

CONHECIMENTO TEÓRICO DE ESTUDANTES DE ENFERMAGEM SOBRE O CATETERISMO VESICAL DE DEMORA

NURSING STUDENTS THEORETICAL KNOWLEDGE ABOUT URINARY CATHETERIZATION DELAY

CONOCIMIENTO TEÓRICO DE ESTUDIANTES DE ENFERMERÍA ACERCA DEL CATETERISMO UINARIO PERMANENTE

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RESUMO

Objetivo: avaliar se há diferença no conhecimento teórico de alunos de Enfermagem acerca do cateterismo vesical de demora entre alunos que aprenderam o procedimento pelo método tradicional de ensino e pelo método da simulação realística. **Método:** trata-se de estudo de coorte retrospectivo, cuja amostra foi de 58 alunos de Enfermagem de uma universidade pública do interior de Minas Gerais. Os dados foram coletados entre setembro e outubro de 2016, utilizando questionário validado auto aplicado, e analisados utilizando estatística descritiva e teste de Mann-Whitney, com intervalo de confiança de 95%. **Resultados:** a média geral de acertos foi de 6,74, indicando conhecimento satisfatório. Não houve diferença no nível de conhecimento entre os grupos comparados ($p = 0,72$). **Conclusões:** sugerem-se novos estudos que comparem o nível de conhecimento prático de estudantes que aprenderam essa habilidade com a metodologia tradicional e com a simulação realística.

Descritores: Enfermagem; Cateterismo urinário; Conhecimento; Simulação; Ensino.

ABSTRACT

Objective: to evaluate if there is a difference in the theoretical knowledge of Nursing students about urinary catheterization delay between students who learned the procedure by the traditional method of teaching and by the realistic simulation method.

Method: it is a retrospective cohort study, whose sample was 58 nursing students from a public university in the interior of Minas Gerais. Data were collected between September and October 2016, using a validated self-administered questionnaire, and analyzed using descriptive statistics and Mann-Whitney test, with a confidence interval of 95%. **Results:** the overall average of hits was 6.74, indicating satisfactory knowledge. There was no difference in the level of knowledge between the groups compared ($p = 0.72$). **Conclusions:** new studies were suggested comparing the level of practical knowledge of students who have learned this skill with traditional methodology and with realistic simulation.

Keywords: Nursing; Urinary catheterization; Knowledge; Simulation; Teaching.

RESUMEN

Objetivo: evaluar si hay diferencia en el conocimiento teórico de alumnos de enfermería acerca del cateterismo urinario permanente entre alumnos que aprendieron el procedimiento por el método tradicional de enseñanza, y por el método de la simulación realista. **Método:** se trata de estudio de cohorte retrospectivo, cuya muestra fue de 58 alumnos de enfermería de una universidad pública del interior de Minas Gerais. Los datos fueron recolectados entre septiembre y octubre de 2016, utilizando cuestionario validado auto aplicado, y analizados utilizando estadística descriptiva e teste de Mann-Whitney, con un intervalo de confianza del 95%. **Resultados:** el promedio general de aciertos fue de 6,74, indicando conocimiento satisfactorio. No hubo diferencia en el nivel de conocimiento entre los grupos comparados ($p = 0,72$). **Conclusiones:** se sugieren nuevos estudios que comparen el nivel de conocimiento práctico de estudiantes que aprendieron esta habilidad con la metodología tradicional, y con la simulación realista.

Descriptores: Enfermería; Cateterismo urinário; Conocimiento; Simulación; Enseñanza.

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INTRODUCTION

Urinary catheterization is a procedure commonly performed in individuals with urologic disorders or marginal renal function to allow the artificial drainage of urine through catheters inserted directly into the bladder, ureter or renal pelvis⁽¹⁾. The urinary drainage technique can be performed by means of an open system (intermittent or relief) or closed (delay) and supra-pubic⁽²⁾.

