

Development of a Measurement Instrument for Nursing Documentation in the Patient Record

Wolter PAANS¹, Walter SERMEUS², Roos NIEWEG³ and Cees Van Der SCHANS⁴

¹ *Research and Innovation Group in Health Care and Nursing, Hanze University, Applied Sciences, Groningen, The Netherlands and the Catholic University Leuven, Belgium*

² *School of Public Health, Faculty of Medicine, Center for Health Services and Nursing Research, Catholic University Leuven, Belgium*

^{3,4} *Research and Innovation Group in Health Care and Nursing, Hanze University, Applied Sciences, Groningen, The Netherlands*

ABSTRACT. Objectives: To develop, validate and test the reliability of a measurement instrument that measures the extent to which records describe essential aspects of nursing care such as the admission report, nursing diagnoses, interventions, and progress and outcome evaluations. Method: A measurement instrument was developed based on the Cat-ch- Ing instrument and the Scale for Degrees of Accuracy in Nursing Diagnoses. A record screening was conducted in 7 hospitals in the Netherlands. Content validity was tested by using two Delphi panels. Each of the 250 records was assessed by two reviewers independently. The reliability of the instrument was tested by calculating Cohen's weighted Kappa inter-rater reliability coefficient of 250 records and 12 reviewers. Internal consistency was calculated by using Cronbach's alpha. Results: The new measurement instrument, named D-Catch, consists of six items. Quantity and quality variables were used to judge the accuracy of the nursing documentation. Internal consistency: Cronbach's Alpha 0.722. The inter-rater reliability coefficients were between 0.397- 1.000. Conclusions and implications: The D-Catch instrument was estimated to be a valid and reliable measurement instrument for nursing records in hospitals in the Netherlands. An adverse effect on the inter-rater reliability may have been that, specifically in long stay situations, documentation forms with diagnoses, interventions and outcomes were often unstructured and found to be repetitious.

Keywords: instrument development, nursing documentation, patient record, nursing process

1. Introduction

The patient record can be seen as essential for adequate nursing care and describes information about admission, nursing diagnoses, interventions, progress and outcome evaluations [1,3,6,7,10,18-23]. This information should contain the patient's ongoing status and reflect the full range of nursing process [1,3,6]. For that reason the patient record is an important instrument to evaluate care performance by nurses and should contain documentation to be able to evaluate the quality, efficiency and effectiveness of nursing care [1,2,24].

Thereby the record is a legal document and may be the only evidence what kind of care was given [24]. Therefore it is important nursing documentation is accurate and complete [1,6,14,16,17].

Evaluating the accuracy of the nursing reports in patient records is a possibility to gain knowledge about the quality of these reports and gives information if it is necessary to improve the way of recordkeeping [1,17,18, 24,25]. However, there is a lack of reliable instruments to measure the accuracy of nursing reports in the patient record in general hospital settings [2, 17].

2. Objectives

The purpose of this study was to develop, validate and test the reliability of a measurement instrument to quantify accuracy of nursing documentation in patient records.

3. Materials and Methods

A literature search was carried out to be able to identify existing measurement instruments. The articles were identified through electronic databases CINAHL and MEDLINE and through the citations from published articles from 1980 -2007. Based on the literature review, members of two Delphi panels (n= 6 per panel) studied three preselected measurement instruments individually for content, structure, usability and specificity and discussed these instruments in a group interview. Based on a consensus discussion, the panels suggested to integrate The Scale for Accuracy of Nursing Diagnoses [14] in a modified Cat-ch-Ing instrument [1] to use in a pilot study. An assessment of patient records (n= 250) using the new instrument called 'D-Catch' was carried out in a follow-up study in seven general hospitals on different wards (n= 25) in the Netherlands to be able to analyse the properties of the D-Catch instrument. Each of the 250 records was assessed independently by two reviewers. The inter-observer reliability of the instrument was tested by calculating Cohen's weighted Kappa inter-rater reliability coefficient of 250 records and 12 reviewers. Content validity was tested by two Delphi panels. Internal consistency was calculated by Cronbach's alpha.

