



MEDICINES ADMINISTRATION: IDENTIFICATION AND ANALYSIS OF THE EDUCATIONAL NEEDS OF NURSES

ADMINISTRAÇÃO DE MEDICAMENTOS: IDENTIFICAÇÃO E ANÁLISE DAS NECESSIDADES EDUCACIONAIS DE ENFERMEIROS

ADMINISTRACIÓN DE MEDICAMENTOS: IDENTIFICACIÓN Y ANÁLISIS DE LAS NECESIDADES EDUCATIVAS DE ENFERMEROS

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ABSTRACT

Objective: to identify and analyze the educational needs of nurses working in a hospital in the State of Minas Gerais with regard to the medicines administration. **Method:** qualitative study, with needs survey, conducted in a hospital located in a municipality in the State of Minas Gerais/MG, polo of Jequitinhonha Macro-region. The sample consisted of 19 nurses of the nursing staff in the institution under study. To obtain data the Nominal Group technique was used. The research project has been approved by the Research Ethics Committee, Protocol n° 3185. **Results:** six categories of educational needs were highlighted: preparation and administration of medicines, information and knowledge in medicine administration, medicine interactions, general aspects of the administration of medicines, side effects of medications and action mechanisms of medicines. **Conclusion:** the need for knowledge of important contents concerning the administration of medicines was highlighted. **Descriptors:** Nursing; Education in Nursing; Medication Systems.

RESUMO

Objetivo: identificar e analisar as necessidades educacionais de enfermeiros atuantes em uma instituição hospitalar do interior do Estado de Minas Gerais no que concerne à administração de medicamentos. **Método:** estudo qualitativo, com levantamento de necessidades, realizado em uma instituição hospitalar localizada em um município do interior do Estado de Minas Gerais/MG, polo da Macrorregião Jequitinhonha. A amostra foi constituída por 19 enfermeiros que compõem a equipe de enfermagem da instituição em estudo. Para obtenção dos dados, foi utilizada a Técnica de Grupo Nominal. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, protocolo n° 3185. **Resultados:** destacaram-se seis categorias de necessidades educacionais: preparo e administração de medicamentos, obtenção de informações e conhecimento em administração de medicamentos, interações medicamentosas, aspectos gerais da administração de medicamentos, efeitos colaterais dos medicamentos e mecanismos de ação dos medicamentos. **Conclusão:** destacou-se a necessidade de conhecimento acerca de importantes conteúdos relativos à administração de medicamentos. **Descritores:** Enfermagem; Educação em Enfermagem; Sistemas de Medicação.

RESUMEN

Objetivo: identificar y analizar las necesidades educacionales de enfermeros actuantes en una institución hospitalaria del interior del Estado de Minas Gerais sobre la administración de medicamentos. **Método:** estudio cualitativo, con levantamiento de necesidades, realizado en una institución hospitalaria localizada en un municipio del interior del Estado de Minas Gerais/MG, polo de la Macro-región Jequitinhonha. La muestra fue constituida por 19 enfermeros que componen el equipo de enfermería de la institución en estudio. Para obtener los datos fue utilizada la Técnica de Grupo Nominal. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, protocolo n° 3185. **Resultados:** se destacaron seis categorías de necesidades educacionales: preparo y administración de medicamentos, obtención de informaciones y conocimiento en administración de medicamentos, interacciones medicamentosas, aspectos generales de la administración de medicamentos, efectos colaterales de los medicamentos y mecanismos de acción de los medicamentos. **Conclusión:** se destacó la necesidad de conocimiento acerca de importantes contenidos relativos a la administración de medicamentos. **Descriptores:** Enfermería; Educación en Enfermería; Sistemas de Medicación.

