



Factors related to applying the nursing process in Colombian hospital institutions

Fatores relacionados à aplicação do processo de enfermagem em instituições hospitalares na Colômbia

Factores relacionados con la aplicación del proceso de enfermería en instituciones hospitalarias de Colombia

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Abstract

Introduction: Application of the nursing process benefits the patient's health and promotes the profession's autonomy. Objective: To describe the application of the nursing process by nursing professionals when providing care in the hospital setting in the Colombian Orinoquia region. **Materials and Methods:** A cross-sectional, descriptive study was conducted through standardized survey, but not probabilistic, comprising 100 nurses from the hospital area of high-complexity health care centers. Summary measures were calculated, along with reasons for advantages. **Results:** Of the number of subjects surveyed, 84% were women, mean age of 31 ± 9.1 years; average number of patients per shift: 12.2 ± 15.5; 59% reported applying the nursing process, 98% referred to the lack of time as a factor for not applying the nursing process. A statistically significant association was found to increase the application of the nursing care process when it is considered a facilitator to provide care (OR: 4.52 95%CI: 1.1-18.2), when the nursing professional finds application and relation with the theory received in the university (OR: 4.06 95%CI: 1.7-9.5). **Discussion and Conclusions:** The possibility of applying the nursing process increases due to factors, like the perception of benefits, level of appropriation by the nursing professionals, and it was not limited to work or academic conditions.

Key words: Nursing Process; Nursing Care; Nursing; Nursing Staff, Hospital..

Resumo

Introdução: A aplicação do processo de enfermagem beneficia a saúde do paciente e promove a autonomia da profissão. Objetivo: Descrever a aplicação do processo de enfermagem dos profissionais de enfermagem da área hospitalar na Orinoquia colombiana no momento da prestação de cuidado. **Materiais e Métodos:** Realizou-se um estudo descritivo transversal, utilizando uma entrevista padronizada, amostra não probabilística composta por 100 enfermeiros da área hospitalar, de centros de prestação de alta complexidade, foram calculadas medidas de resumo e razões de vantagens. **Resultados:** 84% eram mulheres, idade média: 31 ± 9.1 anos; número médio de pacientes por turno: 12,2 ± 15,5; 59% relataram aplicar o processo de enfermagem, 98% referem falta de tempo como fator para não aplicação do processo de enfermagem; foi encontrada associação estatisticamente significativa para aumentar a aplicação do processo de cuidados de enfermagem quando este é considerado como um facilitador para prestar cuidados (OR: 4.52 IC95%: 1.1-18.2); quando o profissional de enfermagem encontra aplicação e relação com a teoria recebida na universidade (OR: 4.06 IC95%: 1.7-9.5). **Discussão e Conclusões:** A possibilidade de aplicar o processo de enfermagem aumenta por fatores como a percepção de benefícios, o nível de apropriação que têm os profissionais de enfermagem, e não se limitou a condições de trabalho ou acadêmicas.

Palavras chave: Processo de Enfermagem; Cuidados de Enfermagem; Enfermagem, Recursos Humanos de Enfermagem no Hospital.

Resumen

Introducción: La aplicación del proceso de enfermería, beneficia la salud del paciente y promueve la autonomía de la profesión. Objetivo: Describir la aplicación del proceso de enfermería de los profesionales de enfermería del área hospitalaria en la Orinoquia colombiana al momento de brindar cuidado. **Materiales y Métodos:** Se realizó un estudio descriptivo transversal, mediante entrevista estandarizada, muestra no probabilística constituida por 100 enfermeros del área hospitalaria, de centros de atención de alta complejidad, se calcularon medidas de resumen, y razones de ventajas. **Resultados:** 84% eran mujeres, edad promedio: 31 ± 9,1 años; promedio de pacientes por turno: 12,2 ± 15,5; 59% refirieron aplicar el proceso de enfermería, 98% refieren la falta de tiempo como factor para la no aplicación del proceso de enfermería; se encontró asociación estadísticamente significativa para aumentar la aplicación del proceso de atención de enfermería cuando este es considerado como un facilitador para brindar el cuidado (OR: 4,52 IC95%: 1,1-18,2); cuando el profesional de enfermería encuentra aplicación y relación con la teoría recibida en la universidad (OR: 4,06 IC95%: 1,7-9,5). **Discusión y Conclusiones:** La posibilidad de aplicar el proceso de enfermería aumenta por factores como la percepción de beneficios, el nivel de apropiación que tienen los profesionales de enfermería, y no se limitó a condiciones laborales o académicas.

