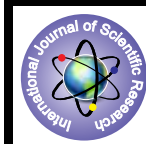


Collaborative Prescribing by Nurses in Zaragoza (Spain). Current Situation and Analysis of Variables



Health Care

KEYWORDS : 1. Nursing, 2. Drug Prescriptions, 3. Cooperative Behavior

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ABSTRACT

In Spain, there are few legislative references in which the Nurse is considered a professional independent of his or her specific duties related to nursing care. As a result of the modification of a medication law, Nursing is now considered a profession with its own responsibilities with regard to prescribing medication.

The objectives set forth in this study are designed to highlight the achievement of collaborative prescribing by nurses in the public hospitals of Zaragoza, Spain.

A cross-sectional descriptive methodology is used to collect data on prescription drugs and health products prescribed by nurses with a survey developed and validated ad hoc.

The primary finding was that the prescription of drugs and health products by nurses is a common practice. The groups of prescription drugs most often prescribed by nurses in collaborative practice are analgesic (painkillers), antipyretic, and anti-inflammatory drugs.

The statistically significant relationships between socio-demographic and professional variables are also highlighted.

Introduction.

In 2002, the World Health Organization established as part of the regulatory measures on the rational use of medication that licenses should be issued to health professionals (medical doctors, nurses, paramedics). The intended objective of this measure was to ensure that those professionals be sufficiently competent in diagnosing, prescribing, and administering.

In Spain, Article 77 of the Law 29/2006, on the 26th of July, about guarantees and the rational use of medication and health products established that: “the nurses, in an autonomous manner, will be able to indicate, use, and authorize the dispensation of all medication not subject to a medical prescription and health products, according to the corresponding order of dispensation...”

The nursing professional assumes the direction, evaluation, and provision of nursing care designed to promote, maintain, and recover health and to prevent diseases, accidents, or disability among healthy individuals, sick individuals, or the community.

Objectives

1. Describe the primary prescription drugs and health products for which collaborative prescribing is used in the public hospitals of Zaragoza’s Sector III (Spain).
2. Determine whether statistically significant relationships exist between the prescription drugs, health products, and general and socio-professional variables under study.

Material and Methods.

A descriptive, observational, prospective cross-sectional study was conducted with 253 male and female nurses, with a response rate of 18.9%.

To conduct this study, a questionnaire developed ad hoc during November 2013 was sent out.

On this questionnaire, information was collected about the prescription drugs and health products prescribed by nursing professionals participating in the study, the descriptions of observed habitual processes in their daily practices, and the relationship of each process to a nursing diagnosis following the NANDA international taxonomy. Sociodemographic and professional information was also collected with the intention to establish statistical relationships between these variables.

The questionnaire was validated by a group of experts in nursing prescriptions. To establish the validity of the results, Pearson’s correlation was utilized, generating a global value of 0.89.

Data collection was conducted via the questionnaire, which consisted of two parts:

a) General and professional data. The place of employment University Hospital Clinic “Lozano Blesa” of the Public Health Services of Aragón, Zaragoza III (Spain), and 4 age ranges. The section on professional data collected the following: year of completion of studies; years of professional experience; time in current position; type of contract (permanent-tenured position, temporary-interim and substitution); education and training in nursing methodology; years of collaborative prescribing of health products or prescription drugs; continuing education (yes/no); and job satisfaction (scale numbered from 0 to 10).

b) The data on prescribed prescription drugs and products was divided into three sections: description of the process, NANDA diagnosis, and health products and prescription drugs prescribed.

Data analysis was conducted using the statistical software IBM SPSS Statistic 20 for Windows.

Results.

In terms of age, the largest group (39.6%) is between 31 and 40 years, followed by the group between 41 and 50 years (31.3%).

