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Developing Evidence-Based Care Standards and a Decision-Making Support System for Pain Management

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Abstract. Pain is a crucial sign and symptom in hospitalised patients. This paper describes how a medical centre created a knowledge-based, computerised pain management decision-making process to support nurses in personalising preventive interventions based on patient requirements.

Keywords: pain control, evidence-based care standards, decision making support system

1. Introduction

A pilot 'nursing care plan decision support system' was developed in this study. All relevant factors and characteristics regarding nursing interventions in pain management were retrieved from a data set, and a content analysis method was applied to determine the major indicators in the nursing care decision-making process. Nursing care plans are structured plans of action for patient care. In 1992, a 2900-bed medical centre in northern Taiwan implemented a computerised nursing care plan (CNCP) system in all its in-patient units. Although the CNCP system provides standardised nursing knowledge and care procedure alerts, it lacks a decision support function. In this study, a nursing care plan decision support system was developed to act as a guide for nurses when identifying patients' pain problems and to enhance nursing care and pain management.

2. Methods

The study data set included all relevant factors, defined characteristics, and nursing interventions regarding pain management in the CNCP system from 01 January, 2010, to 30 September, 2011. The research group members analysed the pain care plan, employed knowledge generation and data-mining process, and applied the content analysis method to identify major indicators in the nursing care plan decision-making process.

3. Results

The CNCP data set included a total of 324,412 care plans related to pain management. Analysis of pain assessment records from the nursing information system showed that 44.46% of all hospitalised patients experienced pain problems: 10.13% had a pain score of 1, 13.14% had 2, 8.86% had 3, 4.34% had 4, and 8% had >5. Regarding pain emergence, 27.94% occurred in the abdominal part, 17.59% in the lower limbs, 8.3% in the chest, and nearly 7% in the head and mouth. In addition, the results showed that the major factors of pain were injury, therapeutic procedure, musculoskeletal pain, psychological factor, and pressure pain. The defined characteristics included self-report of pain, suffering facial expression, neurohumoral responses, crying and emotional expression, and pale appearance.

Furthermore, the total number of nursing interventions for pain management in the data set was 2,315,667. All interventions were classified into 24 interventions on the basis of the CCC categories. The five major categories represented approximately 71% of all interventions performed, including 'comfort care' (25.93%), 'pain control' (22.52%), 'medication care' (11.70%), 'emotional support' (9.30%), and wound care (1.51%). Five types of interventions were identified, and 34.27% of these nursing action types were related to assess or monitor actions, 52.66% to care or perform actions, 12.38% to teach or instruct actions, and 0.69% to manage or refer actions.

In addition, the pilot decision-making support system (DDS), which covered all elements from assessment to evaluation, was designed according to the nursing process.

4. Discussion

According to the CNCP data set, the characteristics were classified in nursing diagnosis and nursing actions in nursing interventions. When transforming the CCC system, the researchers added a sixth digit for nursing actions.

The major five relevant factors, defined characteristics, and intervention categories in this study were used as indicators to develop a pilot nursing care plan decision support system for aiding nurses in choosing the accurate nursing diagnosis. The study results are expected to help nurses in documentation, and the desired clinical information fields can be created to facilitate data retrieval for research and related tasks.

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