Palabras clave: Proceso de Enfermería; Atención de Enfermería; Enfermería, Personal de Enfermería en Hospital.

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INTRODUCTION

The Nursing Care Process (NCP) is defined as a systematic method inasmuch as it is a sequential, cyclical, and controlled scheme aimed at managing nursing care¹⁻⁴, which should be considered vitally important as it is one of the most important methodological foundations in the recognition of nursing as a discipline^{2,5,6}. The nursing care process is the application of the scientific method to healthcare practices^{5,7}.

After the publication of the process standards by the American Nurse Association in 1973, the application of the scientific method in the nursing practice became important, turning out to be the tool used for the development of nursing activities focused on its subject of study: care.

Now the nursing care process has been accepted worldwide as the framework of nursing practice⁸, ensuring suitable nursing care through this process⁹. It emulates the steps of the scientific method so as to establish a structure to intervene in the real or potential needs of patients through activities, that once applied and evaluated, their feedback is used to redirect them to achieve greater effectiveness^{2,5}. For the development of the profession, it is necessary to organize activities in the interest of care so that nursing professionals are clear about the meaning, application and importance of the nursing care process (NCP) in their assistance practice as NCP encourages critical thinking, research, and development of own knowledge that contribute professional autonomy and justify the scientific endeavor of the profession.

Therefore, this study is aimed at determining the factors for the application of the nursing care process in Colombian Orinoquia hospitals (Arauca, Casanare, Meta, Vichada), considering the limited existing research both at the country and the Orinoquia region levels. This study will encourage feedback, which will serve as a product that contributes to academic development and possibly to decision making to improve the profiles of nurses being trained, increasing graduates' knowledge and update.

MATERIALS AND METHODS

Type of Study and Population

A cross-sectional descriptive study was conducted with nursing professionals from the second- and third-level healthcare hospitals in the Colombian Orinoquia (Arauca, Casanare, Meta, Vichada). The target population was 311 nursing professionals working in 8 regional second- and third-level hospitals in the Colombian Orinoquia. As the population census was not available, non-probability sampling was conducted and intentionally selected, made up of 100 nursing professionals (32% of the target population) and weighted based on the nursing population of each hospital to select the sample in each hospital.

Measurement Process and Data Collection

For data collection, the researchers met each nursing professional in their workplace in person, socializing the informed consent form so that those who decided to freely and spontaneously participate in the study were subjected to a struc-

tured interview. The instrument was designed by the researchers and validated by experts in which demographic, academic, work variables were analyzed, as well as direct care activities and the conceptualization and application of the nursing care process. The inclusion criteria were to be a nursing professional working in hospitals, healthcare service providers offering second and/or third level of care in Colombian Orinoquia hospitals.

Statistical Analysis

The database was built using the information collected. An exploratory analysis was conducted using quantitative variables in which the distribution of the variables was determined (extreme values, symmetries, kurtosis, types of distribution, and lost data). Relative frequencies were analyzed (fashion, erroneous data, and missing data) for the qualitative variables. After data validation, the information was analyzed using descriptive statistics, univariate analysis (proportions, central tendency, and dispersion) and unadjusted odds ratio (OR), while confidence interval and significance were calculated for bivariate analysis. Means were calculated for numerical variables, while the comparison of quantitative variables was carried out by Ji^2 . The analysis was done using SPSS software licensed for the University of the Llanos, considering a p-value less than 0.05 as statistically significant.

Ethical Considerations

According to resolution 8430 of 1993 of the Colombian Ministry of Health, the study is considered risk-free study. Voluntary participation and anonymity were ensured through informed consent prior to obtaining the information. Obtained results were followed.

RESULTS

[Table 1](#) shows the demographic and work characteristics of nurses in the Orinoquia region. 84% of nurses are female whose predominance is similarly observed in each department. The average age is 31 years old with a standard deviation (SD) of 9.1 years. As for work characteristics, the hospital work experience is 7 years on average with a SD of 7.3 years, the average number of patients per shift is 17.2 with a SD of 15.5 patients and the working conditions reflect that 77% of the nursing professionals are hired directly by the hospital, while the remaining 23% are outsourced through a worker cooperative. Concerning the type of contract, 53% have an open-ended contract, 30% have a service provision contract, and 17% have a fixed-term contract, for which the average monthly salary received by nurses is 2,050,000 COP with a SD of 360,779 COP, with salaries ranging from 1,330,000 COP to 3,500,000 COP.

