IMPACT OF THE TIME SPENT ON THE NURSING PROCESS BEFORE AND AFTER THE IMPLEMENTATION OF NANDA-I CLASSIFICATION

Corresponding Author: Raquel Rapone Gaidzinski
Associate Professor of the Professional Counseling Department of Nursing School. Chair of Nursing Department at the University Hospital from University of Sao Paulo.

Authors: Diná de Almeida Lopes Monteiro da Cruz; Cibele Andruciolli Mattos Pimenta; Priscila Oliveira Rezende; Alda Valéria Neves Soares Gomes; Antônio Fernandes Costa Lima; Tânia Regina Sancinetti

ABSTRACT: Prospective exploratory-descriptive study, which aimed to analyze the effect of the Nursing Process (NP) change, as the introduction of the classification of nursing diagnoses for the time spent by nurses on this activity. The sample was made of 42 nurses from different units of the University Hospital from the University of Sao Paulo. Data was collected before and after introducing the classification of nursing diagnoses. Results evidenced that the time spent by nurses was significantly longer when time was measured; the average time on the patient admission was significantly shorter after the changes at the studied units, except in the Neonatal and Pediatric Intensive Care, where it was evidenced to be similar in before and after phases.
Key words: Nursing processes, Human Resources in nursing, Nursing diagnoses, Workload.

Introduction

Time is one of the fundamental resources of an organization and its management contributes to the improvement of individual and collective performances and, consequently, on the productivity.

The study of time mainly aims to: establish patterns for the production programs, provide data to determine standard-cost and estimate the cost of a new product.

In this approach, it was studied the effect of introducing the classification of nursing diagnosis on the time spent by nurses to make the Nursing Process (NP).

Since the beginning of the University Hospital from the University of Sao Paulo (HU-USP) in 1981, its nurses use the NP to provide nursing care to the patients, based on Horta[(1)]'s Human Needs Theory and Orem[(2)]'s concept of Self-Care, in which three of the six phases proposed by Horta[(1)] are adopted: nursing history, evaluation and prescription.

Nurses often referred the NP as a bureaucratic activity that was time consuming and kept them from care and nursing staff.

In the view of enhancing the NP and making its computerization possible, the HU-USP nurses and teaching staff from the Nursing School of USP, in 2001, began to reformulate the processes involved in the documentation system of nursing care to introduce standardized language classifications for documenting nursing diagnoses, interventions and outcomes [(3)].

Thus, the nursing diagnoses from the classification proposed by *North American Nurses Diagnosis International (NANDA-I)*[4] was implemented in the clinical setting. Specific forms were elaborated, according to the most frequent diagnoses for each unit. Nursing prescription language was standardized and care result evolution registry was changed. NP then began to consist of the following phases: data survey, nursing diagnosis, prescription and evaluation [3].

Diagnosis classification allows the nurse to see a broader spectrum of the phenomena that can be treated by nursing and when formulating the diagnosis, he/she draws the conclusion of his/her interpretations, and by that focusing clearer the care needs, which provides him/her better conditions to set the goals and select potentially more real and effective interventions [5].

Data obtained through physical examination and an interview with the patient were summarized and documented in the Admission/Transference/Hospital Discharge Registry instrument. Nursing diagnosis, evaluation and prescription made up an instrument called Nursing Diagnosis-Evaluation-Prescription. The registry of patients' daily evaluation was then begun to be made by the abbreviations: Be (Better); Wo (Worse); U (Unaltered); R (Resolved).

The process of the implementation of nursing diagnosis represented to HU-USP nurses expected reduction in time spent on the Nursing Process documentation and, consequently, its closeness of patients to the nursing staff [6].

The present research started from the following assumptions:

- the time spent on nursing data collection, evaluation and prescription, estimated by the nurse is different when it is measured;
- the introduction of a standardized system of nursing diagnosis language shows difference in the time spent on nursing data collection, evaluation and prescription.

Objective

To compare the estimated time by nurses to the measured time spent on the NP for patient admission and follow-up, before and after the introduction of a standardized system of nursing diagnosis language.

Method

It's a prospective field research of exploratory-descriptive, quantitative approach.

This study was developed in the internment units of HU-USP.

HU-USP is a hospital of moderate complexity, designated to teaching, research and an extension to serve the community.

The sample was made up of nurses who worked in the selected units for the study in the phases "before" and "after" the implementation of *NANDA-I* [3] nursing diagnosis classification. Data was collected from a total of 42 nurses, corresponding to seven nurses from

each of the following units: Maternity, Nursery, Pediatric, Obstetric Center, Adult Therapy and Neonatal and Pediatric Therapy.

In each of the unit studied, a form was delivered to the nurses who comprised the sample in order to register the data related to: demographic characteristics of nurses and the estimated time by them on the activities consisted of: 1) collection and interpretation of patients' data and 2) NP documentation at the patient's admission and follow-up.

The set of activities "collection and interpretation of patients' data" is defined as any actions by the nurse related to clinical information search on a patient, with the purpose of planning nursing care. It may include: interview and a physical examination of the patient, record reading, interview with family members or companion, and consultation with other professionals.

