



Review article

Understanding the use of standardized nursing terminology and classification systems in published research: A case study using the International Classification for Nursing Practice®



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ABSTRACT

Background: In the era of evidenced based healthcare, nursing is required to demonstrate that care provided by nurses is associated with optimal patient outcomes, and a high degree of quality and safety. The use of standardized nursing terminologies and classification systems are a way that nursing documentation can be leveraged to generate evidence related to nursing practice. Several widely-reported nursing specific terminologies and classifications systems currently exist including the Clinical Care Classification System, International Classification for Nursing Practice®, Nursing Intervention Classification, Nursing Outcome Classification, Omaha System, Perioperative Nursing Data Set and NANDA International. However, the influence of these systems on demonstrating the value of nursing and the professions' impact on quality, safety and patient outcomes in published research is relatively unknown.

Purpose: This paper seeks to understand the use of standardized nursing terminology and classification systems in published research, using the International Classification for Nursing Practice® as a case study.

Methods: A systematic review of international published empirical studies on, or using, the International Classification for Nursing Practice® were completed using Medline and the Cumulative Index for Nursing and Allied Health Literature.

Results: Since 2006, 38 studies have been published on the International Classification for Nursing Practice®. The main objectives of the published studies have been to validate the appropriateness of the classification system for particular care areas or populations, further develop the classification system, or utilize it to support the generation of new nursing knowledge. To date, most studies have focused on the classification system itself, and a lesser number of studies have used the system to generate information about the outcomes of nursing practice.

Conclusions: Based on the published literature that features the International Classification for Nursing Practice, standardized nursing terminology and classification systems appear to be well developed for various populations, settings and to harmonize with other health-related terminology systems. However, the use of the systems to generate new nursing knowledge, and to validate nursing practice is still in its infancy. There is an opportunity now to utilize the well-developed systems in their current state to further what is known about nursing practice, and how best to demonstrate improvements in patient outcomes through nursing care.

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1. Introduction

Today's healthcare context internationally is one in which quality, safety and patient outcomes have become a focal point [26,52].

In an effort to achieve such endeavours, investments in technologies within health settings and among health care providers are increasingly common. These investments have been made to support, track and identify opportunities to continually improve, and provide evidence to support practice [44,47]. Electronic health records (EHRs) are one of the most frequently discussed health information technologies aimed at improving clinical care [5]. Where this technology is present, nurses and other health professionals are often required to document care and outcomes within

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the EHR. With all clinical documentation stored within a computer system, a large reservoir of data is accumulated in an extractable form.

Within the nursing profession, there is an opportunity to evaluate and generate knowledge through capturing information input through documentation into the EHR. An example of knowledge generation through this method is the work done through the Canadian Health Outcomes for Better Information and Care (C-HOBIC) project, which captures patient outcomes in relation to care provided by nurses [18]. Upon standardizing inputs, such as what was done with C-HOBIC, datasets can be generated with comparable types of information captured between different patients, hospital units, healthcare settings, communities and beyond, that represent nursing [57]. These datasets can then be utilized for analysis among research and quality improvement initiatives aimed at better measuring the effectiveness of nursing care, and providing an evidence base for the profession [65]. Additionally, datasets such as those used by C-HOBIC, may allow for the measurement of patient outcomes in relation to nursing care [18,64] thus showing where nursing has or has not made a difference.

To date there has been significant work developing standardized inputs both for nursing and for healthcare broadly in the form of terminology and classification systems [28,29,59]. The purpose of creating these systems is to ensure that a uniform language is used to describe and document care so that data can be easily understood and aggregated to produce knowledge. Originally, several of these systems were developed for paper-based documentation, and have transitioned to being captured electronically given the increasing use of EHRs and related technology in healthcare organizations today [21].