Table 1. Demographic and work-related characteristics of nurses by Orinoquia department

Variables	Meta*	Casanare*	Arauca*	Vichada*	Orinoquia*
n	78	11	8	3	100
Gender (%)					
Female	84,6	72,7	87,5	100	84
Male	15,4	27,3	12,5	0	16
Age (years)					
Mean age	31	27	31	52	31
Standard Deviation	8,8	4,3	6,8	8,3	9,1
Hospital work experience (years)					
Mean years	7,44	2,12	5	19,66	7,02
Standard Deviation	7,25	2,3	4,2	11,9	7,3
Number of patients per shift					
Mean number	17,5	12,8	22	13	17,23
Standard Deviation	8,9	5,4	8	8	10,9
Work relationship (%)					
Direct	74,4	72,7	100	100	77
Worker Cooperative	25,6	27,3	0	0	23
Type of Contract (%)					
Open-ended contract	61,5	27,3	0	66,7	53
Work order or service provision contract	30,8	45,5	0	33,3	30
Fixed term contract	7,7	27,3	100	0	17
Salario (COP)					
Mean salary	2.006.244	2.090.909	2.193.250	2.664.000	2.050.250
Standard Deviation	339.653	484.674	65.018	284.056	360.779

*Percentages should be vertically interpreted. **n**: absolute frequency, **%**: relative frequency.

Table 2 indicates the university from which the nurses who provide clinical care in the Orinoquia region graduated, 71% are graduates of the University of the Llanos, followed by 5% from the University of Applied and Environmental Sciences and the National University, the Cooperative University of Colombia, 3% from the Pedagogical University of Tunja and the Simon Bolivar University. The 'other universities' category is made up by the San Gil University Foundation, the Sanitas University Foundation, the Universi-

ty of Pamplona, the University of Magdalena, the University of the North, the University of Tolima, the Metropolitan University of Barranquilla, the Popular University of Cesar with a graduate in each Orinoquia hospital. As for postgraduate studies completed by nurses, it was found that 93% have not completed any postgraduate studies and only 3% have completed postgraduate studies related to healthcare (MSc Nursing, PgD Oncology and Auditing, PgD Family Health).

Table 2. Academic characteristics of nurses in the Colombian Orinoquia

	n	%*
Nursing Undergraduate University		
University of the Llanos	71	71
University of Applied and Environmental Sciences	5	5
National University	5	5
Cooperative University of Colombia	3	3
Pedagogical University of Tunja	3	3
Simon Bolivar University	3	3
University of Valle	2	2
Other universities	8	8
Postgraduate Studies		
No postgraduate studies	93	93
PgD Healthcare Management	2	1
PgD Occupational Healthcare	2	1
Others	3	3

*Percentages should be vertically interpreted. **n**: absolute frequency, **%**: relative frequency.

[Table 3](#) shows the nurses' perception of the nursing care process study. 4% do not consider the application of NCP to be important for work performance, 11% consider that the application of NCP does not facilitate patient care, and 45% consider that the NCP application in some way limits their work during shift. The highest proportion of nurses who do not consider it important is located in Arauca and Meta at 12.5% and

3.8% respectively, compared to the 12.5% of Arauca nurses, 11.5% of Meta nurses and 9.1% Casanare nurses who do not consider the NCP to be useful for patient care. Additionally, the highest proportion of nurses who consider the NCP application as something that somehow limits their work during shift is located in Meta at 51.35%, followed by Arauca at 37.5%, Vichada at 33.3% and Casanare at 9.1%.

Table 3. Nurses' perception of NCP application

Variables		Meta*	Casanare*	Arauca*	Vichada*	Orinoquía*
NCP is considered important for work performance (%)	n	78	11	8	3	100
	Si	96,2	100	87,5	100	96
	No	3,8	0,0	12,5	0	4
NCP facilitates patient care (%)	Si	88,5	90,9	87,5	100	89
	No	11,5	9,1	12,5	0	11
NCP limits in some way their work during shift (%)	Si	51,3	9,1	37,5	33	45
	No	48,7	90,9	62,5	66,7	55

*Percentages should be vertically interpreted. n: absolute frequency, %: relative frequency.

Table 4 shows the proportion of nurses in the study who have reported applying NCP in patient care of which 59% reported applying NCP. Regarding the intervening factors in the NCP application, nurses referred that 98% lacked time,

14% considered that NCP application was not part of their job duties, 6% said that university training was insufficient, and 2% had insufficient knowledge.