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INTRODUCTION

The search for scientific knowledge, directed to the administration of medicines, maximizes the use of several scientifically based principles that enable the existence of a safe medication process. In this process, the nurse has a fundamental role, because he promotes safety and maintains the quality of care, effectively participating in patient's care. The term patient's safety involves, generally, the prevention of mistakes in the care and the elimination of damage caused by such mistakes.¹

It should be noted that in relation to medicine therapy, widely used for the treatment of diseases and health maintenance, the care provided to patients is complex and requires quality and also not generating unnecessary damage.²

Thus, medicine therapy is of great importance for professionals and clients involved, as the scientific knowledge and everyday experience of legal responsibility of nursing staff takes prominent role in therapeutic function that the client is submitted.³

In this sense, it is important that the application of scientific principles to ensure the therapeutic result expected during medicine administration, in which the professional must know the exact dilution volume to manage, time of stability and environmental conditions that the medicines should be prepared and packaged.⁴

However, it is evidenced often the unpreparedness of the nursing staff in relation to the preparation and administration of medicines, which results in medication mistakes. The reasons for the occurrence of these mistakes are the most diverse; highlighting the lack of knowledge.⁵ This unpreparedness reports us to reflection on the importance of technical and scientific knowledge of nurses and constant update about the practice of preparation and administration of medicines, being an influencer service education in the reduction in the occurrence of predictable mistakes.

The administration of medicines is one of the activities of greater responsibility of nursing staff, so the search for scientific knowledge, aimed to that topic, is of great importance, since it maximizes the use of various principles, substantiated scientifically, thus enabling the existence of a safe medication process.

This study, therefore, is justified since, with all above, it is necessary to identify and

analyze the educational needs of nurses, with regard to the administration of medicines in order to support the development of educational strategies and actions that meet those needs and provide an updated and effective medication delivery, with greater safety and quality.

OBJECTIVE

- To identify and analyze the educational needs of nurses working in a hospital in the State of Minas Gerais with regard to the medicines administration.

METHOD

This is a qualitative study, seeking the perceptions and understanding of the general nature of a question, opening space for interpretation, with needs assessment, in which the researcher collects data to assess the needs of a group, community or organization.⁶

The research was conducted in a hospital located in a municipality in Minas Gerais State, Macro-region polo of Jequitinhonha, being considered regional reference in the field of education and of medium and high complexity in the health area.

The population of the study were 20 nurses of the nursing staff of the hospital institution under study, i.e. a nurse service Director and 19 assistance nurses. However, it was excluded an assistance nurse who was on holidays.

Therefore, the sample consisted of 19 nurses, with inclusion criteria the availability of nurses to participate in the study and active participation in supervision and/or administration of medicines.

To obtain the data the Nominal Group Technique was used. Such a choice was the possibility of achieving the proposed objectives and the fact that it aims to maximize the productivity of the creative group, facilitating the group decision, stimulating the generation of critical ideas, saving human effort and aiding as an instrument in the grouping of ideas.

This technique consists of five stages. 1st stage - Writing elaboration of individual responses, which consists of presentation and reading of a quest and guidance for the preparation of responses through five brief and individual phrases. 2nd stage - Answers registration, asking each member to pronounce one response, registering it in a visible place to all, until the exhausting of the responses of all members. 3rd stage - Discussion of responses to clarifications, in

which the leader reads each question, asking about the existence of doubts, agreement or disagreement, and follows to the next question, categorizing the responses are available similar or complementary. 4th stage - Preliminary vote of responses importance, in which five forms are selected and phrased the answer they think is most important. Then, the responses were ordered in descending way, where number five is the most important and number one is of lesser importance. 5th stage - Weight, which is constituted by the determination of the grade of responses, orienting for members to send their notes on the forms, noting that none may receive zero and that the maximum should be equal to ninety-six because the sum total of the notes should be equal to 100.⁷

It should be noted that before the formation of nominal groups, a pilot study with two nurses, two pharmacists and a doctor was conducted in order to promote the choice of a nominal question accessible to the sample of the research.

This study consisted of two phases: nominal issue content validation and validation of the application of the Nominal Group Technique.

At the first moment, after discussion supported by four issues presented, one was chosen by the participants: "what are the contents that you think necessary to deepen the knowledge to develop a safe practice in the administration of medicines?".

The second moment was about the implementation and evaluation of the technique. It was observed that the question and the use of the technique were in accordance with the objective of the research, because the answers presented were revealing educational needs.

