Semiotics and semiology of Nursing: evaluation of undergraduate students' knowledge on procedures

Semiologia e semiotécnica da enfermagem: avaliação dos conhecimentos de graduandos sobre procedimentos

Semiología y semiotécnica de enfermería: evaluación del conocimiento de los estudiantes sobre los procedimientos

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ABSTRACT

Objective: to assess the knowledge of scholars on Nursing regarding simple hands hygiene (SHH), blood pressure measurement (BP), peripheral venipuncture (PV) with venous catheter and male urethral catheterization delay (UCD) procedures. **Method:** quantitative study carried out between February and May 2014, with 186 undergraduate Nursing students from 5th to 9th period of a public university of Rio Grande do Norte, with application of four questionnaires. One carried out descriptive and analytic analysis. **Results:** the students presented low average percentage of right answers, especially in blood pressure measurement (55.5%); SHH's average was higher than 70%. The average of correct answers was the highest in SHH (8.6), followed by UCD (7.8), PV (7.4) and BP (6.7). The questions regarding the topic "concepts" showed less correct answers when comparing it to the topic "technique steps". **Conclusion:** it is necessary to establish knowledge monitoring strategies, in order to stimulate the constant improvement.
Descriptors: Education in Nursing; Undergraduate Nursing Students; Knowledge; Nursing Care; Research in Nursing Evaluation.

RESUMO

Objetivo: verificar os conhecimentos dos acadêmicos de Enfermagem quanto aos procedimentos de higienização simples das mãos (HSM), mensuração da pressão arterial (PA), punção venosa periférica (PVP) com cateter agulhado e sondagem vesical de demora (SVD) masculina. **Método:** estudo quantitativo desenvolvido entre fevereiro a maio de 2014, com 186 acadêmicos de Enfermagem do 5° ao 9° período de uma universidade pública norte-rio-grandense, com aplicação de quatro questionários. Realizada análise descritiva e analítica. **Resultados:** os acadêmicos apresentaram porcentagem média de acertos baixa, especialmente na mensuração da PA (55,5%); a média da HSM foi superior a 70%. A quantidade média de acertos nas questões foi maior na HSM (8,6), seguida de SVD (7,8), PVP (7,4) e PA (6,7). As questões referentes ao domínio "conceitos" apresentaram menor rendimento de acertos ao comparar com o domínio "passos da técnica". **Conclusão:** faz-se necessário trabalhar estratégias de acompanhamento dos conhecimentos, a fim de incentivar o constante aprimoramento.
Descritores: Educação em Enfermagem; Estudantes de Enfermagem; Conhecimento; Cuidados de Enfermagem; Pesquisa em Avaliação de Enfermagem.

RESUMEN

Objetivo: verificar el conocimiento de los estudiantes de enfermería acerca de los procedimientos de higiene de manos (HM), la medición de la presión arterial (PA), la punción venosa periférica (PVP) con el catéter con aguja y el catéter permanente (CP) masculino. **Método**: estudio cuantitativo realizado de febrero a mayo de 2014 con 186 estudiantes de enfermería desde

el quinto al noveno período de una universidad pública al norte de Rio Grande, con la aplicación de cuatro cuestionarios. Se llevó a cabo un análisis descriptivo y analítico. **Resultados:** los académicos mostraron un bajo porcentaje medio de respuestas correctas, especialmente en la medición de la PA (55,5%); la media de HM fue mayor que 70%. El número medio de respuestas correctas en las preguntas fue mayor en HM (8,6), a continuación de CP (7,8), PVP (7,4) y PA (6,7). Las cuestiones relacionadas con el dominio 'conceptos' presentaran menor proporción de respuestas correctas en comparación con el dominio 'los pasos técnicos'. **Conclusión:** es necesario trabajar estrategias de monitoreo de conocimiento con el fin de fomentar la mejora continua.
Descriptores: Educación en Enfermería; Estudiantes de Enfermería; Conocimiento; Cuidados de Enfermería; Investigación en Evaluación de Enfermería.

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INTRODUCTION

The evolution of Nursing as science and profession characterizes the search for theoretical references that guide the professional practice, giving visibility to the knowledge and to the academic and professional doing[1].