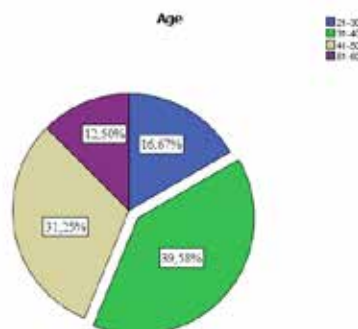


Figure 1. Age

Analyzing the year of completion of studies, it was found that the most frequently repeated year is 2007, followed by the years 2001 and 2004. The earliest value is 1977, and the latest is 2012, with a range of 35 years.

It is observed that, on average, the nurses have 15.87 years of professional experience with a minimum of 1 year and a maximum of 40 years.

In the descriptive study of the months in the current position, it was found that 64.13 months was the average. The majority of nurses (89.6%) have between 3 and 100 months in their current position.

Regarding the type of contract, the group that has a permanent contract or tenured position stands out among the data with 37.5%, but is not far from the group with substitution contracts at 33.3%.

Of the participants, 77.8% affirm having received education in nursing methodology, while the rest say they have not received education in nursing methodology.

Of the participants, 57.4% report having received training in pharmacology/prescriptions by nurses, compared to 42.6% who did not receive training. Some data are missing due to unanswered questions by the participants surveyed.

The average years of prescribing health products or prescription drugs using collaborative prescribing is 11.31.

		Percentage	Valid percentage	Accumulated percentage
Valid	YES	56.3	57.4	57.4
	NO	41.7	42.6	100.0
	Total	97.9	100.0	
System	Loss	2.1		
Total		100.0		

Table 1. Education in Pharmacology & Nurse Prescribing.

Of the data, 50% show a median of 10 years of prescribing. In the histogram, it can be observed that within the normal curve, the data are grouped together towards the right tail of the distribution.

Of the nursing professionals who responded, 85.4% receive continuing education, compared to the 14.6% who say they do not receive any type of continuing education.

Job satisfaction is distributed between 2 and 10, which is to say that satisfaction is overall measured in an ambiguous way. More than half of the nurses assigned one of the most common numbers (7 or 8) to their job satisfaction.

In analyzing the processes of collaborative prescribing, we observed that on average, there are 5.56 processes per nurse, with the prescription requiring 10 processes being most frequent at 16.5%, 4 and 6 processes each with 12.5% and 3 and 5 processes with 10.4% of the nurses, respectively.

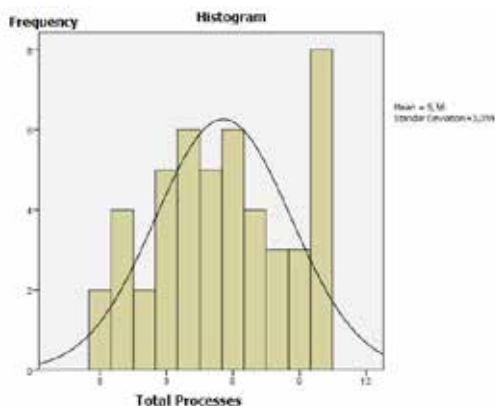


Figure 2. Histogram. Total Processes.

Of the nurses in this study, 95.2% have participated at least once in collaborative prescribing.

Analyzing the processes individually, (with a maximum 10 processes that could be carried out) the following results were found:

In process 1, the description of "pain" is the one in which most of the prescribing is performed, with a frequency of 26.1%, followed by the "pre-operative, intra, and post-operative" processes with a frequency of 8.7% and the codes corresponding to "fever," "trauma and fractures", each with a frequency of 6.5%.

In process 2, the description with a "pain" code is the one in which most of the prescribing is performed, with a frequency of 28.6%, followed by the codes "pre-operative, intra and post-operative, insomnia, fever, trauma and fractures, and neoplastic processes", with a frequency of 7.1% for each.

In process 3, the description with "pain and fever" codes is the one in which most of the prescribing is performed, with a frequency of 15%, followed by "pre-operative, intra and post-operative" with a frequency of 10%. Additionally, "hypotension and neoplastic process" each had a frequency of 7.5%.

In process 4, the description with "pre-operative, intra and post-operative" codes is the one in which most of the prescribing is performed, with a frequency of 14.3%, followed by the description with the "pain" code at 11.4% and the description with codes for "insomnia, wounds, and diabetes" at a frequency of 8.6% each.