After the evaluation of the pilot study, it was observed that the participants converged to define as appropriate the environment and material used, introduction and/or greeting and time required for the conduct of the group. However, a quote that lacked clarity in elucidation about the purpose of the group was identified, which was considered in the realization of future nominal groups.

Four nominal groups were formed with the 19 participants in the study, following the recommendation of literature that describes nine individuals as being the most acceptable for each group, as well as the possibilities and preference of schedules of participants.

To this end, an adapted script⁸ in order to provide identical instructions to all groups as well as the nominal question addressed in the study were used.

The location used for the meetings was the meeting room of the hospital where chairs were distributed in such a way that all members could see the projections. The equipment used consisted of a computer and a Data show as well as supply of clipboards, pens and forms for the realization of the technique.

Data were analyzed descriptively and presented in tables, described through absolute numbers and their discussion was based on updated national and international literature about the subject.

As for the ethical aspects, the study was initiated after authorization by the Director of the hospital institution under study as well as the approval of the Research Ethics Committee of the State University of Montes Claros, case number 3185. Each participant knew about an informed consent for participation in the research and written record was issued.

RESULTS AND DISCUSSION

The research was conducted with 19 nurses. Of them, five were in intensive care center; five were in medical clinics, surgery, neurological and covenants; four in the ER; two on hemodialysis; one in surgical block; one in hospital infection control center, and one, the nurse responsible for nursing staff in the institution.

The first group was composed of five individuals, the second group, for four, the third and fourth by five participants, respectively. It is worth mentioning that the first author of this study directed all groups. The time of the meetings varied between 50 minutes and 1 hour and 10 minutes. For the realization of the technique, in all the groups, it took three days, being in first day two groups: at 1 p.m. and at 4 p.m., in the second day at 1 p.m. and in the third day at 9 p.m.

The application of the technique lasted 55 minutes in Group I, composed of five nurses: two from the intensive care unit, one from the medical clinic, surgery, neurological and covenants, one of the surgical block and one of the hospital infection control center.

The duration of application of the technique in Group II lasted 1 hour and it was composed by four nurses: one from ER, one from hemodialysis and two from the medical clinics, surgery, neurological and covenants.

The application of the technique in Group III lasted 50 minutes and it was composed by five nurses: one from hemodialysis, two from ER, one from intensive care unit and one from

the medical clinics, surgery, neurological and covenants.

The application of the technique in Group IV lasted 1 hour and 10 minutes and it was composed by five nurses: one from ER, two from intensive care unit, one from medical clinics, surgery, neurological and covenants and one technician nurse responsible for the institution.

Due to the high quantity and diversity of responses, it was appropriate to reunite them to provide a more accurate understanding. It is necessary to report that the answers were kept exactly as recorded by the participants. Next, it is highlighted the Figure 1, which shows the distribution of responses according to scores by group and total score.

Answers	Scores/Group	Total score
Medicine interactions	G1: 453	1569
	G2: 311	
	G3: 265	
	G4: 540	
Pharmacology	G1: 360	880
	G3: 520	
Dilution of medicines	G1: 240	495
	G2: 110	
	G3: 115	
	G4: 30	
Nursing care with the patient before and after administration	G1: 410	490
	G2: 80	
Adverse reaction	G3: 180	370
	G4: 190	
Patient´s safety practices	G4: 360	360
Mechanisms of action of medicines	G1: 20	330
	G2: 150	
	G4: 160	
Medicines standardization	G3: 260	260
Indication of antibiotics	G1: 100	255
	G2: 155	
Conservation and stability after dilution of medicine	G1: 98	198
	G4: 100	
Side effects	G1: 130	190
	G2: 60	
Five certain	G2: 175	175
Dialysis medications	G2: 150	160
	G3: 10	
Pharmacotherapeutic classification	G2: 150	150
Medicines of the emergency car	G3: 120	120
Pharmacovigilance	G4: 100	100
Medicines that cause phlebitis	G3: 100	100
Preparation of medicines	G4: 100	100
Medication calculation regarding dosage, volume and weight	G1: 84	84
Posology	G4: 60	60
Medication in the elderly	G4: 40	40
Administration of medicines together with blood transfusions	G2: 10	10
Verbal prescription	G3: 10	10
Allergic reaction to the medication	G2: 5	5

Figure 1. Distribution, in descending order, of the answers according to rate by group and total score. Diamantina, Minas Gerais, 2013.