The set of activities "nursing diagnosis documentation, evaluation and prescription" is defined as actions of reporting summaries of collection and interpretation of patients' data and recording care planned for a period. They may include: report on the printed diagnosis, report on nursing evaluation and report on nursing prescription.

In each unit, the time spent by the same nurses was measured through direct observation using a chronometer, while they were performing the two sets of activities, in the situations of admission and patient follow-up.

A unit of observation includes the two sets of activities aforementioned. It was required that nurses performed the two sets of activities for one patient at a time. By that it was intended to avoid that several patients were evaluated before the documentation activities.

The unit of observation began in the moment of the nurse, as previously advised, informed that he/she would start data survey for the daily care planning of an individual patient. Thus, the ending of observation occurred in the moment when the nurse informed that he/she concluded all the registering involved in the daily planning of nursing care. The time spent on activities not referred to the ones related to the study was not measured.

Timing of the two sets of activities were calculated with a chronometer and registered in a standardized form. Each nurse was observed in the average of five times making the activities of the nursing process in the situations of patients' admission and follow-up.

The obtained data was put in electronic charts, where statistics were calculated to make it possible the analysis and the description of the results.

The present study was approved by the Research Council and the Ethics Committee in Research from HU-USP.

Results

In this survey, it was studied the HU-USP units in which was possible to get integrally the before and after moments. In this perspective, 42 nurses from different units were involved. Only 2.4% of this group was from male gender. The average age was 36 years old (± 7.8). The average time of graduation years was 12 years and the average time of practicing the

profession corresponded to 11 years. The participation in care as the primary activity was 100% referred by nurses and 33.3% also mentioned to be in management position.

The application of the NP in the situation – admission of the patient – was studied in the units: Maternity, Nursery, Pediatric, Adults Intensive Therapy and Obstetric Center.

There was no difference in the estimated average time in the admission of the patient before and after the change in the NP in the units Maternity, Nursery, Pediatric and Adult Intensive Care, although there was a difference between the phases in the Obstetric Center (Table 1).

Table 1 - Estimated average time (min.), in performing NP, at the ***admission*** of the patient, before and after the implementation of *NANDA-I* diagnosis classification, period 2004-2006. São Paulo, 2007.

UNITS	BEFORE (B)				AFTER (A)				t Test	
	N	Average	SD	CI=95%	N	Average	SD	CI=95%	t(|A-D|)	t(95%)
Maternity	7	27.4	8.4	27.4(±7.3)	7	26.3	13.2	26.3(±11.3)	0.2	2.3
Nursery	3	31.7	2.9	31.7(±3.9)	7	29.4	11.4	29.4(±9.9)	0.3	2.3
Pediatric	6	39.3	11.2	39.3(±10.0)	7	41.7	10.6	41.7(±8.8)	0.4	2.2
Adult ICU	2	60.0	28.3	60.0(±53.4)	5	46.6	14.2	46.6(±17.0)	0.9	2.7
Obstetric Center	5	16.4	3.6	16.4(±3.6)	7	22.3	4.9	22.3(±4.1)	2.3	2.2

However, the measured time during the patient admission in the before phase was significantly longer than the time measured after the changes in the Nursing Process in the units studied, except the Maternity.

Table 2 – Measured average time (min.) in performing NP, at the ***admission*** of the patient, before and after the implementation of *NANDA-I* diagnosis classification, period 2004-2006. São Paulo, 2007.

UNITS	BEFORE (B)				AFTER (A)				t Test	
	N	Average	SD	CI=95%	N	Average	SD	CI=95%	t(|A-D|)	t(95%)
Maternity	35	9.2	2.7	9.2(±0.9)	35	9.2	2.3	9.2(±0.8)	0.1	2.0
Nursery	11	23.3	7.7	23.3(±4.7)	28	11.5	4.8	11.5(±1.8)	5.7	2.0
Pediatric	20	44.1	17.4	44.1(±7.8)	35	22.2	7.2	22.2(±2.4)	6.5	2.0
Adult ICU	4	50.3	9.3	50.3(±9.3)	6	23.8	9.7	23.8(±7.9)	4.3	2.0
Obstetric Center	30	13.6	3.1	13.6(±1.1)	35	6.7	2.5	6.7(±0.9)	9.9	2.0

In the situation – patient follow-up – the time spent on the NP in the before and after phases estimated by the nurses showed that there was no difference in the units Nursery, Pediatric and Neonatal and Pediatric Intensive Therapy. In Maternity and Adult Intensive Therapy there was an increase of the perceived time after the changes and in the Adult Intensive Therapy Unit there was a reduction (Table 3).

Table 3 - Estimated average time (min.), in performing NP , in the ***follow-up*** of the patient, before and after the implementation of *NANDA-I* diagnosis classification, period 2004-2006. São Paulo, 2007.