In process 5, the description with "pre-operative, intra and post-operative" codes is the one in which most of the prescribing is performed, with a frequency of 10.3%, followed by the codes "hemorrhage, insomnia, traumas and fractures, diabetes and hypertension", each with a frequency of 6.9%.

In process 6, the description with the code "pre-operative, intra, and post-operative" is the one in which most of the prescribing is performed, with a frequency of 20.6%, and the descriptions with codes "constipation, wounds, neoplastic processes and hypertension" follow with a frequency of 8.3% each.

Moving on to process 7, the most frequent description is the one that contains the code "hypovolemic shock" at 22.2%, followed by the descriptions with codes for "agitation and neoplastic processes" with respective frequencies of 16.7% and 11.1%.

In process 8, the description with the "wound" code is the one in which most of the prescribing is performed, with a frequency of 21.4%, followed by the descriptions with codes for "hemorrhage and constipation", each with frequencies of 14.3%.

This is followed by process 9, in which the code "fever" is the description for which most of the prescribing is performed, with a frequency of 18.2%.

Finally, in process 10, the description for which most of the prescribing is performed has the code "pre-operative, intra and post-operative" with a presence of 37.5%.

A wide variety of prescription drugs are collaboratively prescribed, such as acetaminophen, ibuprofen, atropine, antihypertensive drugs and antibiotics.

It should be highlighted that for each process described, there is one or more associated NANDA codes and various prescription drugs that are collaboratively prescribed. On average, each process has 1.1 NANDA codes and 1.3 prescription drugs.

To analyze the strength of correlation that exists between variables, we use contingency tables. For this purpose, we apply Pearson's Chi-Squared distribution, χ^2 , to establish the strength of compatibility that exists between the χ^2 statistical value and the independent hypothesis. Although this statistic permits the

evaluation of the independent hypothesis, it does not tell us anything about the strength of association between the variables. To determine this strength of association, other statistical tests are applied, such as the contingency co-efficient or Phi and Cramer's V, which are based on Pearson's Chi-squared.

A statistically significant relationship exists between the following:

The variables of age and type of contract when the significance (p-value) of Pearson's Chi-Squared is 0.019, which is under 0.05. According to statistics based on Pearson's Chi-Squared, there is a relationship if their values are close to 1 and independence is rejected; on the other hand, with measures based on the decrease in error, some controversy exists: with the Lambda statistic, independence between the variables is accepted, while the other two are rejected, in addition to having values close to 0, which indicates a weak correlation.

The variables type of contract and number of processes were related with a significance (p-value) of the Chi-Squared set at 0.020, which is below 0.05. According to the Eta statistic, there is a relationship, with their value close to 1 (9.669), and independence is rejected.

Conclusions

1. Nursing professionals prescribe a wide spectrum of prescription drugs and health products through collaborative prescribing. Analgesics (painkillers), antipyretics and anti-inflammatory drugs are the most widely collaboratively prescribed drugs.
2. Nurse prescribing is habitual in the public hospitals of Sector III of Zaragoza (Spain) and is independent of the education in methodology.
3. The type of contract influences the number of processes (*prescriptions*) performed by nurses, and the year of completion of studies influences the type of contract obtained.

Acknowledgments

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REFERENCE

1. [Spain. Official State Announcement (2009) Law 28/2009, December 30, modification of Law 29/2006, 26th of July, of the guarantees and rational use of medication and products] Retrieved from: <http://www.boe.es> | 2. COURTENAY, M.; CAREY, J.; BURKE, J. (2007a). Independent and Supplementary nurse prescribing practice in the UK: A national questionnaire survey. *International Journal of Nursing Studies*.44: pp1093-1101. | 3. COURTENAY, M.; CAREY, N. (2008). Nurse independent prescribing and nurse supplementary prescribing practice: a national survey. *Journal of Advanced Nursing* 61 (3): pp. 291- 299. |