As seen through the Figure 1, there are answers with similar or identical meanings. Due to this fact and aiming at a better

understanding of their meanings, it was decided to reunite them in categories as evidenced in Figure 2.

Category	Total score
Preparation and medicines administration	1602
Information and knowledge in medicine administration	1585
Medicine interactions	1569
General aspects of the medicines administration	750
Side effects of medicines	675
Mechanisms of action of medicines	330

Figure 2. Distribution, in decrescing order, of the categories from the answers according to the score. Diamantina - MG, 2013.

The respective categories are shown in descending order of score, and, after the

quotation of each item, the responses and approaches by the participants from all groups were described.

Concerning the category of greatest relevance, Preparation and administration of medicines, there were highlighted the involvement of issues related to the dilution of medicines, nursing care with the patient before and after administration of medicines, care and time of stability after dilution of medicine, five certain, preparation of medicines, medicinal calculation regarding dosage, volume and weight and posology.

Such issues, already widely discussed, studied and experienced in the everyday practice of the nurse, demonstrate the knowledge deficit about the subject studied and the need of the development of educational practices by the nursing staff, as they may result in a wide range of serious consequences.

In this regard, mistakes in the administration of medications related to dose (16.5%) and the technique of Administration (12.2%) were identified due to lack of knowledge in a sentinel hospital in the municipality of Goiás, in a study that examined problems occurred in the process of preparation and administration of medicines.⁹

Specifically as regards the dilution, the nursing staff requires knowing the dilution of the product variations according to the way of administration and relate it to aspects of the patient as the pathology and the age, and to be part of an interdisciplinary team, in case of any doubt, it should be discussed with other professionals in the area. Otherwise there is increased possibility of mistakes.

Regarding the category Information and knowledge in medicine administration, the issues regarding pharmacology, indication of antibiotics, dialysis medicines, pharmacotherapeutic classification, pharmacovigilance and medication in the elderly were cited.

The unawareness about these aspects of pharmacology arise specially from flaws in training in pharmacology applied to healthcare practice, and that there is no correlation during graduation on pharmacology/medication mistakes and patient safety risks. The same occurs with adverse reactions to medications and with the intensity of pharmacological effects, especially in potentially dangerous medications.¹⁰

These are worrying data for the development of safe practices in the administration of medications, since

professionals with knowledge deficient in pharmacology are not capable of performing the early detection, prevention of risks and possible complications arising from medicine therapy as pharmacological unwanted reactions, incompatibilities and medicine interactions. Thus, they are unable to minimize client's risks.

Another category identified was to medicine interactions, particularly those that occurred in the Intensive Care Units (ICU) and medical clinic, due to large quantity of medicinal products administered concomitantly.

In this context, it was observed that the frequency of adverse interactions between administered medications has incidence proportional to the amount of medicines used simultaneously. In a study¹¹ it was found the occurrence of 7% of medication mistakes with high surveillance, medicines used in ICU and other study¹² stated that the nurses responsible for the administration of these medicines, have insufficient knowledge about them.

It was found that acetylsalicylic acid, amikacin, aminophylline, captopril, diazepam, spironolactone, phenytoin, phentanyl, furosemide, nifedipine and digoxin have been the main medicines involved in medicine interactions in the treatment of patients in ICUs, which can guide the information nurses need to stop on these medicines.¹³

However, the nursing staff can prevent or lessen the occurrence of medicine interactions, since it remains with the patient full-time and must possess specific knowledge and skills, ensuring a safe medication practice, in which possible medicine interactions may be provided, minimized or prevented.

The category General aspects of the medicines administration, made reference to issues related to patient safety practices, standardization of medicines, medicines and emergency car and verbal prescription.

