MEDINFO 2007
HISA Ltd Australia
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A Nursing Minimum Data Set in Occupational Health: Items and elements for professional Practice

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Abstract

This article consists of a descriptive retrospective study that describes how the items and elements on the Nursing Minimum Data Set in Occupational Health were determined. The medical files of 106 patients were chosen for study and, from them, 777 records of first and return consultations between August 1998 and August 2003 were identified. They were analyzed on the basis of the categories and elements of the Nursing Minimum Data Set (NMDS) and the Nursing Management Minimum Data Set (NMMDS). The results showed that the lack of specific nursing data and faulty filing of documentation may be related to the failure by professionals to agree on a clear, permanent, validated, reliable and standardized set of data. A Nursing Minimum Data Set in the Occupational Health (NMDSOH) is presented, containing 31 items and divided into four categories: demographic elements, elements on nursing care, elements on the clinic, and elements on occupational health.

Keywords:

occupational health nursing, medical informatics,

data collection

Introduction

Information systems in nursing were first defined and implemented to support the practice of caring and to facilitate the work of nurses in collecting, storing and analyzing data on patients, with the objective of defining needs and planning the care to be provided [1]. However, factors such as difficulties in standardizing nursing vocabulary and the fact that the measures taken are often planned in a more intuitive than systematic way, have led nurses to make little use of computerized systems. They therefore produce little information, based on the data collected, which could describe and sustain their practices.

One of the first attempts at standardizing a set of essential data for the practice of nursing was developed by Werley and Lang [2] in 1988, known as the *Nursing Minimum Data Set* (NMDS). Elements on nursing divided into categories provide much inter-related data through which the essential data is organized, classified, processed, accessed and studied, in order to support the management of the care provided by health professionals in varying contexts. Another set of data, developed with the objective of addressing the needs of data for nursing management, was the *Nursing Management Minimum Data Set* (NMMDS), as presented by Delaney and Huber [3].

In the same vein, it is of utmost importance to standardize and identify a minimum set of data that will provide the necessary information regarding nursing care in occupational health. In other words, it is possible to gather data on the nursing process and standardize it into a set of items that describe nursing activities and serve as support to the work of nurses in occupational health. Such data also makes it possible to produce information aimed at evaluating the quality and results of the health care provided to clients or patients. In the process, the related decision-making and research can also be evaluated.

Considering these aspects, the present study has the objective of describing how of the items and elements on the Nursing Minimum Data Set in Occupational Health (NMDSOH) were identified.

Methodology

The present article consists of a descriptive retrospective study [4]. The data analyzed here were taken from the agenda of Occupational Health Nursing (ESO) at the Public Health Nursing Out-patient Clinic (SESP) at the General Hospital of Porto Alegre (HCPA), Brazil. More specifically, the information was obtained from the nursing records kept at the outpatient clinic and from the records in the institution's database, collected between August 1998 and August 2003. On the 106 medical files analyzed, 777 records of first and return consultations were identified. The categories and elements on the concepts of the Nursing Minimum Data Set (NMDS) and the Nursing Management Minimum Data Set (NMMDS) were used to choose the terms to be used on the basis of the records of nursing consultations. In a second stage, an instrument was submitted to eight specialists in the area of occupational health. This instrument was designed to measure the level of agreement, appropriateness and priority of the data chosen for the proposed model. Preliminary tests on the questionnaire were also carried out in regard to its suitability and pertinence, based on a sample, by conve-

nience, of 19 computerized records of nursing consultations from the agenda at the ESO/SESP/HCPA.

The data were treated and analyzed with the help of descriptive statistics (frequency and percentages) on *Excel for Windows® and Statistical Package for the Social Sciences (SPSS)®* [4] [5].

Results

Categories and elements identified in the nursing documentation

Patients/clients demographic items

Among the data on the elements for *Identifying patients/clients,* the most frequent were Name (29.9% of all records) and Age (28.3% of all records). The data include Gender, Date of birth (age), Ethnic group and Residence (phone contact, origin).

