NURSING CARE FOR PEOPLE WITH DIABETES MELLITUS AND HIGH BLOOD PRESSURE: CROSS MAPPING

CUIDADOS DE ENFERMAGEM PARA PESSOAS COM DIABETES MELLITUS E HIPERTENSÃO ARTERIAL: MAPEAMENTO CRUZADO

CUIDADOS DE ENFERMERÍA PARA PERSONAS CON DIABETES MELLITUS E HIPERTENSIÓN ARTERIAL: MAPEAMIENTO CRUZADO

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Objective: To identify the care prescribed by Family Health Strategy nurses to hypertensive and diabetic patients and to compare them with the standardized Nursing Intervention Classification language. Method: Cross-sectional study carried out between February and September 2016 by cross-mapping care prescribed by nurses to hypertensive and diabetic patients with interventions proposed by the Nursing Interventions Classification. Results: In total, 86 cares were identified, and 107 interventions selected; 67 of them corresponded to nursing cares, of which 32 were mapped once. The "heart precautions" intervention corresponded to a larger number of nursing cares (n = 16), followed by "nutritional counseling" (n = 14). Conclusion: the main nursing cares prescribed by primary health care nurses when providing care to hypertensive and diabetic patients were identified, as were their equivalence with 67 interventions of the Nursing Intervention Classification.

Descriptors: Nursing care. Family Health Strategy. Rating. Hypertension. Diabetes mellitus.

Objetivo: identificar os cuidados prescritos por enfermeiros de Estratégias de Saúde da Família a hipertensos e diabéticos e compará-los com a linguagem padronizada da Classificação das Intervenções de Enfermagem. Método:

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estudo transversal, realizado entre fevereiro a setembro de 2016, por meio do mapeamento cruzado de cuidados prescritos por enfermeiros aos pacientes hipertensos e diabéticos, com intervenções propostas pela Classificação das Intervenções de Enfermagem. Resultados: identificou-se 86 cuidados e selecionou-se 107 intervenções, sendo que 67 apresentaram correspondência com cuidados de enfermagem e, destas, 32 foram mapeadas uma única vez. A intervenção "precauções cardíacas" apresentou correspondência com maior número de cuidados de enfermagem (n = 16), seguida de "aconselhamento nutricional" (n = 14). Conclusão: foram identificados os principais cuidados de enfermagem prescritos por enfermeiros da Atenção Primária à Saúde durante a assistência ao hipertenso e diabético, bem como a equivalência destes com 67 intervenções da Classificação das Intervenções de Enfermagem.

Descritores: Cuidados de enfermagem. Estratégia Saúde da Família. Classificação. Hipertensão. Diabetes mellitus.

Objetivo: identificar los cuidados prescritos por enfermeros de Estrategias de Salud de la Familia a hipertensos y diabéticos y compararlos con el lenguaje estandarizado de la Clasificación de las Intervenciones de Enfermería. Método: estudio transversal, realizado entre febrero y septiembre de 2016, por medio del mapeamiento cruzado de cuidados prescritos por enfermeros a los pacientes hipertensos y diabéticos, con intervenciones propuestas por la Clasificación de las Intervenciones de Enfermería. Resultados: fueron identificados 86 cuidados e seleccionadas 107 intervenciones, de las que 67 presentaron correspondencia con cuidados de enfermería y, de estas, 32 fueron mapeadas una única vez. La intervención "precauciones cardiacas" presentó correspondencia con mayor número de cuidados de enfermería (n = 16), seguida de "consejería nutricional" (n = 14). Conclusión: fueron identificados los principales cuidados de enfermería prescritos por enfermeros de la Atención Primaria a la Salud durante la asistencia al hipertenso y diabético, así como la equivalencia de estos con 67 intervenciones de la Clasificación de las Intervenciones de Enfermería.

Descriptores: Cuidados de Enfermería. Estrategia Salud de la Familia. Clasificación. Hipertensión. Diabetes Mellitus.