Because it is an invasive procedure that requires scientific knowledge, within the Nursing team, insertion of the urinary catheter delay (UCD) is the exclusive competence of the nurse⁽³⁾. Among the possible complications of the procedure, we highlight urethral traumas during insertion of the urinary catheter due to the inadequate choice of catheter size, excessive force exerted during catheter insertion, pain originating from the friction of the badly lubricated catheter against the urethral mucosa and / or of the aggressive manipulations of the force exerted during its insertion and urinary tract infections⁽⁴⁾.

According to epidemiological data, among the infections, the incidence of those related to the urinary tract, corresponding between 35% and 40% of all hospital infections, being 70% to 88% directly related to bladder catheterization⁽⁵⁻⁶⁾. A study carried out showed that the investment in continuing education and the improvement of team knowledge is an important measure for the prevention of UCD-related infections⁽⁷⁾. Thus, it is assumed that, during professional training, the nurse must rigorously learn the correct UCD technique in order to perform the procedure correctly and avoid complications for the patient.

Nursing training has sought to combine quality in teaching with patient safety and, for the apprentice, to experience care with the patient, enhances safe practice⁽⁸⁾. In this sense, we highlight the use of realistic simulation as a teaching methodology able to reproduce real clinical cases by means of the mimicry in a safe and controlled scenario. Thus, the student is offered the opportunity of experiential learning, rather than direct training with patients in clinical practice⁽⁹⁾.

Simulation has been used in the field of health and its effectiveness as a method of teaching and learning has been proven⁽¹⁰⁾. The use of this teaching methodology favors the development of competences corresponding to clinical processes of the professional practice, the

training of specific procedures of Nursing and favors the development of the clinical reasoning of apprentices, since it allows, in each simulated clinical experience, the exercise of capacity for analysis, synthesis and decision-making⁽¹¹⁾.

Given the benefits described in the literature on the use of realistic simulation, the Nursing course of a federal university in the interior of Minas Gerais recently adopted this method for the teaching of Nursing skills, among them, the UCD. Positive reports have been obtained from the students, who affirm that they feel more confident and independent in clinical practice to perform the procedure with patients, since they had already experienced the experience of performing the procedure on specific manikins and pelvis for the training of this ability in the laboratory.

However, although the use of simulation in Nursing schools is growing in Brazil, it is unknown what studies have been published that have evaluated whether there is a difference in the student's theoretical learning about UCD, when compared to those who learned the procedure by the traditional method of teaching, through an expository-dialogue class and replication of the technique in the laboratory by the teacher, and those who learned using the simulation as teaching methodology.

Thus, this study was designed to evaluate if there is a difference in the theoretical knowledge about urinary catheterization of delay between students who learned the procedure by the traditional method of teaching and by the realistic simulation method.

METHODS

This is a retrospective cohort study conducted at a federal university in the interior of Minas Gerais. The cohort study is observational, in which individuals are allocated according to exposure status to a given factor and are followed to assess the occurrence of an outcome. In the retrospective cohort study, exposure is assessed from past data, and the outcome is verified at the time of initiation of the study⁽¹²⁾. The exposure factor studied was the use of realistic simulation as a method for teaching UCD. Thus, it was considered exposed the group of students who learned the procedure by the realistic simulation method and as a group not exposed those who learned by the traditional method of teaching. The outcome measured was the theoretical

knowledge about the procedure at the time of data collection.

It should be emphasized that teaching by simulation followed the following steps: prior provision for the student of the compulsory reading material, prior to the theoretical class; a dialogical presentation on the theoretical concepts needed to execute the UCD; practical demonstration of the technique of insertion, maintenance and withdrawal of UCD in simulating manikins; previous construction of the curriculum guide, containing the script for the execution of the simulated scenario, focusing on the UCD as well as the student's checklist; preparation of the simulated environment; development of the simulated scenario that we call "simulated workshops" in which the students were individually submitted to a clinical situation in which they should evaluate the patient, make the decision to insert the UCD and perform the procedure; Debriefing.

The Debriefing was developed following the stages: emotional, to identify the feelings experienced by the student during the simulation activity; descriptive, to evaluate the student's understanding of the clinical situation experienced; evaluation, to instigate the student's self-evaluation and expression of the positive actions that he/she performed in the scenario; analytical, to instigate the student's self-assessment and expression of what he would do differently if he had another opportunity; conclusive, in order for the student to express what led from learning from the simulated experience to future clinical practice⁽¹³⁾.