Nursing care items

The most frequent data from *Anamnesis* are nutrition (93.0% of all the records), humidity (89.4% of all the records), physical activity (79.9% of all the records) and urinary and intestinal elimination (42.8% of all the records). The most frequent data related to *Physical examination* were blood pressure (96.6% of all records), body weight (95.1% of all the records), behavior (62.3% of all the records), height (29.9% of all the records), laboratory and clinical examinations (28,8% of all the records) and emotional state (28.3% of all the records).

Elements on *Nursing diagnosis* were frequently identified in the documentation (92.3% of all the records). The elements on *Nursing intervention* identified were also categorized for better presentation, including orientation on nutrition and health, physical activity, life-style practices, orientation on measures for occupational promotion, protection and rehabilitation. Among the most frequent findings were data on orientation for improving patients' information regarding the process of the disease and regarding self-care (95.4% of all records). Among the elements on *Nursing results,* the most frequent data identified in the documentation analyzed were related to clients' behavior toward the proposed treatment (84.4% of all the records).

Service items

The data included in the elements in this category (elements on the unit, or clinic, elements on a single patient/ client file, and elements on nurses) are standardized in the identification forms found in the patients' files and made available as data referring to hospital management, taken from the Porto Alegre General Hospital's information system.

Occupational health items

Among the most frequent data found among the elements on Occupational history are "Current job situation" (25.2% of all records) and "Current type of work" (20.8% of all records). Among the most frequent data in the elements on Occupational health and safety are "Symptoms of current disorder" (86.5% of all records) and "Current treatment" (63.3% of all records).

It should be noted that no elements or data were found in the records regarding *Items on the environment, on Nursing resources, or on Financial resources.*

Evaluation by specialists

A questionnaire was prepared for evaluating the elements. A group of specialized consultants was set up consisting of eight persons [n=8], including four university professors and four social service nurses. Using this questionnaire, each consultant was asked to indicate his or her opinion as to each of the elements listed, in terms of the degree of its pertinence as a quality that should appear in the data set, and its degree of priority. It was decided to present only the results shown in the columns of answers [I agree] and [Important], as they addressed the specific objectives for validating the contents based on judgment [4].

According to the specialists, it is important to include data from the patient's/ client's demographic items, service items, nursing care items and occupational health items (100%) on the NMDSOH. The percentage of agreement is lower regarding administrative data involving management of the care provided. These aspects include complaints about the treatment (62.5%), the duration of the nursing consultation (62.5%), availability for treatment (62.5%), time taken to get to the clinic (50%), and number of patients/clients per nurse (50%). These data are all present on the NMMDS.

However, it can be said in general that the specialists agree with the list of data included in the set. Their observations and suggestions were therefore made used of in terms of their understanding, objections and suggestions for refining the instrument, and later definition of the items and elements on the NMDSOH.

Discussion

Very little of the information included in the category of the patients'/clients' demographic data was present in the documents analyzed because it is present on the standard computerized form used at the institution.

The predominance of data from anamneses, physical examination, and laboratory examinations can be understood in the light of Maslow's theory of Basic Human Needs, adopted for the nursing process at the HCPA. The prevalence of the evaluation of nursing in terms of the patients'/clients' biological needs can also be explained by

the fact that professional practices are still deeply impregnated with a tradition of referring only to epidemiological and clinical aspects when planning modes of intervention [6].

The high frequency of diagnostic nursing elements shows the importance attributed to this phase in the nursing documentation at the HCPA. Since the 1970s, this hospital has applied systematic descriptions of the services it provides, and the results are consistent with the frequency of data from anamneses and physical examinations in the files. Evidence also shows that the subsequent stages of the nursing process depend on the quality of the initial evaluations and their respective documentation [7].

In the category of Items on occupational health, the records showed a low percentage of data from elements on environmental risk factors and from elements regarding occupational history. It is especially important to note that the lack of data such as the current and previous types of work performed, work processes, working conditions, working environment, workplace, and work sector in the initial phase of application of the nursing process may indicate a lack of information to support the patients' / clients' real or potential needs, especially in the causal relationship between health and work.