In this context, the undergraduate courses in Nursing have, in their curricular structures, a number of basic disciplines that support the construction of the professional knowledge, among them, Semiology, which includes the investigation and the study of signs and symptoms presented by the patient, and Semiotics, which is composed of the study and the method of actions that follow the physical examination. The teaching of these disciplines should be composed of theoretical and practical workloads that talk to each other, allowing the student an approach to real situations of care by handling and performing procedures for the construction of the knowledge in Nursing[2].

Little is known about the best opportunities of learning regarding the effective acquisition of knowledge and capacity for clinical practice. It shows innovation in the guidance to the clinical education, evidencing the importance in the construction of the set of knowledge and capacity competences[3].

The evaluation is a necessary didactic task, which follows the teaching-learning process step by step. However, when educating is confused with informing, the evaluation assumes selective and competitive character and, many times, the student is seen as a passive and repetitive being[4]. Thus, if there is not a proper communication between teachers and students, there may be serious implications in the construction of the knowledge[5].

This evaluation vision has been changing, and the act of evaluating has been turning into a tool that aims at monitoring the student, making it easier the decision-making on his/her development. The evaluation stopped being a tool to pass or not the tests and became an essential phase in the teaching-learning process.

Among the procedures of semiology and semiotics in Nursing, there is the hands hygiene, simple and efficient method in the prevention and control of the infections related to the Health Care. Nevertheless, in study with undergraduate Nursing students, 90.0% affirmed to have participated in some teaching activity on the procedure and, although they affirmed to have theoretical knowledge, only 9.6% described the technique correctly[6].

Besides being one of the vital signs, blood pressure measurement is also approached in the discipline as diagnostic method indicated for identifying the changes in the blood pressure and should be performed in every health evaluation[7].

The relevance of the knowledge and the correct application of the technique are fundamental in order to avoid faults that may compromise the values obtained, interfering on the clinical evaluation and harming the patients[8].

The peripheral venipuncture is a simple ordinary procedure in a hospital, however, the student performs it a few times during the course and, many times, one identifies procedure faults. Even if the execution is not frequent, continuing education on the procedure is necessary in order to avoid those faults and emphasize issues related to biosafety and correct practice[9].

The Semiology and Semiotics in Nursing Discipline is vital in the academic formation, especially regarding the urethral catheterization delay. The nursing teachers are in constant search for new teaching methods, so that one minimizes the students' complications and difficulties[10].

Study carried out at a University in Ankara, Turkey, brings that the catheterization procedure is complex and invasive, bringing consequences to the patient, such as urethral or bladder trauma due to incorrect insertion, and microorganisms introduction into the urinary tract, which may cause infection. Thus, the procedure demands knowledge, strict adherence to the aseptic technique, and technical ability[11].

Considering the relevance of Semiology and Semiotics in the students' formation, one aimed at verifying the knowledge of undergraduate Nursing students from a public university of the state of Rio Grande do Norte, regarding the simple hands hygiene (SHH), blood pressure measurement (BP), peripheral venipuncture (PV) with venous catheter and male urethral catheterization delay (BCD) procedures.

METHOD

Ethical Aspects

The project of this research was appreciated by the Research Ethics Committee of Hospital Universitário [University Hospital] Onofre Lopes, getting favorable opinion. One also requested institutional authorization for data collection, besides voluntary participation acceptance, with the signing of the Free Prior Informed Consent (FPIC).

Description, place of study and period

It is a cross-sectional, analytical study, with quantitative approach, developed at the Nursing Department of a public university of the state of Rio Grande do Norte, from February to May 2014.

Population or sample; inclusion and exclusion criteria

The sample was composed of the academic population regularly enrolled in the Institution's undergraduate Nursing course, being adopted the following inclusion criteria: students from 5th to 9th period, being necessary to have attended the Semiology and Semiotics in Nursing Discipline and be present at the research place during the data collection. Out of 204 students enrolled in the first half of 2014 between the periods evaluated, 186 participated in the research, totalizing 91.2% of the population.

Study protocol

The data were collected via four questionnaires validated regarding the content, and previously tested. Due to operational issues related to time and quantity of information to which the students would be submitted, one decided to divide the questionnaires into two groups: group 1 - questionnaires regarding SHH, BP and PV with venous catheter; group 2 - questionnaires on SHH and UCD. The questionnaires were composed of three parts: sociodemographic profile, previous professional experience, and questions specific on the knowledge of each procedure (12 objective questions, with five alternatives, there being one single correct answer).

