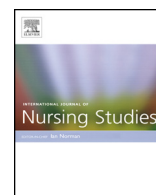




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Evidence for the existing American Nurses Association-recognized standardized nursing terminologies: A systematic review[☆]

Sevinc Tastan^a, Graciele C.F. Linch^b, Gail M. Keenan^c, Janet Stifter^c,
Dawn McKinney^d, Linda Fahey^c, Karen Dunn Lopez^c, Yingwei Yao^d,
Diana J. Wilkie^{d,*}

^a School of Nursing, Gulhane Military Medical Academy, Ankara, Turkey

^b Department of Nursing, Federal University of Health Sciences of Porto Alegre, Porto Alegre, Rio Grande do Sul, Brazil

^c Department of Health System Science, College of Nursing, University of Illinois at Chicago, Chicago, IL, United States

^d Department of Biobehavioral Health Science, College of Nursing, University of Illinois at Chicago, Chicago, IL, United States

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ABSTRACT

Objective: To determine the state of the science for the five standardized nursing terminology sets in terms of level of evidence and study focus.

Design: Systematic review.

Data sources: Keyword search of PubMed, CINAHL, and EMBASE databases from 1960s to March 19, 2012 revealed 1257 publications.

Review methods: From abstract review we removed duplicate articles, those not in English or with no identifiable standardized nursing terminology, and those with a low-level of evidence. From full text review of the remaining 312 articles, eight trained raters used a coding system to record standardized nursing terminology names, publication year, country, and study focus. Inter-rater reliability confirmed the level of evidence. We analyzed coded results.

Results: On average there were 4 studies per year between 1985 and 1995. The yearly number increased to 14 for the decade between 1996 and 2005, 21 between 2006 and 2010, and 25 in 2011. Investigators conducted the research in 27 countries. By evidence level for the 312 studies 72.4% were descriptive, 18.9% were observational, and 8.7% were intervention studies. Of the 312 reports, 72.1% focused on North American Nursing Diagnosis-International, Nursing Interventions Classification, Nursing Outcome Classification, or some combination of those three standardized nursing terminologies; 9.6% on Omaha System; 7.1% on International Classification for Nursing Practice; 1.6% on Clinical Care Classification/Home Health Care Classification; 1.6% on Perioperative Nursing Data Set; and 8.0% on two or more standardized nursing terminology sets. There were studies in all 10 foci categories including those focused on concept analysis/classification infrastructure ($n = 43$), the identification of the standardized nursing terminology concepts applicable to a health setting from registered nurses' documentation ($n = 54$), mapping one terminology to another ($n = 58$), implementation of standardized nursing terminologies into electronic health records ($n = 12$), and secondary use of electronic health record data ($n = 19$).

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* Corresponding author at: 845 South Damen Avenue Room 660 (MC 802) Chicago, IL 60612, United States. Tel.: +1 312 413 5469; fax: +1 312 996 1895.
E-mail address: diwilkie@uic.edu (D.J. Wilkie).

Conclusions: Findings reveal that the number of standardized nursing terminology publications increased primarily since 2000 with most focusing on North American Nursing Diagnosis-International, Nursing Interventions Classification, and Nursing Outcome Classification. The majority of the studies were descriptive, qualitative, or correlational designs that provide a strong base for understanding the validity and reliability of the concepts underlying the standardized nursing terminologies. There is evidence supporting the successful integration and use in electronic health records for two standardized nursing terminology sets: (1) the North American Nursing Diagnosis-International, Nursing Interventions Classification, and Nursing Outcome Classification set; and (2) the Omaha System set. Researchers, however, should continue to strengthen standardized nursing terminology study designs to promote continuous improvement of the standardized nursing terminologies and use in clinical practice.

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What is already known about the topic?

- Currently seven American Nurses Association-approved standardized nursing terminology (SNT) sets can be used to represent nursing diagnoses, interventions, and outcomes in medical records.
- A bibliometric review of all articles (all types) appearing in the literature on at least one of the American Nurses Association recognized SNTs (Anderson et al., 2009) reported that the vast majority were written about NANDA-I (North American Nursing Diagnosis-International), NOC (Nursing Outcome Classification), and NIC (Nursing Interventions Classification) and that the most prolific authors of NANDA-I, NOC, and NIC articles had the deepest and broadest co-author networks within and across SNT sets.
- Extensive research underpins these SNT sets, but no synthesis of all this literature exists to assist administrators and electronic health record (EHR) vendors as they make decisions about inclusion of nursing documentation in the EHR.

What this paper adds?

- We found evidence of the pattern of evolutionary development of SNT science ranging from the creation and iterative refinement of SNT taxonomy structures, concept development (for diagnosis, outcome, and intervention terms and measures) and validation, designating terms for practice areas, the successful integration into practice documentation (paper and electronic) and the use of data coded with SNTs to describe practice and the impact on outcomes achieved.
- Both the NANDA-I-NOC-NIC and Omaha SNT sets have been studied as they were implemented at the point of care with documentation in paper-based medical records or EHRs.
- Given the potential of SNTs to enable nursing effectiveness research, we believe the review indicates an imperative to conduct SNT implementation studies that cross multiple institutions and EHRs and by so doing generate generalizable results. Such findings are critically needed to guide SNT set selection and integration decisions that will produce interoperable nursing data.

1. Introduction

Nursing terminologies, a body of standardized terms for the practice and science of nursing, are essential to capture,

represent, access, and communicate nursing practice data. Terminologies are also critically important to discover practice-based knowledge and to conduct research related to the quality and effectiveness of nursing care. Around the world, there are many formal and informal nursing terminologies, but five nursing terminology sets (each set consists of diagnosis, intervention, and outcome terms typically used together) have been recognized by the American Nurses Association for more than two decades (McGonigle and Mastrian, 2012). Despite the longstanding availability of these terminology sets, we found only one article with frequency counts for publications related to these terminology sets (Anderson et al., 2009) and no articles with a systematic review of the scientific base for SNTs sets. A review of the research that summarizes the strengths and weaknesses of the data-driven evidence base for the SNT sets can help inform decisions relative to development of nursing content in practice and provide direction for research to address the remaining gaps. The purpose of this article is to present a systematic review of the data-based literature for the five American Nurses Association recognized SNT sets.

Now, EHRs are mandated in many countries and although nursing tasks are well represented in current EHRs, the intellectual component of nursing care (nursing diagnoses or problems, interventions, and outcomes) is typically missing. Barriers to inclusion of these vital data are the oral communication traditions between nurses and insufficient use of SNTs in clinical practice. As EHR use expands across the globe, efforts have increased to capture the work of nurses in a computerized format, which signifies now as an opportune time to ensure that SNT sets are properly integrated into EHRs. Computerization of SNTs could improve the consistency, content, and format of nursing communication and by so doing enhance the effectiveness and efficiency of the information shared among nurses, other healthcare providers, the public, and third-party payers. Nurse leaders and decision makers are finding it difficult to adopt SNT sets (Meyer et al., 2007) due to the number available and the absence of clear selection criteria and directions for use (Lundberg et al., 2008). There currently is no systematic review of SNT research available in the literature, and we believe that such a review would help administrators and clinical nurses make appropriate decisions about SNTs and speed the adoption and appropriate use of SNT sets in practice. SNT implementation is costly and difficult to reverse when insufficient

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