Introduction

The Family Health Strategy (FHS) aims to expand, qualify, and consolidate primary health care (PHC) in Brazil. To achieve this goal, the FHS seeks to reorient the work process with the purpose of developing a set of actions that covers health promotion and protection, disease prevention, diagnosis, treatment, rehabilitation, harm reduction and, mainly, the maintenance of health[1].

In this context, because they are part of the FHS team and work continuously in chronic disease control programs, implementing approach proposals, most of which non-pharmacological, nurses can promote the consolidation and implementation of integral attention to the health of the individuals of a community[2,3].

Among these programs, Hiperdia is a Ministry of Health strategy aimed to reorganize care for high blood pressure (HBP) and diabetes mellitus (DM), and its purpose is to equip and encourage professionals involved in PHC to promote measures aimed at the collective and with a view to primary prevention[4].

To implement Hiperdia, nurses can use the nursing consultation, which was regulated by the profession's Federal Council by means of Resolution 358/2009 and regulates the implementation of the Nursing Process in public or private environments where nurses provide care[5,6]. Thus, nursing consultation allows for surveying HBP and DM risk factors and complications, and for prescribing care and evaluating its effectiveness[7,8].

It is considered that the care prescribed by nurses is fundamental for promoting, preventing, and rehabilitating the health of the users monitored under the Hiperdia strategy. However, many prescriptions may be based on the experience and the empirical knowledge of the Health Unit's professional. Thus, implementing the Nursing Process in the FHS is of paramount importance to organize the care and provide assistance to meet the needs of individuals with HBP and DM.

The Nursing Intervention Classification (NIC) is one of the classification systems that can guide the nursing actions provided to the individual. It currently has 554 interventions with approximately 13,000 activities, grouped into seven domains and 30 classes[9].

Using the NIC taxonomy in the nurse's clinical practice facilitates the decision-making process and the selection of an appropriate nursing intervention. Each NIC intervention presents a list of activities that the nurse uses to implement the selected intervention. In addition, an intervention can

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be understood as any treatment based on the nurse's clinical judgment and knowledge and aimed to improve the results the individual achieves[9].

The cross-mapping technique can be used to compare the nursing care provided in clinical practice with the standardized language. Mapping allows nursing data to be compared to different classifications and, thus, to be adapted to a standardized language, by this enabling a meaningful exchange of information[10].

It is believed that studies like this one are relevant because they allow for the identification of the care FHS nurses prescribed to people with SHBP and DM aiming at attaining systematized care that improves service quality based on scientific principles. Thus, this study aimed to identify the care FHS nurses prescribed to hypertensive and diabetic people and to compare them with the standardized NIC language.

Method

Cross-sectional study carried out based on the care nurses working in Hiperdia prescribed at 27 FHS units in a city in the interior of the state of Minas Gerais, Brazil, in the period ranging from February to September 2016. To meet the proposed goal, the survey was carried out in three stages.

In the first stage, the nursing care prescribed was surveyed in interviews carried out with the nurses working at the units. The interviews were guided by a data collection instrument prepared by the authors, which included the following data: identification, age, and time since graduation; number of weekly visits to hypertensive and diabetic people, and the nursing care that was prescribed.

The inclusion criteria for the study were nurses who had been on the job for at least three months and who were providing care to patients with SHPB and DM at the health unit or during home visits. Nurses who were on medical leave or on vacation during data collection were excluded. Of the 32 nurses who worked at FHS units in the city, 27 (84.4%) participated in the project, since the others were on medical leave or on vacation.

In the second stage, a search was made of nursing interventions in the NIC[9], in the Nanda-I/ NIC linkage chapter, in the list of interventions for different clinical specialties, and by checking the taxonomic structure, which included the analysis of the seven domains and 30 classes. The results of a previous study designed to identify Nanda-I nursing diagnoses[11] for hypertensive and diabetic individuals in the FHS context were used to identify nursing diagnoses.