The questionnaires application occurred in a classroom, upon explanation of the research objectives and voluntary participation request with signing of the FPIC. Each student answered the questionnaires related to a group. Therefore, one organized numbered lists in alphabetic order for the five periods; the students with odd numbers answered the questionnaires of group 1 (93 students), and the students with even numbers, the questionnaires of group 2.

Results analysis and statistics

For analysis, the 12 questions of each questionnaire were grouped into two topics: 1) concepts related to the procedure; and 2) technique steps. The maximum of correct answers in each topic is six. One considered as knowledge satisfactory level the presence of, at least, 60% (seven correct answers) of 12 questions. Such analysis was based on the assessments performed at Brazilian universities, which adopt approval levels between 50% and 70% of accomplishment.

The collected data were inserted into Excel ® Program and exported to SPSS® 20.0. One conducted the analysis via descriptive and inferential statistics, using ANOVA test and Friedman test, and significance level of p-value < 0.05.

RESULTS

In relation to the sociodemographic data, 89.8% of the 186 observed undergraduate students were females, the age varied from 18 to 36 years old, with average of 23.1 years old (standard deviation SD = 3.4). There was predominance of family income in the category 1 to 5 minimum wages (74.2%), with average of 4.8 (SD = 3.5); social status single/divorced was stressed (86.6%) and students without children (93.0%).

Regarding the previous experience in Health, 18.3% had some experience previous to the undergraduate course; 15.6% were qualified as Nursing technician and 75.9% of these have had a degree in the last five years. 52.6% of 10.2 % that worked in Health area, worked in general hospitals.

Considering the percentage of right answers among the four nursing procedures in question (Table 1), one verified low level of knowledge on blood pressure measurement (average 55.5%) and PV (average 61.5%); 30.1% and 44.1% of the observed students, respectively, had scores of right answers higher than 60% of the questions. Although the students have reached average of right answers of 65.1% in the BCD, this result was low in relation to the desired one. SHH procedure had the best index of right answers, being the only one that had 100.0% of correct answers.

Table 1 – Percentage of correct answers in the four procedures evaluated, second period of the course, Natal, Rio Grande do Norte, Brazil, 2014

Right answers questionnaires	Course period					Total (%)
	5th (%)	6th (%)	7th (%)	8th (%)	9th (%)	
Simple hands hygiene						
Minimum	50.0	50.0	41.7	50.0	33.3	33.3
Maximum	91.7	100.0	100.0	91.7	100.0	100
Average (SD)	71.7 (10.7)	71.4 (11.5)	71.9 (15.5)	73.3 (11.3)	71.7 (15.0)	72.0 (12.5)
Male urethral catheterization delay						
Minimum	50.0	33.3	58.3	33.3	50.0	33.3
Maximum	83.3	83.3	75	83.3	91.7	91.7
Average (SD)	64.7 (10.4)	60.1 (12.0)	68.6 (6.9)	67.7 (11.6)	65.6 (9.6)	65.1 (10.9)
Peripheral venipuncture with venous catheter						
Minimum	50.0	33.3	41.7	41.7	41.7	33.3
Maximum	66.7	83.3	75.0	83.3	83.3	83.3
Average (SD)	59.7 (5.2)	58.7 (15.4)	57.7 (11.1)	67.5 (11.1)	63.2 (12.5)	61.5 (12.1)
Blood pressure measurement						
Minimum	16.7	16.7	25.0	33.3	41.7	16.7
Maximum	75.0	91.7	66.7	83.3	75.0	91.7
Average (SD)	53.7 (17.2)	51.8 (15.7)	51.8 (13.6)	59.9 (14.1)	59.8 (11.5)	55.5 (14.8)