Table 4. NCP application and intervening reasons when NCP is not applied

Variables	Meta*	Casanare*	Arauca*	Vichada*	Orinoquía*
n	78	11	8	3	100
Do you apply NCP? (%)					
Si	52,6	63,6	100	100	59
No	47,4	36,4	0	0	41
Intervening factors for non-application (%)					
Insufficient shift time	97,4	100	100	100	98
Insufficient knowledge to apply the NCP	1,3	9,1	0	0	2
NCP is not part of their job duties	15,4	27,3	0	0	15
NCP has been forbidden in your hospital	1,3	0,0	0	0	1
University training on NCP is insufficient.	7,7	0,0	0	0	6

*Percentages should be vertically interpreted. n: absolute frequency, %: relative frequency.

Table 5 shows the factors associated with a greater NCP application by nurses working in the Ori-

noco hospitals included in the study. The factors in which a statistically significant association

was found to increase NCP application were that NCP is considered to facilitate patient care with an odds ratio (OR) of 4.52, 95% CI (1.1 -18.2); the association between application and relationship based on university training, with an OR of 4, 95% CI (1.7 -9.5); and the third factor with an OR of 4.57 is that NCP application is considered to be important for work performance, although no statistical significance was found for this factor.

Table 5. Associated factors in NCP application

Characteristics	OR	(95%) IC
Considering that it facilitates patient care	4,52	1,1 - 18,2
Not considering that it facilitates patient care	Reference	-
Finding application and relationship between university training and clinical care	4,06	1,7 - 9,5
Not finding application and relationship between university training and clinical care	Reference	-
Considering that NCP is important for work performance	4,57	0,4 - 45,6
Not considering that NCP is important for work performance	Reference	-

OR: Odds ratio. CI: Confidence Interval

[Table 6](#) shows the effects of NCP application on the activities of those nurses who participated in the study and patient benefits. For this analysis, the NCP application was taken as an independent variable and nursing activities as dependent variables. The characteristics in which a statistically significant association was found were related to an increase in nursing diagnoses for patients (3.39 OR, 95% CI (1.45 - 7.9)) and improvements in the performance of direct care actions (3.48 OR, 95% CI (1.09 - 11.1)).

Table 6. Effect on nursing professional activities and patient benefits when NCP is applied

Characteristics	OR	(95%) IC
Perform patient assessment	2,57	0,98 - 6,78
Consider patient assessment for care	2,03	0,75 - 5,48
Determine nursing diagnoses for patients	3,39	1,45 - 7,93
Perform actions for patient comfort and safety	3,48	1,09 - 11,1
Perform direct care actions for skin care	3,03	0,93 - 9,86
Prioritize patient care activities	2,25	0,35 - 14,10
Encourage family member accompaniment for patients	2,13	0,94 - 4,84

OR: Odds ratio. CI: Confidence Interval

The reference group corresponds to those nurses who do not apply NCP.

DISCUSSION

The sample studied in the Orinoquia region showed a majority of a young adult female population similarly distributed to that found in the research conducted by Gutiérrez⁵, Cogollo¹⁰, Rojas & Durango¹, Duque¹¹, Batista & Alvarado¹², and Caballero et al¹³.

As for the university from which nursing professionals are, 71% are graduates of the University of the Llanos as it is their zone of influence. A similar finding occurred in the Cabarcas study conducted in Cartagena, where 79% of the professionals were graduates of the University of Cartagena¹⁴; 93% lacks postgraduate studies in those interviewed professionals working in the Orinoquia region, which is higher than that registered in Cartagena, Colombia at 72%¹⁴, and also higher than that registered in the State of Mexico, Mexico at 83%.

The average salary received by nurses working in Orinoco hospitals is 2,050,250 pesos, ranging from 1,330,000 pesos to 3,500,000 pesos. In the study conducted by Cogollo, 67% of the nursing professionals received monthly salaries between 1,384,500 and 1,846,0005 in Cartagena (Colombia), with an average of 923,000. Based on this, the nursing staff of this study reported that working conditions were deficient in terms of economic retribution¹⁰, showing a better remuneration for nursing professionals in the Orinoquia. As for the type of work relationship, 23% is outsourced

through worker cooperatives in the Orinoquia, a situation different from that reported by Cogollo in Cartagena (Colombia) where 44% of professionals have work relationships through worker cooperatives¹⁰ and 63% in Medellín (Colombia) as reported by Duque¹¹. According to the National Association of Nurses of Colombia (ANEC in Spanish), this type of work contract implies that the professionals under this work relationship are not workers with labor rights within the labor regime. This outsourcing through worker cooperatives is not responsible for the payment established by law to guarantee access to social security for workers^{10,14}.