It was stressed the importance of safe practices, because it reduces the incidence of diseases and injury and reduces treatment time and/or hospitalization.

In this sense, patient safety has generated debate worldwide and received various interpretations, among them that security consists in reducing risk and unnecessary damage, associated with health care, until an acceptable minimum. The minimum acceptable refers to what is feasible given the current knowledge of the resources available

and the context in which the service was performed.¹⁴

It is highlighted that the combination of wide variety of medicines, different levels of severity and patients that are undergoing several procedures, are factors that predispose the patient to greater insecurity related to medicine administration.¹⁵

It becomes essential to ensure security in medicine therapy, achieved through the development of a strong, nursing practice based on scientific knowledge.

As for the Side effects of medicinal products category, the answers were adverse reaction, side effects of medications, medicines that cause phlebitis, medications administration together with blood transfusions and allergic reaction.

The answer adverse reaction was highlighted being associated with negative outcomes of therapy, which delays treatment because many of them are similar to typical clinical manifestations of diseases. Thus, in many cases the treatment of reaction includes prescribing new medicines to therapy and that raises the risk of iatrogenic cascade. Ideally, when possible, is to carry out the suspension or reduction of dose of the medicine as well as their proper notification.¹⁶

Thus, it is fundamental that the nurse acts with the nursing staff to show the importance of written communication in order to carry out properly the notes, making it possible to notification of adverse medicine reactions to the pharmacovigilance service hospital and, subsequently, the National Health Surveillance Agency.

Also the response about Side effects of medications is highlighted. In this regard, it emphasizes the need for continuous training in this subject. It is up to the health institutions, the standardization of procedures and implemented nursing care based on scientific recommendations, in order to ensure the quality of nursing care and patient's safety.

The lack of knowledge concerning the side effects of medications is a serious factor and responsible for problems in the process of the medicines administration. In this sense, interventions are needed because the practice of the medicines administration in hospitals is a complex process where professional aims to quality, safety and efficacy assistance.¹⁷

In relation to the last category, Mechanisms of action of medicines, the importance of an updated knowledge by the nurses is highlighted, due to the dynamic and constant innovation in the pharmaceutical industry, with the creation of new medicines.

It should be noted that, by knowing the mechanisms of action of medications administered, the nursing staff will be able to intervene in possible complications that these medicines may cause. Thus, it can minimize the risks of such medicines to patients who have, or not, some limiting health condition.¹⁸ Therefore, the nurse will be able to follow up with more accuracy the effects that medicines are providing to the clients, providing conditions for this medicine be administered in time and conditions under which there is a better response as well as participate in an interdisciplinary way with doctors and pharmacists in the discussion of the best therapy and patient's safety.

In this context, nursing care, based on knowledge, assists the nursing staff in the process of the administration of medicines, because it allows the knowledge and evaluation on risks and preventative care. Thus, the assessment of factors that prevent the failures can contribute to the prevention and reduction of damage caused to patients.¹⁹

It is therefore considered of fundamental importance to use working methods with theoretical foundation that will cause the intellectual and practical growth of nursing professionals, aiming at reasoned and quality assistance to the patient.

CONCLUSION

It was possible to identify and analyze the educational needs of nurses working in a hospital in Minas Gerais State in the Southeast region about medicines administration. Such contents are related to: preparation and administration of medicines, information and knowledge in medicine administration, medicine interactions, general aspects of the administration of medicines, side effects of medications and mechanisms of action of medicines. These data indicate that nurses have deficits of knowledge in matters essential to safe medication administration.

Thus, on the data analysis and the verification of the varied range of educational needs identified by this study, the urgent need to develop an educational action was established, since the lack of knowledge concerning the process of administering medicines takes nursing professionals the implementation of flawed procedures, leading to complications in clients submitted to medicine therapy.

The search for scientific knowledge and interdisciplinary strategies of nurses' training, focused on the topic about medicine administration is of great importance, which

allows the existence of an updated medication and secure process, promoting the professional resilience of individual and collective difficulties at work, with the objective of ensuring a quality, efficient and safe medicine therapy.

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