Note: SD = Standard deviation
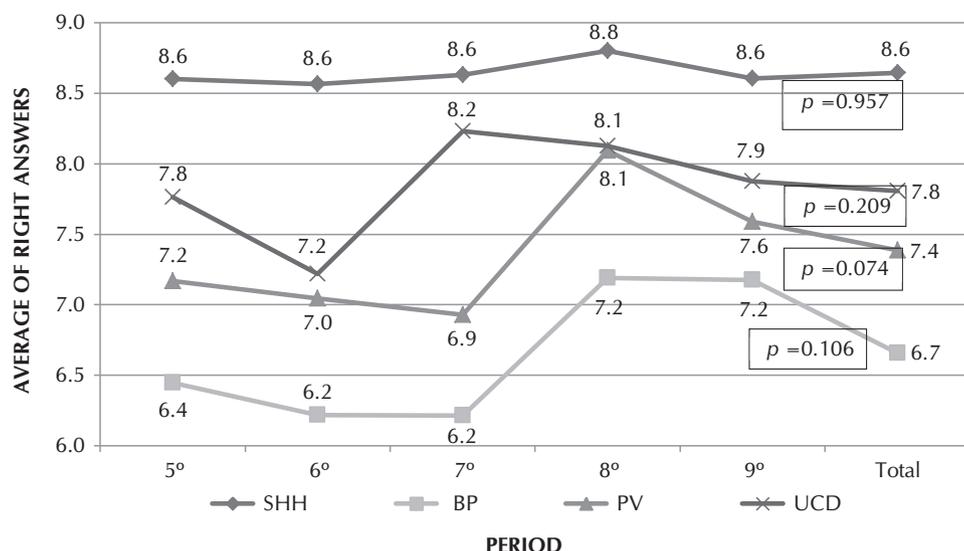
Note: SHH = simple hands hygiene; BP = blood pressure measurement; PV = peripheral venipuncture with venous catheter; UCD = male urethral catheterization delay.

Figure 1 –   Average of right answers in the questionnaires on the four procedures of Semiology and Semiotics in Nursing in the different course periods, Natal, Rio Grande do Norte, Brazil, 2014

When analyzing the quantitative of right answers of the knowledge (Figure 1), one verified that there was no significative difference between the averages of right answers of each procedure in the different periods of the course. One emphasizes SHH, for reaching the best averages in all periods, with high level of knowledge, there being homogenous distribution of the knowledge among the periods in relation to the procedure. The BP measurement had the lowest averages of right answers, both in general and by period, and 6th and 7th periods had the lowest averages. One verified the tendency of better knowledge, regarding all procedures, in the 8th period, and the lowest average of

right answers in the 6th period, which presents more frailties.

For better understanding, the questions were grouped into the topics "concepts", which approaches theoretical knowledge, and "technique steps", which encompasses questions related to the technique itself, according the Table 2. Among the four procedures, the topic "concepts" showed less correct answers when comparing it to the topic "technique steps". In general, this difference was relevant for simple hands hygiene, peripheral venipuncture with venous catheter and male urethral catheterization delay procedures. The absence of significance evidenced in the blood pressure measurement procedure demonstrates homogeneity between the topics; however, the latter showed the lowest averages in relation to period and total.

Among the periods, the undergraduate students from the 6th period showed the lowest averages in five out of eight topics evaluated, of which three referring to concept (SHH, BP, UCD) and two referring to technique steps (PV, UCD). In the simple hands hygiene procedure one verified significant difference in the knowledge between the topics "concepts" and "technique steps" in all course periods (p value < 0.001 each). Considering the urethral catheterization delay, this difference was not relevant exclusively among the undergraduate students from the 7th period.

Table 2 – Percentage of right answers on the topics about concepts and technique steps in relation to the four procedures evaluated, second period of the course, Natal, Rio Grande do Norte, Brazil, 2014

Questions Topics	Course period					Total Aver (SD)	p value for ANOVA
	5th Aver (SD)	6th Aver (SD)	7th Aver (SD)	8th Aver (SD)	9th Aver (SD)		
Simple hands hygiene							
Concepts	3.8 (0.9)	3.5 (1.1)	3.8 (1.3)	3.9 (1.2)	3.7 (1.2)	3.7 (1.1)	0.625
Technique steps	4.8 (0.9)	5.1 (1.0)	4.9 (0.9)	4.9 (0.8)	4.9 (1.1)	4.9 (0.9)	0.816
p value for wilcoxon	**< 0.001**	**< 0.001**	**< 0.001**	**< 0.001**	**< 0.001**	**< 0.001**	
Blood pressure measurement							
Concepts	3.1 (1.6)	2.9 (0.9)	2.9 (1.2)	3.8 (1.1)	3.9 (1.3)	3.3 (1.3)	0.020
Technique steps	3.4 (0.9)	3.3 (1.3)	3.4 (0.8)	3.4 (0.8)	3.2 (0.7)	3.3 (0.9)	0.975
p value for wilcoxon	0.384	0.133	0.191	0.154	0.063	0.901	
Peripheral venipuncture with venous catheter							
Concepts	3.2 (0.6)	3.8 (1.0)	3.0 (1.0)	3.8 (1.3)	3.5 (1.2)	3.5 (1.1)	0.140
Technique steps	3.9 (0.7)	3.3 (1.4)	3.9 (0.9)	4.3 (0.6)	4.1 (1.2)	3.9 (1.1)	0.012
p value for wilcoxon	0.025	0.153	0.019	0.091	0.090	0.004	