It can be inferred that the lower frequency of the data in the initial gathering does not mean that no data at all were collected. The diagnostic impressions and the nursing interventions mentioned in the records take into account information that indicates that such data were processed. Another possible explanation for this finding might be the precaution by the nurses to avoid duplicating information contained in the records of medical anamnesis. But one can nevertheless criticize the lack of visibility and availability of nursing data that contain specific elements on occupational health to be applied in professional practice.

Unfortunately, in terms of the items listed on the NMMDS, one could criticize the failure of the specialists to evaluate the elements [data] on quality and level of solution of the steps in relation to the attributes of the caring process. It would seem that quality in health has caught the attention of researchers but not of those who actually provide occupational health services, as these latter do not seem concerned with having records that describe information that might facilitate the evaluation of the care provided. Therefore, the commitment of professionals involved in caring – the continual work of defining and measuring the quality of the assistance provided, as indicated by Delaney and Moorhead [8] – loses its importance in the definition of "quality." In addition, as Donabedian [9] has stressed, approaches for evaluating quality in health include components related to the resources needed for treatment, as well as components related to activities carried out between professionals and patients, where these administrative data on care management can be included.

Elements of the Minimum Nursing Data Set in Occupational Health (MNDSOH)

Chart 1 summarizes the list of essential, or minimum, data identified on the basis of the terms chosen in the systematic nursing records and evaluated by the group of specialists for presenting the NMDSOH.

Elements of the Nursing Minimum Data Set in Occupational Health (NMDSOH)

Patient/Client Demographic Elements
Patient's/Client's Registration Number
Patient's/Client's Name
Age
Ethnic Group
Gender
Origin
Marital status
Occupation
Schooling (in years)
Full address

Nursing Care Elements
Anamnesis and physical examination (evaluation protocol)
Nursing diagnosis
Nursing interventions
Nursing results
Patient/client treated
Accessibility for patient/client

Service Elements
Name of Institution
Name of service/clinic
Type of health insurance plan
Date of out-patient admission
Date of out-patient release
Date of nursing consultation
Team responsible
On-duty nurse
Type of nursing activity
Volume of nursing care
Complexity of nursing care
Costs of nursing Care

Occupational Health Elements
Professional history
Environmental risk factors
Occupational health and safety

Chart 1 - Elements of the Nursing Minimum Data Set in Occupational Health (NMDSOH)

The data included in ***Patients/clients demographic elements*** are described extensively in the literature regarding routine admission records of patients/clients. The basic demographic information allows data to be summarized, which, when combined with other elements or groups of elements, provide important information [10]. Formal education provides information on access to culture, consumption, income, and professional training.

Two pieces of data are found on the NMDS [2,3] regarding these aspects, and, three other types of data were included to cover the occupational health area.

In ***Service elements,*** the data on the element of *Complexity of the nursing care*, which include the perception of factors that are internal to the care given as well as other that are external, and serve as possible indicators for evaluating the results regarding the care aspect.

The data on *Volume of nursing care* refer to the total time dedicated to nursing care and to the size of the nursing team involved in caring. These aspects include the number

of professionals involved and their availability for individual, collective or group support services, and the number of patients/clients per professional.

Nursing information adds a perspective of the patient/client that goes beyond the costs of the disease or disorder and the medical service provided, as it also considers the *Costs of the nursing care.*

These data can be processed to generate useful information for planning strategies to integrate health education, procedures, services and management. Only in this way can the health system be placed under the control of society in order to provide qualified health practices and proper training of health professionals. Four of these elements are included on the NMDS and two on the NMMDS. Other elements were selected according to the specific needs of the area of occupational health.

In ***Nursing care elements,*** the following data are included under *Anamnesis and physical examination:* review of systems, nutrition, humidity, sleep/rest, physical activity, leisure, rashes, family risk factors, elimination, physical measurements, measurement of vital signs, laboratory and clinical examinations and images, capillary glycemia, general conditions of the body and members, mobility and movement, and emotional state.

