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Physical examination in nursing: evaluation of theoretical-practical knowledge

ABSTRACT | Objective: To verify the theoretical and practical knowledge of nurses on the technique of cephalo-caudal physical examination at a university hospital in the city of São Paulo. Method: Descriptive-exploratory study with a quantitative approach carried out with 51 nurses from inpatient and adult intensive care units, submitted to a structured questionnaire. The analysis of the results was performed using descriptive statistics and inferential analysis using evidence of association between the variables of interest. Results: The data revealed success rates above 70%. Graduation was considered the period of the greatest acquisition of knowledge about the physical examination (p = 0.039). The time since graduation was associated with higher education (p <0.05), which was decisive for the practice of physical examination (73.8%). Conclusion: the findings of this investigation reinforce the importance of continuing education with nurses for the practice of physical examination in order to maintain quality care oriented to patient safety.
Keywords: Physical Examination; Nursing Process; Education, Nursing.

RESUMEN | Objetivo: verificar los conocimientos teóricos y prácticos de las enfermeras sobre la técnica del examen físico cefalo-caudal en un hospital universitario de la ciudad de São Paulo. Método: estudio descriptivo-exploratorio con enfoque cuantitativo realizado con 51 enfermeras de unidades de cuidados intensivos para pacientes hospitalizados y adultos, sometidas a un cuestionario estructurado. El análisis de los resultados se realizó mediante estadística descriptiva y análisis inferencial utilizando evidencia de asociación entre las variables de interés. Resultados: Los datos revelaron tasas de éxito superiores al 70%. La graduación se consideró el período de mayor adquisición de conocimiento sobre el examen físico (p = 0.039). El tiempo transcurrido desde la graduación se asoció con la educación superior (p <0.05), lo cual fue decisivo para la práctica del examen físico (73.8%). Conclusión: los resultados de esta investigación refuerzan la importancia de la educación continua con enfermeras para la práctica del examen físico a fin de mantener una atención de calidad orientada a la seguridad del paciente.
Palavras claves: Examen Físico; Proceso de Enfermería; Educación en Enfermería.

RESUMO | Objetivo: Verificar o conhecimento teórico-prático dos enfermeiros sobre a técnica do exame físico céfalo-caudal em um hospital universitário da cidade de São Paulo. Método: Estudo descritivo-exploratório de abordagem quantitativa realizado com 51 enfermeiros de unidades de internação e terapia intensiva adulto, submetidos a um questionário estruturado. A análise dos resultados foi feita por meio da estatística descritiva e análise inferencial por associação entre as variáveis de interesse. Resultados: Os dados revelaram índices de acertos acima de 70%. A graduação foi considerada o período de maior aquisição de conhecimento sobre o exame físico (p=0,039). O tempo de formação e atuação foram associados a maior escolaridade (p<0,05), a qual foi determinante para prática do exame físico (73,8%). Conclusão: os achados desta investigação reforçam a importância da educação permanente junto aos enfermeiros para a prática do exame físico com objetivo de manter uma assistência de qualidade orientada para a segurança do paciente.
Palavras-chaves: Exame Físico; Processo de Enfermagem; Educação em Enfermagem.

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INTRODUCTION

Physical examination is a skill inherent in the care practice of several health professionals. However, with the emergence of new diagnostic technologies, its bedside application has become increasingly incipient. About two millennia ago Hippocrates already emphasized clinical perception by "sight, touch, hearing, smell, taste and understanding", configuring itself in the main pillars of the practice of physical examination [1,2].

The interpretation of findings and the identification of abnormalities are skills acquired in the course of professional development and are based on knowledge of anatomophysiological and pathophysiological aspects [3,4]. In this sense, clinical prac-

tice is organized through good clinical reasoning combined with critical thinking [5].

Nursing is the health profession that most works bedside and its activities, namely the physical examination, are supported by an organized work method, the Nursing Process (NP), which uses the Theory of Needs as a reference. Basic Humanities of Wanda Aguiar Horta. This theory classifies human needs into psychobiological, psychosocial and psychospiritual[6,7]. The regulation of Resolution No. 358/2009 by COFEN made it mandatory in Brazil to implement the Systematization of Nursing Assistance (SAE) and the Nursing Process in all scenarios where the professional practice of nurses occurs 8. This work method must be carried out in a deliberate and interrelated way through five steps: data collection, diagnosis, prescription, intervention and nursing evolution. The physical examination is part of these steps and meets the psychobiological needs guided by Horta[5,6,8].

Several studies have glimpsed the subject of physical examination and the associated gaps between knowledge and practice. In them, aspects involving theoretical-practical dissociation, lack of interest on the part of nurses in reviewing anamnesis contents and physical examination were observed9, teachers' unpreparedness[10] e precarious work [4,11].

In this context, is theoretical and practical knowledge related to the practice of physical examination among nurses in the hospital area? Thus, the present study aims to verify the theoretical and practical knowledge of nurses about the technique of cephalo-caudal physical examination at a university hospital in the city of São Paulo. The findings of this investigation can contribute to the development of educational interventions with the aim of improving this professional in this important activity that makes up the nursing work method.