To be continued

Table 2 (concluded)

Questions Topics	Course period					Total Aver (SD)	p value for ANOVA
	5th Aver (SD)	6th Aver (SD)	7th Aver (SD)	8th Aver (SD)	9th Aver (SD)		
Male urethral catheterization delay							
Concepts	3.1 (0.9)	3.1 (1.0)	3.8 (1.0)	3.5 (1.0)	3.2 (1.1)	3.3 (1.0)	0.165
Technique steps	4.7 (0.9)	4.1 (1.0)	4.4 (0.9)	4.6 (0.9)	4.7 (0.7)	4.5 (0.9)	0.133
p value for wilcoxon	0.001	0.004	0.261	0.001	0.003	**< 0.001**	

Note: Aver (SD) = Average (standard deviation)

When evaluating the difference in the average of right answers in each topic by course period, in the topic "concepts" of BP measurement, it was relevant (p value = 0.020); 6th and 7th periods presented the lowest averages. In relation to the "technique steps", in the PV procedure, there was relevant difference (p value = 0.012); the 6th period was the one that presented the lowest average of right answers and the highest variation, and the 8th period obtained the best result, closer to the total of right answers of the topic.

When comparing the average of right answers among the procedures of each group by period (Table 3), in group 1 one verified variation of the averages among the three procedures in the periods evaluated, this difference being relevant, there being no conformity among the knowledge of the undergraduate students regarding the procedures in question. In group 1, the BP presented the lowest scores, and 6th and 7th periods presented the lowest averages. And SHH reached the highest averages. In the group, there was no relevant variation of the averages between SHH and UCD in the different periods, with exception of the 6th period (p value = 0.016).

The SHH was the only procedure developed by the two groups. By comparing the average of right answers between them, one realized that there was no relevant differences between group 1 and 2 (p value for ANOVA = 0.957), presenting similarity among the knowledge of the undergraduate students from each group in the different course periods.

DISCUSSION

Regarding the students observed, the highest number of women was predicted. As one knows, the feminization is strong characterization of the sector, which persists since the beginning of the professionalization, once the caring act is associated to womankind[12]. One also realized, in the study, predominance of single students, and without children. Nowadays, the youth prefer getting professional qualification rather than getting married[13].

In the last years, one has realized a change in the profile of the undergraduate Nursing students. Such profile is composed of students who are in the labor market, whether in health area or not. The ones who work in health area search for graduation as an opportunity of professional improvement and salary increase, most part being Nursing technicians. This change is also connected with access ease, associated to the increase of the number of spaces in higher education in the country and for the flexibility in the admission ways[14].

Regarding the procedure that obtained the best averages of right answers on knowledge among the periods, one highlighted SHH. The hands hygiene is considered a simple, fast, easy and efficient procedure in the prevention and control of the nosocomial infections. Although the scientific evidences show the importance of the technique and how it is easy to develop it, the low adherence by several professionals that act in health care system is still notorious[15].

According to Nursing scholars, the main barriers that contribute to the nonadherence to hands hygiene are busyness, forgetfulness, mistakes about the use of hand gel sanitizer, besides the negative effect on the skin. One emphasizes the decrease of the adherence to the hands hygiene in relation to the clinical experience, in which the students from the last year of the undergraduate Nursing course present lower adherence indexes, what may be related to the development of improper habits influenced by other health professionals, or to the lack of concepts reinforcement throughout the course. On the

Table 3 – Average of right answers of the knowledge in groups 1 and 2 in the different course periods, Natal, Rio Grande do Norte, Brazil, 2014