Currently, both nursing specific and interdisciplinary terminologies exist, with many of these nursing specific terminologies being integrated into the Metathesaurus of the Unified Medical Language System (UMLS) in the US National Library of Medicine. Common interdisciplinary terminologies include the Systematic Nomenclature of Medicine–Clinical Terms (SNOMED-CT), Logical Observation Identifiers Names and Codes (LOINC), and ABC Codes. Within nursing, the Clinical Care Classification System (CCC System), International Classification of Nursing Practice® (ICNP®), Nursing Intervention Classification (NIC), Nursing Outcome Classification (NOC), Omaha System, Perioperative Nursing Data Set (PNDS) and NANDA International (NANDA) have been developed. Data element sets include the Nursing Minimum Data Set (NMDS), and the Nursing Management Minimum Data Set (NMMDS). Efforts to harmonize and link nursing specific terminology and classification systems into broader healthcare and interdisciplinary systems have been done in an effort to support interoperability and data continuity across healthcare systems [19,35]. Despite the existence of such terminology and classification systems, the impact on nursing practice remains relatively unknown.

2. Purpose

The purpose of this paper is to better understand, through a case study of ICNP®, the use of modern day nursing terminology and classification systems in published research. This will be achieved by reviewing the aims, purposes and results of studies completed using ICNP® over the last decade.

ICNP® was chosen as the case terminology and classification system for two main reasons. First, ICNP® would appear to have international relevance given that its been translated into 18 different languages and was developed by the International Council of Nurses [27]. Second, upon conducting a search of each of the previously mentioned terminology and classification systems, ICNP® had the greatest number of combined search result findings in

Medline and the Cumulative Index for Nursing and Allied Health (CINAHL). For example, when the CCC System was used as a keyword in these two databases, 48 articles were discovered. When the Omaha System and ICNP® were used as keywords, 439 and 504 articles were uncovered respectively. These findings suggest that a review of empirical work utilizing ICNP® should provide an understanding of the general impact that these systems have had on nursing globally.

3. Methods

Literature searches were conducted using two databases that are known for indexing journals specific to nursing, or that contain journals that would publish articles of this nature. These databases were Medline and CINAHL. A total of 788 citations were discovered when using the search terms 'ICNP' and 'International Classification for Nursing Practice' in both databases. Inclusion criteria included articles published in English, those published within the last ten years, and those that present the findings of empirical work. Duplicates and articles that did not meet the inclusion criteria were eliminated. Papers were considered to be empirical when a research question was asked, and the researchers followed a methodological process to obtain an answer to the research question. Symposium papers, and journal articles that met the previously mentioned inclusion criteria were obtained for review.

Initially, articles were screened by their title and abstract. In this phase, 190 were removed as they were identified as duplicates and 140 were eliminated as they were written in Portuguese, Chinese, Italian, Swedish or German. An additional 240 were also not included, as they did not meet the inclusion criteria, mainly because many of them were commentaries or editorials to generate awareness about ICNP®, and were aimed at explaining the theoretical value of the classification system to readers.

Once this phase was complete, 70 articles remained. In the next phase, the established inclusion and exclusion criteria were applied once again after reviewing each of the papers in full. Three additional articles were removed as one had been published in Japanese and two in Portuguese. In the case of these three articles, their citation and abstracts were translated into English in CINAHL and therefore it was not known until a full article review was done that the articles were not available in English. Additionally, 29 articles were removed, as they did not meet the inclusion criteria. The main reason for exclusion, other than language, was that an empirical approach was not utilized. Once this final step was complete, 38 articles were obtained for review and analysis. Fig. 1 shows the number of articles removed at each stage of inclusion and exclusion criteria application.

All included articles were reviewed and data was collected relating to the source journal, country of origin, author(s), year of publication, purpose, methods and relevant key findings. This information was then utilized to generate themes relating to the purpose of the published work.

4. Results

4.1. Themes

The search of the literature uncovered 38 empirical studies that had been published since 2006 and that referred in some manner to ICNP®. Three main themes were identified.

4.2. Theme one: validating appropriateness

The first theme related to validating or assessing the appropriateness of ICNP® to be utilized in a particular care area or patient

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