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Titolo tesi: Development of a Nursing Information System Using Standard Nursing Language for Creation of a Nursing Minimum Data Set

ABSTRACT

Background. An efficient, effective, and well-connected health information system can support healthcare activity, its related support services, and healthcare providers. A health information system consists of several systems, such as Electronic Health Records. Electronic Health Records are fundamental to healthcare, because they are repositories of information with the potential for access and use by multiple users. The Nursing Information System (NIS) is part of Electronic Health Records. Data collected in an NIS provide a description of nursing care and peoples' health status. Moreover, an NIS enables the creation of a Nursing Minimum Data Set (NMDS), which is a set of minimum elements representing nursing care that are useful to a variety of users in the healthcare system. Although NMDS provides parameters to improve nursing services, health information systems, electronic health records, and nursing research, (1) Italy does not have an NMDS; (2) there are no validated clinical decision support systems to support nurses in the identification of nursing diagnosis; and (3) few studies have evaluated the impact of NISs in clinical practice with a qualitative-quantitative longitudinal design.

Objective. The objective of this doctoral program was: (1) to develop an NIS called the Professional Assessment Instrument (PAI) using standard nursing terminology to create an Italian NMDS; (2) to develop and validate a clinical decision support system, called the Nursing Assessment Form (NAF) within the PAI system to support nurses in the identification of nursing diagnoses; and (3) to develop a qualitative-quantitative longitudinal research project aimed at evaluating the impact of the PAI in clinical practice.

Methods. Three separate studies were conducted for each specific aim. To reach objective one, a research team was organized with collaboration between the Tor Vergata University of Rome and the Public Health Agency of the Lazio Region to develop the PAI. To reach objective two, content validity and consensus on the NAF were established using a panel of experts in nursing diagnosis and Delphi rounds. To reach objective three, a qualitative-quantitative longitudinal study with an underpinning theoretical model was designed.

Results. In the first study, we developed the PAI, which uses standard nursing terminology, such as NANDA-I nursing diagnoses, NIC nursing interventions, and NOC nursing outcomes. The PAI contains a minimum essential set of data elements with standardized definitions and codes to describe clinical nursing practice. Linkages between assessment, nursing diagnoses, interventions, and outcomes are present in the PAI. In the second study, we developed and validated the NAF within the PAI to facilitate the diagnostic reasoning of nurses to identify nursing diagnoses. Content validity and expert consensus of the NAF were estimated by applying two phases of the Delphi technique using a panel of eleven experts in nursing diagnosis. In the third study, we developed a new theoretical model to guide the study, called the Clinical Nursing Information System Successful/Unsuccessful Model. Results of this study will allow us to understand what dimensions can affect the PAI's success or failure.

Discussion/Conclusion. This doctoral program has provided the scientific community with an NIS called PAI, using standard nursing terminology. The NAF, within the PAI, will aid nurses in the decision-making process and in the use of standardized terminology. The qualitative-quantitative longitudinal study will evaluate the impact of the PAI in clinical practice. The PAI is ready for use in clinical practice. We have shown that the PAI is able to collect, retrieve,

and store nursing data. This is important because we can create a local NMDS that provides a measurement of nursing activities, costs, and contributions of nursing care on patient safety and outcomes. We have also demonstrated that the NAF is evidence-based with estimated content validity. Validity of the NAF is important and useful in clinical settings. The longitudinal study project proposed with the Clinical Nursing Information System Successful/Unsuccessful Model has the potential to explain and predict the success or failure of nursing information systems in practice, because it jointly considers information technology with contingent factors related to staff characteristics, organizational culture, and context.

Key words: Electronic health records, nursing information system, standard nursing terminology, nursing minimum data set, clinical decision support system, longitudinal studies.