Periods	Group 1			p value (Friedman)	Group 2		p value (Friedman)
	SHH Aver (SD)	PV Aver (SD)	BP Aver (SD)		SHH Aver (SD)	UCD Aver (SD)	
5th	8.9 (1.3)	7.2 (0.6)	6.4 (2.1)	**< 0.001**	8.3 (1.2)	7.8 (1.3)	0.109
6th	8.5 (1.3)	7.0 (1.8)	6.2 (1.9)	**< 0.001**	8.7 (1.5)	7.2 (1.4)	0.016
7th	8.6 (2.1)	6.9 (1.3)	6.2 (1.6)	0.006	8.6 (1.7)	8.2 (0.8)	0.564
8th	8.8 (1.4)	8.1 (1.3)	7.2 (1.7)	0.003	8.8 (1.4)	8.1 (1.4)	0.180
9th	8.7 (1.3)	7.6 (1.5)	7.2 (1.4)	0.002	8.5 (2.3)	7.9 (1.1)	0.796

Note: SHH = simple hands hygiene; BP = blood pressure measurement; PV = peripheral venipuncture with venous catheter; UCD = male urethral catheterization delay; SD = standard deviation.

other hand, they have realized the proper practices of hands hygiene by Nursing teachers as influence factor for the procedure accomplishment, what drives attention to the impact that the adequate behavior example has on the students[16].

The fact that there are disciplines that work with the knowledge and implementation of hands hygiene does not mean that the theme is approached in such a way as to generate knowledge construction and change of the undergraduate students' habits. One of the factors that difficult the teaching-learning process is the lack of a profile of continuity in the formative trajectory, transforming the learning into something fragmented, reducing the possibility of carrying out the connection of theory with practice, in an effective and conscious way[6].

Despite the apparent ease of the BP measurement procedure, the students presented lower averages of right answers of knowledge in the present study, in a general way, and individualized per period. The failures that affect the BP measurement usually occur, since a large part of health professionals presents gaps in the knowledge of the theme, with doubts about theoretical and technical aspects and anatomo-physiological factors that influence the measurement[17].

Based on the evaluations performed in Brazilian universities and in undergraduate Nursing courses, which adopt approval levels between 50% and 70% of accomplishment, when considering the minimum score of 60%, the population would have score considered insufficient in relation to the knowledge of BP and borderline score in PV and UCD, demonstrating that the knowledge of such techniques is still insufficient and that they need to be emphasized and consolidated during the formative process.

By grouping the questions into topics (concepts and technique steps), one sought to understand where the main students' difficulties concerning the knowledge are. One evidenced greater fragility related to the topic "concepts" in the four procedures. The BP measurement had, in general, the lowest accomplishment in both topics; the divergence between the periods was relevant in relation to the concepts. In all periods the difference between the two topics of SHH showed statistical significance.

In addition to the low adherence, it is observed that when SHH is performed rarely all steps are performed correctly. Study verified that 8.8% of the observed undergraduate Nursing students performed all the steps of the technique properly[18]. A research with undergraduate Nursing students found that although they affirm to have theoretical knowledge, presented low performance when describing the SHH technique. It demonstrates that the approach taken by the educational institutions has not provided the knowledge sedimentation that would result in the correct execution of the technique[6].

Study on the knowledge of nurses at intensive care units about direct and indirect BP measurement verified that, although they perform the measurement daily, the knowledge of the theme is still insufficient, as only 30.2% of the professionals had more than 60% of the answers correct. In the same study, the observed students themselves noticed the lack of knowledge of BP, having most of them analyzed their

knowledge as good before the questionnaire, modifying the classification to bad, regular and terrible after answering it[19]. Providing a review of concepts that gives meanings to the performance of the procedure, covering it in a systematic way, may be important strategy to modify such situation, assisting health professionals, in addition to contributing to the formation of new ones, especially of the future nurses[8].

The PV, although it is common procedure in nursing practice, presented significant divergence in knowledge of the topic "technique steps", among the five periods. Failures in the PV process may generate several harms related to the conditions of the client's recovery. Although the procedure is not exclusive to nursing professionals, it is part of the routine care, being their theresponsibility to know the drugs prescribed and the issues related to it, and one demands that it is a technique developed by people who have experience and knowledge about the procedure[9].

A study performed with undergraduate Nursing students on the PV verified that the students, after performing the procedure and verifying correct answers and mistakes, realized the importance of keeping themselves up-to-date, paying attention when performing the procedure[9].