Teaching by the traditional method consisted of: prior provision for the student of the compulsory reading material prior to the theoretical class; a dialogical presentation on the theoretical concepts needed to execute the UCD; practical demonstration of the technique of insertion, maintenance and withdrawal of UCD in simulating manikins; group training in the laboratory.

The study population consisted of 59 Nursing students, which corresponds to the total number of students who studied the UCD technique in the semester prior to the implementation of the realistic simulation as a teaching method, and the students who experimented with the teaching of the procedure using the realistic simulation method in its implementation. The criterion of inclusion of the study was to have been approved in the discipline

that teaches the procedure in the period that first studied it. This criterion was listed to minimize the bias of confusion, since there were, in the group of students in the exposed group, some that were reprovved and that they learned the UCD technique in the two modalities of teaching. The final sample had 58 students, 29 students from the exposed group and 29 students from the non-exposed group.

Data was collected from September to October 2016. The students' approach was carried out by the classroom researcher at the end of the theoretical classes. To evaluate the theoretical knowledge of the students about urinary catheterization delay, a validated self-administered questionnaire was used. This consists of 11 multiple choice questions that assess important aspects that should be performed before, during and after the UCD procedure in a male subject, including the necessary materials, step-by-step procedure and care to avoid urinary tract infection. Small adaptations were carried out in the questionnaires after the author's consent, with the purpose of adapting it to the theoretical framework adopted to teach the UCD ability in the university under study, and to better understand the issues. It should be noted that these changes did not interfere in the measurement of the construct evaluated by the instrument.

It was considered, as satisfactory knowledge, the success rate greater than or equal to 60%. However, it should be emphasized that the authors of the questionnaire used in the data collection do not establish a stratification of knowledge levels. The cutoff of 60% as satisfactory knowledge obeyed the criterion for approval in the subjects of the Nursing course of the university in which the data were collected. Thus, in this study, the student should have a minimum hit rate of 6.60, that is, answer at least seven questions for the knowledge about the UCD procedure to be considered satisfactory.

Statistical Package for the Social Sciences (SPSS) software, version 21.0 was used to treat and analyze the data. For descriptive analysis of the data, we used frequency distribution tables, measures of central tendency (mean and median) and dispersion (standard deviation). The outcome variable (number of correct answers in the questionnaire that evaluated students' theoretical knowledge about UCD) was submitted to the Kolmogorov-Smirnov normality test and the

results showed that it did not present a normal distribution ($p = 0.01$). Thus, to verify the existence of difference in the theoretical knowledge of the students in the exposed and non-exposed groups, the non-parametric Mann-Whitney test was performed, considering a confidence interval of 95%.

The study complied with the ethical precepts of Resolution 466/2012, of the National Health Council, on research involving human beings, and was approved by the Research Ethics Committee of the competent University (Ethical Opinion No. 1,688,553). The students were approached by the researcher, who explained the objectives of the research and, to those who

agreed to participate in the study, a signed Free and Informed Consent Term.

RESULTS AND DISCUSSION

Overall, the majority of students (36 - 62.10%) presented satisfactory theoretical knowledge about UCD (mean = 6.74; standard deviation: + 1.16). Similarly, a study that evaluated the knowledge of nursing students about different nursing procedures found that 65.10% of the students presented satisfactory knowledge (scores above 60%) on urinary catheterization delay in males⁽¹⁴⁾.

The minimum hit score was equal to four and the maximum of nine (Table 1).

Table 1 - Percentage of students, according to the score obtained in the theoretical knowledge evaluation about urinary catheterization delay - Viçosa - MG – 2016.

Number of Results	N	%
9	4	6.90
8	9	15.50
7	23	39.70
6	14	24.13
5	6	10.33
4	2	3.44
Total	58	100.00

Source: Research data, 2016.