UNITS	BEFORE				AFTER				t Test	
	N	Average	SD	CI=95%	N	Average	SD	CI=95%	t(|A-D|)	t(95%)
Maternity	7	10.4	1.5	10.4(±1.2)	7	18.4	7.3	18.4(±6.0)	2.8	2.2
Nursery	6	21.3	6.2	21.3(±5.6)	7	17.1	6.6	17.1(±5.5)	1.2	2.2
Pediatric	6	19.5	3.4	19.5(±3.0)	7	18.9	9.8	18.9(±8.1)	0.1	2.2
Adult ICU	6	43.5	14.7	43.5(±13.2)	7	24.9	6.7	24.9(±5.6)	3.0	2.2
Neo/Pediatric ICU	6	36.0	13.4	36.0(±12.0)	7	26.1	15.7	26.1(±13.1)	1.2	2.2

Regarding to the measured time, it was evidenced that there was a difference in the units studied, except in the Neonatal and Pediatric Intensive Therapy, which kept practically the same (Table 4).

It is highlighted, according to Table 4, that the measured time in the follow-up of the patient after the changes was significantly shorter in relation to the phase before, except in the Maternity, in which the measured time was longer after the changes.

Table 4 – Measured average time (min.), in performing NP, in the ***follow-up*** of the patient, before and after the implementation of *NANDA-I* diagnosis classification, period 2004-2006. São Paulo, 2007.

UNITS	BEFORE				AFTER				t Test	
	N	Average	SD	CI=95%	N	Average	SD	CI=95%	t(|A-D|)	t(95%)
Maternity	35	6.3	1.7	6.3(±0.6)	35	8.4	2.0	8.4(±0.7)	4.7	2.0
Nursery	34	14.7	5.1	14.7(±1.7)	35	8.4	2.1	8.4(±0.7)	6.8	2.0
Pediatric	32	13.4	3.8	13.4(±1.4)	35	6.1	2.5	6.1(±0.8)	9.4	2.0
Adult ICU	27	30.1	9.9	30.1(±12.0)	35	19.6	6.4	19.6(±2.2)	5.0	2.0
Neo/Pediatric ICU	35	18.7	4.9	18.7(±1.6)	35	16.6	4.3	16.6(±1.5)	2.0	2.0

The results of this study showed that the estimated average time by the nurses to perform NP was longer than the measured time, as much in the admission as the follow-up of the patient. They also evidenced that this difference between the estimated time and the measured time was the same in the previous and the after evaluations to the introduction of diagnosis classification and the changes in the way of documentation. This can be explained by the fact that the perceived time by nurses reflects the performance of other activities which occur concomitantly to the making of NP.

Another result from this study was that the average spent time on the patient admission evaluation is longer than that in the follow-up. This result was expected, once the patient and his/her clinical conditions are not known at the admission, which is necessary to

spend more time making physical examination and an interview with the patient/family member. However, it is important to emphasize that in this situation the measured time after the changes was shorter in all the studied units, except in one that there was no difference.

Considering the two activities of evaluation and register, the measured average time for performing the NP showed that, at the patients' admission, the longest time consumed was in the Adult Intensive Therapy, followed by Pediatric, Nursery, Maternity and the Obstetric Center.

Regarding to the measured average time for the two activities in the follow-up of the patient, it was verified that the longest average time observed was in the Adult Intensive Therapy, followed by Neonatal and Pediatric Intensive Therapy, Nursery, Maternity and Pediatric.

Conclusions

In short, it can be concluded that:

- the estimated average time by the nurses for performing NP was generally perceived as longer than the measured average time in the situations of admission and patient follow-up;

- the measured average time for performing NP in the admission of the patient was significantly shorter after the changes in all the studied units;

- the measured average time for performing NP in the follow-up of the patient was significantly shorter after the changes in the studied units, except in the Neonatal and Pediatric Intensive Therapy, where it was observed to the similar in the two phases;

- the reduction in the average time spent by the nurse in performing NP after the implementation of the standardized language system and way of registering the clinical documentation can contribute for the nurse to have a greater dedication to the patient direct care and the staff supervision, and therefore, provide better quality in nursing care.

References

(1) Horta WA. O processo de enfermagem. São Paulo: EPU/EDUSP; 1979.

(2) Orem D. Nursing concepts of practice. New York: McGraw-Hill; 1979.

(3) Lima AFC, Kurcgant P. Implementação do Diagnóstico de Enfermagem no Sistema de Assistência de Enfermagem do HU-USP. In: Gaidzinski RR, Soares AVN, Lima AFC, Gutierrez BAO, Cruz DML, Rogenski NMB, Sancinetti TR (Org). Diagnóstico de Enfermagem na prática clínica. Porto Alegre: Artmed; 2007. Cap. 4, p. 62-73.

(4) NANDA. Diagnósticos de enfermagem da NANDA: definições e classificação 2001-2002. Porto Alegre: Artmed; 2002.

(5) Carpenito, LJ. Diagnósticos de enfermagem:aplicação à prática clínica. Trad. de Ana Thorell 8.ed Porto Alegre: Artmed; 2002. Desenvolvimento dos diagnósticos de enfermagem; cap.1, p. 29-34.

(6) Fontes, CMB. Perfis de diagnósticos de enfermagem antes e após a implementação da classificação da NANDA-I. Tese (Doutorado) – Escola de Enfermagem da USP, São Paulo, 2006.