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METHODOLOGY

This is a descriptive-exploratory, cross-sectional study with a quantitative approach, involving a population of 192 nurses who work in inpatient units and adult intensive care units of a university hospital in the city of São Paulo. The sample was calculated based on the statistical formula for finite populations, resulting in 51 nurses, with a 90% confidence level and a sampling error of 8%. The selection was made in a simple random way, after sending the invitation to participate in the research and the questionnaire structured through a social network or electronic direct mail, adopting the following inclusion criteria: nurses trained and working in the inpatient units and adult intensive care units and the exclusion criteria: pediatric nurses, as there are numerous peculiarities that differentiate adult and pediatric patient care.

Data were collected from February to May 2019 using an electronic form that addressed demographic characteristics, history and professional performance, questions about the satisfaction of the practice of physical examination and a questionnaire to assess knowledge.

The questionnaire for assessing the theoretical and practical knowledge of the physical examination was developed by the researcher. Subsequently, it was evaluated and corrected by experts working in semiology and semiotechnical disciplines at Brazilian federal universities.

The data were tabulated in an Excel spreadsheet and processed using the Statistical Package for the Social Sciences (SPSS) software, version 22. The results were analyzed using descriptive statistics and inferential analysis using evidence of association between the variables of interest. The analysis of the association between variables of interest was performed using Fisher's exact test, Mann Whitney and Kruskal Wallis. In all analyzes performed, the significance level of 5% was used.

The study was approved by the Ethics and Research Committee of a university hospital in the city of São Paulo under CAAE: 04752118.1.0000.5505, and opinion No. 3,203,555, respecting the guidelines of Resolution No. 466/2012.

Recursos humanos deficiente	0	0	1	7,2	
Falta de instrumentos	2	5,4	0	0	
Falta de privacidade	1	2,7	0	0	
Não enfrento dificuldade para o exame físico	9	24,3	5	35,7	
Duas dificuldades	10	27	1	7,2	
Mais de duas dificuldades	6	16,3	2	14,2	
Segurança na realização do exame físico					1
Sim	31	83,8	12	85,7	
Não	6	16,2	2	14,3	

Note: * Fisher's exact test.

Table 3 shows the comparison of time since graduation and length of experience with the various study variables. It was observed that the time since graduation and the time of experience showed significant differences in the variables gender and education. It stands out in education that the longer the time, the greater the professional improvement.

Table 4 shows the choice of propaedeutic techniques by participants in the different body systems. Inspection was the propaedeutic technique with the greatest application and was present in all systems. Palpation was also described in all body systems, however, it showed lower indices in the genitals and circulatory system. Regarding auscultation, applications in the circulatory, respiratory, and digestive systems stand out. On the other hand, interestingly, the neurological/head and neck (5.8%)

Table 3. Relationship between time since graduation and experience with several study variables. Sao Paulo, 2019.

	Tempo de Formado (meses)				Tempo de atuação (meses)		
Variáveis	**n**	**Média**	**DP**	**p**	**Média**	**DP**	**p**
Gênero				0,023*			0,021*
Masculino	4	20,2	26,7		10,0	10,4	
Feminino	47	79,3	57,3		68,6	59,6	
Escolaridade				0,003&			<0,001&
Ensino Superior	9	27,0	23,9		7,2	7,6	
Especialização	35	79,9	59,0		71,3	58,7	
Mestrado	7	109,7	46,1		100,5	55,8	
Local de trabalho				0,427			0,547
Unidade de internação	37	80,3	62,7		69,8	65,4	
Unidade de terapia intensiva	14	59,6	39,1		48,8	37,3	
Período de trabalho				0,118			0,174
Matutino	16	84,3	50,1		68,3	59,5	
Vespertino	18	49,6	56,3		44,0	56,1	
Noturno	8	97,5	63,3		84,0	54,0	
Dois períodos	11	126,0	59,3		120,0	67,8	
Segurança na realização							
do exame físico				0,835			0,846
Sim	43	71,8	51,6		62,5	54,5	
Não	8	90,1	86,0		72,2	85,5	

Note: * Mann Whitney test; & Kruskal Wallis test.

and urinary (3.9) systems showed applicability for this propaedeutic technique. Percussion had higher rates of application in the digestive system (94.1%), followed by respiratory (82.3%) and urinary (25.4%). Despite discrete values, the neurological/head and neck (1.9%), genital (1.9%), locomotor (11.7%) and skin and appendages (1.9%) systems showed applicability for the propaedeutic technique percussion.

Table 4. Evaluation of study participants on the use of propaedeutic techniques in different body systems. Sao Paulo, 2019.