The students who participated in this study were in the sixth and eighth years of the Nursing course, and the average correctness of UCD ranged from 6.72 (+1.06) to 6.76 (+ 1.27). In a similar study, the average number of students from the fifth to the ninth period of Nursing, on the same subject, ranged from 7.20 to 8.20 points, and no significant difference was found among students from different periods. However, it should be emphasized that the study does not mention the teaching methodology used to teach UCD⁽¹⁴⁾. Thus, in general, it can be stated that, in the studied population, most of the students acquired, during the training, enough theoretical knowledge to perform the procedure correctly in the patients. However, it is desirable that the average of correct answers in the theoretical knowledge of students about the subject studied be increased.

In both the exposed group and the non-exposed group, the median score was 7.00. That is, this was the most common number of correct answers in the groups that took the UCD technique by the two methods studied. The Mann Whitney test showed that there was no significant difference in the theoretical knowledge about UCD among students from the exposed and non-

exposed group ($p = 0.72$). It should be noted that, although no significant difference ($p = 0.72$) was found in the theoretical knowledge about UCD in the two groups studied, the students' knowledge was satisfactory, since the mean and median correctness exceeded the index required (greater or equal to 60%) to consider the knowledge as satisfactory. All those who answered the most questions ($n = 4$, number of correct answers = 9) belonged to the exposed group, and all who answered the least number of questions ($n = 2$; number of correct answers = 4 questions) were from the non-exposed group.

Nevertheless, studies show that the use of simulation has been shown to be effective in teaching other Nursing competence skills that include know-how, know-how and know-how⁽¹⁵⁻¹⁶⁾. An integrative literature review pointed out that realistic simulation is a methodology that leads to the development of different aptitudes in the spheres of knowledge, skills and attitudes of the learner. These skills have been proven for different themes involving acute care, psychosocial care, maternal and child health, outpatient care, medical-surgical care, semiology, deontology, leadership, communication, professional behavior and interdisciplinary

work⁽¹⁵⁾. Similarly, the realistic simulation applied to the qualification of Nursing teams of a children's hospital allowed the assimilation and remodeling of conduits, and allowed the development of safety and confidence during the execution of routine procedures of Nursing practice. These include the administration of medications and blood components, peripheral venous puncture, aspiration in tracheostomy, nursing care and probes, and Nursing records⁽¹⁶⁾.

In addition, other studies have shown that different visual audio teaching methodologies have been used for the teaching of late urinary catheterization to nursing students^(11, 17). In order to analyze videos from a YouTube digital distribution platform, a study showed that male UCD was inadequate to that recommended by the literature and highlighted, as the main fragilities,

hand hygiene, registry, promotion of comfort to the patient after catheterization, change of gloves and antisepsis of the urethral meatus⁽¹⁷⁾. On the other hand, an integrative review of literature points out that the use of videos, virtual environments, applications, hypertext, games and simulators with virtual reality is the core to subsidize teaching through active learning methods⁽¹¹⁾. Thus, it is necessary to prepare didactic materials, especially those that can be incorporated into digital technology, aimed at the teaching of UCD, with reference to the best and most updated evidence of care about this procedure.

Table 2 presents, in a general way, the indexes of correct answers and errors of the questions that compose the applied questionnaire.

Table 2 - Distribution (n and %) of correct answers and errors in each item of the students' theoretical knowledge evaluation questionnaire about urinary catheterization delay - Viçosa - MG – 2016.

Items of knowledge about urinary catheterization delay addressed in each question	Hits		Misses	
	N	%	N	%
01. Materials required for the procedure	52	89.70	6	10.30
02. Correct sequence of procedure prior to catheter insertion	19	32.90	39	67.20
03. Correct sequence of procedure in general	49	84.50	9	15.50
04. First step to avoid urinary tract infection related to late urinary catheterization delay	51	87.90	7	12.10
05. Activities related to patient safety and which are part of late urinary catheterization delay	46	79.30	12	20.70
06. Nursing care to be performed during and after insertion of the catheter	1	1.70	57	98.30
07. Correct sequence of perianal male hygiene	26	44.80	32	55.20
08. Activities that are not part of the late urinary catheterization delay technique	12	20.70	46	79.30
09. What should not be done during insertion of late urinary catheterization delay	40	69.00	18	31.00
10. Activities to be performed at the end of the procedure	38	65.50	20	34.50
11. Activities that are not part of care after urinary catheterization delay	57	98.30	1	1.70

Source: Study data, 2016.