As for the workload, the number of patients per shift that a nurse must care for is 17.23 in the Orinoquia. In 2008, the average number of patients that hospital nurses cared for was 30 patients per shift in Villavicencio, Meta⁵, showing a decrease in the number of patients in the region. The number of patients per shift becomes important because the nurse-patient ratio influences the quality of care provided in healthcare services and a high allocation of patients per nurse is translated into a decrease in the quality of services provided to patients¹⁵. An average of 24 patients per shift is reported in the study conducted by Duque¹¹ and 18 patients in Caballero et al. The average numbers that have reported are similar.

98% of the nurses perceive that NCP application is important for work performance, 89% consider that NCP also facilitates patient care, although 45% consider that NCP in some way limits their work during shift. In other studies, the perception of NCP importance for work performance was

similar as nurses also consider that it facilitates problem-solving and decision-making in nursing care, being useful for patient care and benefits and equally important for professional development^{1,6,11,14,16-18}. The NCP development is also perceived as an activity that in some way limited the actions of nursing professionals^{1,5}.

As for the application of the nursing care process, 59% of the surveyed professionals in the Orinoquia stated that they apply NCP in their daily hospital work, compared to that reported by Gutiérrez in a study conducted in a city of the Orinoquia in which 35.4% reported applying NCP, that may be evidence of an increase by 2016⁵. Other studies showed that the proportion of nursing professionals who apply NCP was 78.5% in Medellín (Colombia) according to Rojas & Durango¹; 70% in Lima and Callao (Peru) according to Sánchez, Zegarra & Pacheco¹⁹; 41% in the State of Mexico (Mexico) according to Angeles et al.¹⁸; 26.2% and 59.8% in Chile according to Campos, Jaimovich, Wigodski & Aedo¹⁷ and Caballero et al¹³, respectively; finally, 64,8% in Guskoo (Basque Country) according to Huitzi-Egilegor, et al⁸. The application of the nursing care process in the Orinoquia has not been consolidated yet, although it is above the proportions obtained in other territorial units.

According to the sample of nurses in the Orinoquia, insufficient time is the main factor for not being able to apply the NCP, similar to what Cabarcas & Caballero¹⁴, Gutiérrez⁵, Duque¹¹, Sánchez, Zegarra & Pacheco¹⁹, Caballero et al¹³, Batista & Alvarado 2015¹² found. These authors

also report other factors such as work overload, the number of patients, insufficient knowledge, and the assignment of administrative functions to be completed within the shift time.

In the exploration of work or academic factors associated with the non-application of NCP by the Orinoquia professionals selected in the study sample, no statistically significant relationships were found.

In addition, a statistically significant association was found with the NCP application. These factors were related to when nurses consider that NCP facilitates patient care (OR: 4.52, 95% IC: 1.1 -18.2); when nurses find NCP application and relationship with university training (OR: 4.06, 95% IC: 1.7 - 9.5). The benefits and usefulness perceived by nurses likely encourage NCP application, although factors affecting the possibility of applying NCP have been reported such as the institutional hospital context, the high number of patients, lack of methodological knowledge, lack of records, and assignment of administrative duties, lack of time⁵. The major problem could be nurses' attitude, as well as the level of appropriation that nursing professionals have regarding NCP since the results in multiple studies have been similar^{1,5}.

A statistically significant association was found for the benefits of applying NCP perceived by nurses such as increased performance of nursing diagnosis (OR: 3.39, 95% IC 1.5-7.9) and increased performance of actions for patient comfort and safety (OR: 3.48, 95% IC: 1.09-11.1).

These benefits demonstrate the usefulness of the nursing care process in terms of improving quality of care, decreasing adverse events and thus improving the health status^{6,20,21} of patients (people involving their families⁶).

There were limitations in the process of interviewing nursing professionals due to geographical access, the distances that had to be covered for the process in the departments of Arauca, Casanare and Vichada, as well as the limited time of nursing professionals to help researchers. These were operational limitations that did not affect the conclusions.

CONCLUSIONS

The application of the nursing care process in the Orinoquia region is in agreement with the results obtained in different studies. NCP perception is directed toward the recognition of the benefits that patients receive when receiving NCP-based care and the development of nursing autonomy as a discipline. The lack of time is the most given reason for not being able to apply NCP in Orinoquia similarly to the rest of the published studies. Finally, it is clear that professionals who have a better perception of the NCP usefulness tend to apply it more regularly and that the NCP application benefits professional practice and patient health.

Conflict of interest: The authors declare that they have no conflict of interest.

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