One expected that the students showed greater knowledge in relation to the topic "technique steps", bearing in mind that, during the process of formation in the undergraduate Nursing course, there is greater emphasis on practice and mastery of the technique in detriment of theoretical knowledge, in particular regarding the four procedures evaluated, which are closely related to the caring nurse's daily practice.

One verifies the tendency of final periods of the course present better knowledge in comparison to earlier periods. What may be explained by the inclusion of new and more complex knowledge. The students from last year supplemented their knowledge during the undergraduate course, having the opportunity to perform the procedures with frequency for being constantly in the practice field, and to review the knowledge related to the care provided.

The lack of a continuity profile in the formative trajectory is worrisome, what transforms the learning into something fragmented and affects the formation, reducing the knowledge improvement opportunities. It is fundamental that the other disciplines do not consider the student as ready and finished. The acquisition of knowledge should be an ongoing process, cannot be understood as something done. This posture immobilizes the student, affects his/her formation and may generate a false sense of being complete in professional terms[20].

The challenges for the formation are connected to the changes in the profile of the undergraduate Nursing students, how to work with the lack of preparation, due to the deficit of prior knowledge related to the lack of basis in Primary and Secondary Education. And those newly graduated from the Secondary School, who have not had experience working in health, are generally unaware of the profession and immature to attend Higher Education, compromising the formation[14].

By comparing the groups regarding the knowledge on procedures, one is concerned about the fact that, in all periods,

the scores of right answers in group 1, which encompasses SHH, PV and BP, were different and showed variations. Again, in BP, there was the lowest performance of right answers. The three procedures are important for nursing practice and should present similar averages of knowledge; these divergences demonstrate tendency for greater theoretical mastery of a procedure to the detriment of another.

The knowledge of the students with respect to SHH and UCD was very similar, with no major variations. For being a complex procedure, the employment of scientific knowledge is fundamental for the UCD performance, especially by the need for immediate decision-makings by the nurse.

When evaluating the knowledge of the nursing team on UCD, researchers identified prevalence of inadequate scores, with significant differences between nurses and nursing technicians. The knowledge about the urethral catheterization delay by nursing staff is essential, especially because UCD is one of the major risk factors for infection in hospitalized patients. Thus, continuing education is of fundamental importance, allowing constant updating, besides the change in daily practice from the perception of errors[21].

The results bring to the nurses formation the need for providing situations of teaching-learning process that continually generate the construction, deconstruction and reconstruction of knowledge in the Semiology and Semiotics Discipline and throughout the course. At the same time, it is the responsibility of the teaching to discuss, before the acting scenarios, the constant renewal of knowledge and skills that are basis for the professional practice, favoring the permanent education processes with the use of more active methodologies[22].

Study limitations

One indicates as a limitation of this study the use only of objective questions in the questionnaires, once it restricted the possibility of the student to answer with more freedom and greater elaboration of thought. As well as its performance in a specific scenario of a public university of Rio Grande do Norte, restricting the geographic distribution. Even with limitations, the goal was achieved and answered in the results, providing subsidies for the reality knowledge, and also for the development of other researches in the area.

Contributions to the nursing and health areas or public policy

Due to the importance of the four procedures for nursing care, there is a need for investing in knowledge improvement throughout the undergraduate Nursing course. Thus, through the identification of the improvement points, it is possible to contribute to the reflection about teaching, from which it is necessary to work the evaluation process during the course, as well as the elaboration of strategies to monitor the students in SHH, BP measurement, PV and UCD procedures, in order to promote the consolidation of knowledge, update on the themes and encourage their continuing improvement.

CONCLUSION

From the assessment of knowledge of undergraduate Nursing students on SHH, BP measurement, PV and UCD procedures, one observes a low average of right questions, especially related to BP measurement and PV; only the SHH average was higher than eight answers, and there were no differences between the periods. Considering the percentage of correct answers, the students have reached an average higher than 70% in the SHH procedure, being the only one that has reached 100.0% of correct answers.

There are gaps in the knowledge of the undergraduate Nursing students from the 5th to the 9th period especially regarding the knowledge of questions related to concepts on the procedures, with greater knowledge of the questions on the technique steps, which may interfere with the ability and safety of student/patient. From the identification of fragilities, it is possible to act in order to review the points with deficits, providing subsidies for the improvement of teaching, seeking to ensure good theoretical basis associated with the practice.

FUNDING

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