It should be noted that question 11 was the one that obtained the highest score (57 - 98.30%). This question refers to activities that are not part of the final care after urinary catheterization delay. The response options were: "wash your hands," "record the procedure," "remove the fenestrated field," "put on procedure gloves," and "leave the user comfortable." The correct answer was "putting on procedure gloves". A student (1.70%) missed the question, and pointed out "leaves the user comfortable" in response.

Otherwise, question six was the one with the highest error rate (57 - 98.30%). This question refers to nursing care that should be performed during and after insertion of the catheter. The

response options were: "the collection bag should be emptied only when there is 2/3 of its capacity already filled", "one should choose the smallest probe for each patient", "it is not necessary to establish urinary catheter delay,". "it is not necessary to record the probe exchange procedure whenever it is performed "and" change the probe every 15 days ". The correct answer was "it is not necessary to establish delayed vesical catheter replacement routine", and only one student (1.70%) indicated it as a choice.

A similar study was carried out with seventh and eighth graders from a Nursing course to identify inconsistencies in the technique of urinary catheterization⁽⁶⁾. The results showed that

the highest hit rate (94%) was related to the fixation of the urinary catheter, and the lowest hit rate was the volume that should be used to inflate the cuff (75%). The technique for emptying the collection bag obtained the same index of correctness and errors (50%)⁽⁶⁾. These findings⁽⁶⁾ corroborate with the results of this study and it is noticed that the students presented a greater inconsistency of theoretical knowledge regarding the care after catheterization, which reinforces the need to emphasize, during the teaching, which are the primary care inherent urinary catheterization delay at this stage of the procedure.

Research that evaluates nurses' knowledge about UCD has also been developed⁽¹⁸⁻¹⁹⁾. A study of 1254 nurses in France showed that knowledge and care practices with UCD are heterogeneous. Of the survey nurses, 40.67% had at least one error during the UCD procedure.

The authors emphasize that the construction of recommendation guides by specialist nurses, the provision of training courses and the availability of technical documents on the subject on the Internet can standardize the knowledge and clinical management of patients with UCD⁽¹⁸⁾. In a study conducted in Brazil⁽¹⁹⁾, nurses considered adequate, satisfactory and up-to-date knowledge about UCD, and stated that the availability of updated technical documents in the form of care protocols is an important tool to guide the best care practices with UCD, either for material handling or for post-catheterization care⁽¹⁹⁾.

Thus, both studies⁽¹⁸⁻¹⁹⁾ point to the importance of providing recommendation guides or care protocols based on the best scientific evidence, so that nurses can maintain knowledge about the updated UCD.

CONCLUSION

Overall, students' theoretical knowledge about UCD was satisfactory. There was no significant difference in theoretical knowledge about urinary catheterization delay among students who learned the procedure using traditional teaching methodology and those who learned using realistic simulation ($p = 0.72$).

This study presents limitations related to the time bias between the date the students learned the urinary catheterization delay and the data collection. Although the group not exposed to the realistic simulation had learned the urinary catheterization delay procedure of delay two years ago, they had recently undergone revision

of the procedure, using traditional teaching methodology, before insertion into the practice field of therapy, which may have influenced the results. Those who learned the procedure by simulation had had the last contact with the subject one year ago.

In addition, it is known that the simulation favors more the acquisition of practical skills of the learners, involving spheres linked to attitudes, behaviors and technical skills that extrapolate the know-know, focus of this study. Thus, in view of the relevance of the subject, it is suggested that new research be done to evaluate if there is a difference in the practical knowledge of the students about the urinary catheterization delay conducted with a larger sample, as well as to investigate the effect of the use of the simulation in the development of constructs as satisfaction with student learning and self-confidence.

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