4. Results

The literature search resulted that six measurement instruments were found:

(1) Ziegler's instrument, The Criteria for Evaluating the Quality of the Nursing Process (ZCEQNP) [4, 25]. (2) The NoGA instrument [20]. (3) The Quality of Nursing Diagnosis instrument (QOD) [8]. (4) The Quality of Diagnoses, Interventions and Outcomes instrument (Q-DIO) [19]. (5) The "Cat-ch -Ing" instrument [1]. (6) The "Scale for Degrees of Accuracy in Nursing Diagnoses" [14].

Non of the instruments found in the literature were originally developed to measure accuracy of nursing documentation in all kind of hospitals, wards and records and non of these instruments were tested that way.

Because the ZCEQNP, QOD and the Scale for Degrees of Accuracy in Nursing Diagnoses were only usable for results on the variable 'reported nursing diagnoses' [4,8,25], the NoGA instrument contains only quantitative rating possibility's and no qualitative criteria [20], the Cat-ch-Ing instrument has no possibilities to score the accuracy of each nursing diagnosis separately in the record and contains specific items related to Swedish regulations [1], and the Q-DIO includes specific process variables used in a hospital in Switzerland [19], we concluded that non of these instruments seem to be directly applicable for a record assessment in all kind of hospitals. Based on NANDA-International [21], NIC (Nursing Intervention Classification) [5,11,23] and NOC (Nursing Outcome Classification) [12,18] descriptions of how to document diagnoses, interventions and outcomes [3,18, 21] and based on the descriptions of The Dutch Institute for Healthcare Improvement, CBO [6] the new measurement instrument, named D-Catch, was compiled based on Lunney's instrument [14] en the Cat-ch-Ing instrument [1].

D-catch consists of six items to judge the nursing record. Quantity and quality variables were used to assess the accuracy. Internal consistency was Cronbach's Alpha 0.722. The inter-rater reliability coefficients were between 0.397- 1.000.

Content validity of the D-catch instrument is considered adequate because the Delphi method started with items that build upon earlier work in the United States and Sweden with respect to criteria and information structure. Full agreement among experts on the items of the new instrument D-Catch was obtained.

5. Conclusion and Discussion

With the D-Catch instrument we choose to focus on a specific way to measure each presented patient problem (diagnosis) and then, if there is given an intervention. From there on we looked systematically at the process and the outcome evaluations and vice versa.

This approach helped us to understand how to categorize and analyse the nursing reports in all kinds of records from patients with all kinds of diseases, treatments and conditions.

We estimated the reliability of the D-Catch instrument as satisfactory. An adverse effect on the inter-rater reliability may have been that, specifically in long-stay situations, documentation forms with diagnoses, interventions and outcomes were often unstructured and with reports over more than ten pages. The content of long-stay patient records found to be repetitious with the result of redundant reports.

Criteria for accurate nursing documentation mentioned in studies from, for example, the United States [3,5,10,11,14,15], Sweden [1,7,20] and Switzerland [18,19] seem -not in detail, but over all- rather similar; there is consistency among nurses' quality criteria in record keeping from different countries, and over different studies, which makes the development of a measurement instrument for an international nursing audience plausible [9,21].

We hope that the development of the items in the D-Catch instrument may contribute to the development of such an international measurement instrument.

References

- [1] Björvell, C. Nursing Documentation in Clinical Practice, instrument development and evaluation of a comprehensive intervention programme, Karolinska Institutet, Stockholm; 2002.
- [2] Bostick, J.E., Riggs, C.J., Rantz, M.J. Quality measurement in nursing, *Journal of Nursing Care Quality*; 2006,18 (2), 94-104
- [3] Carpenito, L. J. The NANDA definition of nursing diagnosis. In: Johnson, C. R. M. (Ed.) *Classifications of Nursing Diagnoses*, Proceedings of the Ninth Conference, J.B. Lippincott Company, Philadelphia; 1991.
- [4] Dobrzyn, J. Components of Written Diagnostic Statements, *International Journal of Nursing Terminologies and Classifications*; 1995, 6, 29-36.
- [5] Dochterman, J., Bulechek, G.M.(Eds.) *Nursing interventions Classification NIC*, St. Louis, Mosby; 2004.
- [6] Dutch Institute for Healthcare Improvement, CBO. *Herziening Consensus Verpleegkundige Verslaglegging*, CBO, Utrecht, 1999, 5-13
- [7] Ehrenberg, A., Ehnfors, M., Thorell-Ekstrand, I. Nursing documentation in patient records: experience of the use of the VIPS model. *Journal of Advanced Nursing*, 1996, 24, 853-867.
- [8] Florin, J. F., Ehrenberg, A., Ehnfors, M. Quality of Nursing Diagnoses: Evaluation of an Educational Intervention, *International Journal of Nursing Terminologies and Classifications*, 2005, 16 (2), 33-34.