The 16 most prevalent nursing diagnoses (frequency greater than 50%) were considered based on the results of this survey: risk of ineffective gastrointestinal perfusion (100%), risk of ineffective renal perfusion (100%), risk of tissue perfusion (100%), risk of impaired peripheral tissue perfusion (100%), risk of impaired cardiovascular function (100%), ineffective health control (98.8%), unstable glycemic risk (92.57%), risk of constipation (82.28%), inefficient perfusion (78.28%), sedentary lifestyle (75%), risk of activity intolerance (73.71%), improved willingness to cope (56.0%), obesity (53.14%), risk of impaired skin integrity (52.57%), insomnia (51.42%), and risk of falls (50.85%).

The third step consisted of cross-mapping to evaluate the applicability of the NIC taxonomy for conducting nursing consultations for hypertensive and diabetic patients in PHC. Thus, the interventions identified in the nurses' practice in the FHS (first stage) were compared with previously selected NIC interventions (second stage).

A few rules were set with the appropriate adaptations to perform the cross-mapping in order to reach the objective of the study[12]:

1) Map "meaning" *versus* words, and not only the words;

2) Use the keyword for the nursing care prescribed by the nurses to map the NIC intervention;

3) Work guided by the nursing diagnoses to identify interventions in the Nanda-I/NIC linkage chapter;

4) Seek to use more specific and appropriate NIC interventions;

5) Seek to ensure consistency between the definition of the intervention and the nursing care that is to be associated to it;

6) Use the most specific NIC intervention title;

7) Map the NIC intervention based on its title and definition, considering the most appropriate activities;

8) Consider the nursing care that has two or more verbs in distinct interventions to become two or more NIC interventions.

To analyze the sociodemographic characterization of the nurses who were interviewed, we used descriptive statistics with simple frequencies, percentages, and central tendency measurements obtained using Microsoft Excel, release 2007. It should also be noted that the project was approved by the proposing institution's research ethics committee, under Opinion No. 1.349.921/2015, CAAE: 52214715.5.0000.5545, complying with the recommendations provided for under National Health Council Resolution No. 466/2012, which regulates research involving human subjects.

Results

Twenty-seven nurses, whose average age was 34.2 (± 4.8) years, aged a minimum of 27 and a maximum of 44 years, took part in the research project. Insofar as the time since graduation was concerned, the mean was 10.4 years (SD = ± 3.9), and the average time on the job at the unit was 3.2 years (SD = ± 3.1). Additionally, 92.6 percent of the professionals reported holding a *lato sensu* graduate degree, 55.5 percent of which in the Family Health area. Regarding the number of weekly visits, the average was 16.8 (SD = ± 6.6) visits to this clientele.

Regarding the results attained in the first stage of this study, 86 nursing cares were prescribed to hypertensive and diabetic people. And for organization purposes, these cares were grouped into seven thematic categories: "Care with food and hydration" (25.6%); "care with glycemic, blood pressure, and weight control" (21.0%); "care with medication use, administration, and storage" (17.4%); "diabetic foot care" (15.1%); "psychosocial and spiritual care" (9.3%); "guidance on the practice of physical activities" (8.1%), and "circulatory care and smoking control" (3.5%). Table 1 shows the main cares nurses prescribed according to the thematic categories.

In the second stage, 107 nursing interventions were selected in the NIC, of which 40.2% in the behavioral domain, 16.8% in the basic physiology one, 16.8% in the physiological complex one, 12.1% in the health system domain, 7.5% in the security one, 4.7% in the family one, and 1.9% in the community domain.

