they provide a direct relationship between theory and practice contributing to the adequate professional performance.²⁶

Thus, it is up to the Nursing team and health institutions to seek teaching and training strategies for better knowledge and care for patients who require tracheal intubation, guaranteeing the excellence of care.

The number of participants in this study can be identified as a limiting factor, however, it is emphasized that it was applied in a city in the interior of Minas Gerais, with a Simulated classroom in the teaching of...

population of 32 participants and, of these, 26 participated in the study.

CONCLUSION

This study demonstrated that, despite a relevant index of knowledge of the professionals about Nursing actions in the tracheal intubation before the intervention through the simulated class, there was a significant increase in the knowledge of the participants after the teaching strategy with the use of the simulated class showing its effectiveness for Nursing knowledge and fostering qualified, reflective and scientific assistance.

The need for investments in training and the promotion of new studies on this subject involving other health professionals, mainly related to the skills in the execution of tracheal intubation, are highlighted.

It is hoped that this study may contribute to the Nursing teaching process. It is necessary that the institutions in the training and permanent qualifications aim at better levels of knowledge and, through the use of the teaching strategy through the simulated class, it is possible to optimize the absorption of knowledge.

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