The data on *Nursing diagnosis* include the description of the current diagnosis based on analysis and interpretation of the information obtained. The patient's/client's health can be evaluated on the basis of such information.

The data on *Nursing intervention* include the description of the intervention performed. Interventions refer to orientation for occupational promotion, protection and rehabilitation, as well as education in health for self-care (nutrition, physical activity and life-style habits), indications for laboratory examinations, referrals to other professionals, and release procedures.

The data on *Nursing results* include the patient's/client's evaluation of the state of resolution of the nursing diagnoses and interventions. This refers to the difficulties in controlling or managing treatment, the need for information about the current disorder or damage and/or treatment, and behavior toward the nurse's orientations: acceptance vs. non-acceptance, decided vs. undecided (transferred or referred).

The data on *Patient/client treated* include the characteristics of the population attended in the area of nursing in occupational rehabilitation (off work or not, pending examination by the federal health program, and follow-up by other professionals).

The data o*n Patient's/client's accessibility* include the time patients take to get to the clinic and the time spent during the nursing consultation.

The data on Nursing diagnosis, Nursing interventions and Nursing results show the characteristics indicated by Werley and Lang [2], whereas the data related to Patients'/clients' accessibility, Patient/client treated, and Volume of nursing care are in accord with the characteristics indicated by Delaney and Huber [3].

It is felt that the inclusion of the above types of data should improve the production of information on which to base clinical decisions, manage quality, and determine the most suitable care to be given. As Delaney and Moorhead [8] stated, it is important to include nursing data in statistics on health care, both for the health community and for the patients/clients themselves.

In the ***Occupational health elements*** the data included in *Occupational history, Environmental risk factors,* and *Occupational health and safety* were already listed in Lynch's [11] study, where he proposes a structured information system structured around four databases in occupational health.

The data on *Occupational history* include the current and previous types of work, the characteristics of the work, how long the person was on the job or in the occupation, and his or her working hours, in order to understand the relationship between work, occupational health, and disorder.

The data on *Risk factors* include the type of exposure to the risk, the use of individual safety equipment, ergonomic aspects, and workplace, thus completing the study on the factors present in the working environment.

The data on *Occupational health and safety* deal with each patient's/client's morbidity and mortality rate, as this information provides data on working situations, which is important for making health diagnoses.

The use of the NMDSOH facilitates analyses that will identify the structure for determining individual or collective health-sickness processes and the characteristics of social groups where they occur. This makes it possible to draw up a clearer description of the real and potential living and working conditions. The information processed should contain the elements necessary to explain and understand causal processes, together with the list of factors that are sensitive to intervention. This also enables the professionals involved to become more aware of the patient's/ client's health situation before taking decisions and following-up on and evaluating the results of the measures taken.

Conclusions

The final results of this study recommend the inclusion of 31 items on the NMDSOH, divided into four categories, to wit, patient's/client's demographic elements, elements on

the nursing care, elements on the clinic, and elements on occupational health.

The conclusion here is that a Nursing Minimum Data Set in Occupational Health (NMDSOH) based on terms used in nursing records can serve as a frame of reference when groups set out to make changes in information systems in health in the Brazilian context. The frames of reference for the NMDS and the NMMDS adequately addressed the analytic and theoretical needs for including items and elements [data] that described nursing care in the context of occupational health. In addition, the elements [data] on the NMDSOH can effectively be related to a database and a computerized information system in order to address the needs of the practice, research, decision-making and quality of the treatment provided by nursing in this health specialty.

This study also emphasizes the importance of determining a set of minimum data that should be included in the forms and records that make up the databases. The data can thus be better documented and structured in the information systems. There is a real need of adequate methodological tools to provide not only the survey on health conditions and harmful occupational factors, but also the relation or association of elements that comprise the work-health-sickness process, taking into account both organizational and environmental aspects, as well as life conditions of workers. Nurses could then make better use of such data, to the extent that the correct information is produced for the performance and description of their caring practices in occupational health.

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