Table 1 – Nursing care prescribed most often by nurses for caring for hypertensive and diabetic patients, according to the thematic categories. Minas Gerais, Brazil, 2016

Categories	Most frequent nursing care	n
Care with medication use, administration and storage	Guide on how to store insulin.	13
	Guide on the need to take medication at the correct times, as per the medical prescription.	11
	Guide on insulin application sites and on the need for rotation.	9
Care with food and hydration	Guide on the importance of not eating greasy and fried foods.	20
	Guide on eating every three hours.	19
	Guide on the importance of proper hydration.	17
Guidance on practicing stretching and physical activities	Guide on the importance of physical activities for glycemic and blood pressure control and for general well-being.	11
	Guide on walking in flat locations.	7
	Guide and encourage participation in physical activity groups organized at the health unit.	5

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Care with blood glucose, blood pressure, and weight control	Guide on the importance of regular blood pressure measurement.	17
	Guide on the importance of regular blood glucose monitoring.	15
	Guide on the need to check blood glucose before administering insulin.	4
Care with the diabetic foot	Guide on how to perform foot evaluation.	19
	Guide on moisturizing the feet.	18
	Guide the drying between the toes.	6
Blood circulation care and control of smoking	Guide on the importance of glucose control for wound treatment.	8
	Evaluate venous, arterial ulcers.	7
	Guide on the participation in a smoking group.	3
Psychosocial and spiritual care	Guide on the importance of decreasing stress.	5
	Establish a relationship of trust with the diabetic patient taking their reality into account.	3
	Encourage religious belief.	3

Source: Developed by the Authors.

Regarding the results of the cross-mapping between nursing care prescribed by the nurses and NIC nursing interventions, the "heart precaution" NIC intervention in the physiological domain: complex was the one that corresponded to a greater number of nursing cares mentioned by the nurses (18.6%), followed by "nutrition guidance" interventions (16.3%), "teaching: prescription drugs" (16.3%), "nutrition control" (12.8%), and "teaching: foot care" (12.8%) (Table 1).

Table 1 – NIC interventions mapped with the nursing care prescribed by nurses. Minas Gerais, Brazil, 2016

Domain	Economic	Title of the NIC intervention	Nursing care (n)	%
Physiological: Basic	Facilitating self-care	Teaching: Foot care	11	12.8
		Foot care	7	8.1
		Self-care assistance: EADL*	2	2.3
	Nutritional support	Nutrition counseling	14	16.3
		Nutrition control	11	12.8
		Teaching: Prescribed diet	7	8.1
		Weight reduction assistance	5	5.8
		Nutrition monitoring	2	2.3
	Activity and exercise control	Teaching: Prescribed exercise	5	5.8
		Encouragement of exercising	5	5.8
		Encouragement of exercising: Stretching	2	2.3
Physiological: Complex	Medication control	Teaching: Prescribed medication	15	17.4
		Medication control	8	9.3
	Basic electrolytic and acid control	Control of hyperglycemia	7	8.1
		Control of hypoglycemia	7	8.1
	Tissue perfusion control	Heart precautions	16	18.6
		Circulatory precautions	4	4.6
	Skin/injury control	Monitoring of lower limbs	3	3.5
		Skin supervision	2	2.3
	Neurological control	Peripheral sensitivity control	4	4.6

Safety	Risk control	Health assessment	7	8.1
		Identification of risk	4	4.6
		Fall prevention	3	3.5
Behavioral	Cognitive therapy	Improvement in readiness to learn	3	3.5
	Assistance in coping	Improvement of the support system	7	8.1
		Improvement of coping	5	5.8
		Counseling	2	2.3
		Presence	2	2.3
		Promotion of hope	2	2.3
	Behavioral therapy	Behavior modification	7	8.1
		Contract with the patient	4	4.6
	Patient education	Teaching: Disease process	3	3.5
		Health Education	3	3.5
Health system	Information control	Referrals	3	3.5
		Multidisciplinary care assessment meeting	2	2.3

*EADL: Essential activities of daily living.

Source: Developed by the Authors.

Of the 67 NIC interventions that corresponded to nursing care, 30.0 percent were mapped only once, of which 53.1 percent belong to the behavioral domain, followed by the complex physiological (18.8%), basic physiological (6.2%), Health system (6.2%), family (6.2%), and security (3.1%) domains. The "teaching: individual," "facilitation of learning," "weight control," "capillary blood sampling," "nail care," "assistance in smoking cessation," "injury care," and "strengthening of self-esteem" interventions are a few examples of NIC interventions that were mapped once.