Técnicas propedêuticas Sistemas	INSPEÇÃO n (%)	AUSCULTA n (%)	PERCUSSÃO n (%)	PALPAÇÃO n (%)
Neurológico/Cabeça e Pescoço	47 (92,1)	3(5,8)	1(1,9)	38 (74,5)
Circulatório	48 (94,1)	42 (82,3)	7 (13,7)	36 (70,5)
Respiratório	46 (90,1)	44 (86,2)	42 (82,3)	24 (47,0)
Digestório	49 (96,0)	40 (78,4)	48 (94,1)	47 (92,1)
Urinário	45 (88,2)	2 (3,9)	13 (25,4)	37 (72,5)
Genitais	51 (100,0)	0 (0,0)	1 (1,9)	23 (45,0)
Locomotor	49 (96,0)	0 (0,0)	6 (11,7)	30 (58,8)
Pele e Anexos	51 (100,0)	0 (0,0)	1 (1,9)	36 (70,5)
Total	51 (100,0)	51 (100,0)	51 (100,0)	51 (100,0)

DISCUSSION

The theoretical-practical content addressed in this investigation aimed to assess the knowledge of nurses in inpatient units and intensive care units for the technique of cephalo-caudal physical examination. The data showed higher success rates than errors, which were associated with a higher frequency of performing the physical examination technique. Graduation stands out as the most important moment in acquiring knowledge of the physical examination. The time since graduation and experience were related to professional development and gender. Inspection and palpation were the propaedeutic techniques with the greatest number of uses in physical examination.

The physical examination is the first phase of the nursing process and requires the consistent elaboration of clinical reasoning. Thus, the professional identifies the patient's needs and offers a care plan based on human responses to select the appropriate interventions and evaluate the result achieved [12,13].

In this study, the evaluated professionals demonstrated mastery and assertiveness regarding the questions about the theoretical and practical knowledge of the cephalon-caudal physical examination. These results can infer quality care with an impact on patient safety [14].

Trindade et al demonstrated through an exploratory study with a qualitative approach that nurses understand the nursing process as a scientific and strategic method for qualifying care practice and recognize that its use contributes to the autonomy and valorization of the profession [15].

The study presented revealed that a smaller number of participants obtained the content of physical examination at the institution where they work when compared to those who obtained the content during graduation. In this context, the physical examination technique is highly valued at graduation, but it is discontinued mainly at the work institution.

The professional nurse, without long-term educational support, tends not to update herself autonomously, this is evidenced by studies developed in Brazil and in other nationalities [16,17].

Douglas et al evaluated in 208 nursing students the application of physical examination skills in clinical practice during graduation. It was found that of the 126 skills taught, only 5 were used more frequently, and that some essential skills that should be performed routinely in all patients were practices that were rarely performed18. In this sense, another investigation revealed that out of thirty physical assessment techniques in nursing, twenty-eight were performed occasionally or rarely [19].

A recent study that developed and tested a scale for evaluating nurses' attitudes and practices for physical examination contributed

to fill the gaps between what is taught in undergraduate and the practice. The results revealed that the performance of a good physical examination is essential for clinical diagnosis, reducing costs with laboratory tests and imaging diagnoses, in addition to strengthening the nurse-patient relationship [20].

In this context, the establishment of permanent education measures can positively impact the level of knowledge, practice and care management. A motivating and interactive pedagogical practice can be used in training and updating professionals, and can be an excellent way to motivate them to improve. For this, it is recommended to use interactive educational methodologies that identify with the contemporary concept of teaching, which considers the learner as the center of the process and builder of their learning.

On the other hand, this investigation demonstrated that the greater the professional improvement (specialization and master's degree), the greater the time of experience and training with association with the highest number of correct answers (73.8%). These data reinforce the importance of continuing studies after graduation. Silber et al demonstrated that hospitals with better nursing environments and above average personnel levels were associated with lower mortality and quality care compared to hospitals without recognition of the nursing environment and with below average personnel, especially for patients at higher risk [21].

The results of the present study also revealed precarious work associated with a lack of time, instruments, and scarce human resources. This aspect had already been observed in other studies that related them to the compromise of the technique[4,11].

> “A recent study that developed and tested a scale for evaluating nurses' attitudes and practices for physical examination contributed to fill the gaps between what is taught in undergraduate and the practice. The results revealed that the performance of a good physical examination is essential for clinical diagnosis, reducing costs with laboratory tests and imaging diagnoses, in addition to strengthening the nurse-patient relationship [20].”

The propaedeutic techniques evaluated in this study confirmed inspection and palpation as the most used techniques, like studies that demonstrated inspection and general observation as the most used propaedeutic steps by nurses[11,22].

In summary, the findings of this investigation reinforce the importance of continuing education with nurses for the practice of physical examination to maintain quality care oriented to patient safety.

CONCLUSION

This study concluded that nurses from inpatient units and adult intensive care units had an average of correct answers above 70% in relation to the techniques of the cephalon- caudal physical examination. Graduation was considered the period of greatest acquisition of knowledge about the physical examination. Professional improvement was decisive for the best practice of physical examination.

These data can contribute to the reflection of the practice of physical examination in nursing, strengthening the quality of care and highlighting the nurse as a professional who has greater proximity and empathy with the patient, having an important role in surveying the needs of the patient, family and/or community. As well as, stimulating intervention research to improve the knowledge of the physical examination technique in nursing.

LIMITATIONS

This study was carried out in a single hospital, which has specific

characteristics for teaching. Therefore, new studies should be developed in other centers to assess the diversity of the sample.

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