- [9] Goossen, T.F., Epping, P. J.M.M., Dassen, Th. Criteria for Nursing Information Systems as a Component of the Electronic Patient Record: An International Delphi Study. *Computers in Nursing*, 1997, 15, (6): 307-315.
- [10] Gordon, M. *Nursing diagnoses process and application*: McGraw Publishers, New York; 1994.
- [11] Gordon, M. *Capturing Patient Problems: Nursing Diagnosis and Functional Health Patterns*, in: *Naming Nursing* ed. Clark, (Ed. Huber, J.H.), Bern; 2003 pp. 87-94,
- [12] Gordon, M. *Implementing nursing diagnoses, interventions and outcomes – Functional health patterns: assessment and nursing diagnosis*, in *ACENDIO 2005*, (Ed. Huber, J.H.), Bern; 2005, pp. 58-59.
- [13] Heartfield, M. *Nursing documentation and nursing practice: a discourse analysis* *Journal of Advanced Nursing*; 1996, 24, (1), 98-103.
- [14] Lunney, M. *Critical Thinking and Nursing Diagnoses, Case Studies and Analyses*, North American Nursing Diagnosis Association; 2001.
- [15] Lunney, M. *Critical Thinking and Accuracy of Nurses' Diagnoses*, *International Journal of Nursing Terminologies and Classifications*; 2003, 14 (3), 96-107.
- [16] Lunney, M. *The critical need for accuracy of diagnosing human responses to achieve patient safety and quality-based services*, in: *ACENDIO 2007*; Oud Consultancy (Ed.), Amsterdam. 2007 pp. 238-239.
- [17] Martin, A., Hinds, C., Felix, M. *Documentation practices of nurses in long-term care*, *Journal of Clinical Nursing*; 1999, 8, (4):345-52.
- [18] Müller-Staub, M., Lavin, M. A., Needham, I., Achterberg, van Th. *Nursing diagnoses, interventions and outcomes – application and impact on nursing practice: systematic review*, *Journal of Advanced Nursing*; 2006, 56 (5), 514-531.
- [19] Müller-Staub, M. *Evaluation of the implementation of nursing diagnostics, A study on the use of nursing diagnoses, interventions and outcomes in nursing documentation*; 2007 Elsevier / Blackwell Publishing, Print: Wageningen.
- [20] Nilsson, B., Willman, A. *Evaluation of Nursing Documentation, A Comparative Study Using the Instruments NoGA and Cat-ch-Ing After an Educational Intervention*, *Scandinavian Journal of Caring Science*; 2000, 14, 199-206.
- [21] North American Nursing Diagnosis Association International (NANDA-I) *Verpleegkundige Diagnoses, Definities en Classificaties 2003/2004*, Bohn Stafleu, Van Loghum, Houten; 2004.
- [22] Ozsoy, S. A., Ardahan, M. *Research on knowledge sources used in nursing practices*, *Nurse Education Today*; 2007, 27 (5).
- [23] Sidani, S., Braden, C. J. *Evaluating Nursing Interventions, A Theory-Driven Approach*, Sage Publications, London; 1998.
- [24] Wilkinson, J. M. *Nursing Process and Critical Thinking*, fourth edition, Pearson, New Jersey; 2007.
- [25] Ziegler, S. M. *Nursing diagnosis - the state of the art as reflected in graduate students' work*. In M. J. Kim, G. K. McFarlane & A. M. McLane (Eds.) *Classification of nursing diagnoses: Proceedings of the fifth conference*. St Louis: C. V. Mosby Company; 1984.

Email address for correspondence: w.paans@pl.hanze.nl