Also observed was the existence of 40 NIC interventions that were not included in the nursing care the nurses prescribed, 40.0 percent of which belong to the behavioral domain, followed by the health system (22.5%), safety (10.0%), basic physiological (7.5%), physiological complex (7.5%), family (7.5%), and community (5.0%) domains. Table 2 shows the unmapped NIC interventions according to their domains.

Table 2 – NIC nursing interventions not mapped with the care prescribed by nurses, according to domains. Minas Gerais, Brazil, 2016

Domains	Unmapped NIC Interventions
Behavioral	Support for decision-making
	Spiritual support
	Tell the truth
	Teaching: Group
	Teaching: Procedure/treatment
	Setting of limits
	Clarifying of values
	Facilitating self-responsibility
	Support group
	Mood
	Improvement of self-efficacy
	Improvement of life skills
	Recreational therapy
	Group therapy
	Training for impulse control
	Mood control

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Health system	Follow-up by phone
	Support for the physician
	Financial aide
	Consultation
	Consultation by telephone
	Development of care protocols
	Documentation
	Case management
	Interpretation of laboratory data
Safety	Control of the environment
	Control of the environment: safety
	Infection control
	Monitoring of vital signs
Basic physiological	Maintenance of oral health
	Promotion of oral health
	Sleep improvement
Physiological complex	Care in amputation
	Hemodynamic regulation
	Pressure control
Family	Family support
	Home maintenance assistance
	Family mobilization
Community	Social marketing
	Development of a health program

Source: Developed by the Authors.

It should be emphasized that two nursing cares prescribed by the nurses were not mapped with the NIC: "Guide the patient not to cross their legs during blood pressure measurement" and "guide the patient to empty their bladders before measuring blood pressure."

Discussion

In the assessment of the care mentioned by nurses, those related to nutrition and hydration prevailed, followed by care directed at glycemic, blood pressure, and weight control. These findings corroborate with another Brazilian study that identified the accuracy of nursing interventions for people with DM in outpatient care. The authors pointed out that the most prevalent NIC nursing interventions were nutritional counseling, hyperglycemia/hypoglycemia control, and encouraging exercising[13].

Carrying out actions to promote health in the context of encouraging healthy eating and practicing physical exercises is part of the nurses' practice in PHC. Increased consumption of unhealthy foods, such as ultra-processed foods and excess sodium, fats and sugars, is directly related to the increase in the prevalence of SHBP and DM. Therefore, nursing care that encourages lifestyle changes, adoption of healthy eating habits, and regular physical activities are important for reducing the risk and morbidity of these diseases, considering the improvement in blood pressure and glycemic levels[14].

The "heart precautions" NIC intervention of the "physiological: complex" domain was the one that corresponded with a greater number of cares prescribed by the nurses. Such care is related to the importance of making changes in eating habits – avoiding fatty foods, fried foods, and reducing salt intake; to encouraging physical activity; and to the importance of measuring blood pressure regularly. It is believed that the relevance of such care is the fact that the lack of control of DM and high blood pressure can lead to complications, among which retinopathies, neuropathies, as well as cardiovascular or encephalic complications, which damage the functional capacity, autonomy, and quality of life of the affected individuals[15]. The relevance is based on the fact that encouraging patients

about specific health care is the first step for nurses to devise more effective strategies for health prevention and promotion[16].

In the present study, it was identified that 17.4 percent of the nurses provide guidelines on the proper use, administration, and storage of the medications; however, guidelines on indications and adverse effects were not identified, and this is essential care for promoting patient safety. In the context of the nurse's performance in providing instructions regarding medication, the emphasis is on the relevance of the practice of care regarding encouraging adherence to treatment, on knowledge about possible side-effects, and on the main barriers to greater adherence. A study carried out in Portugal showed that adherence to drug treatment by people diagnosed with high blood pressure ranged from 34.0 percent to 52.7 percent[17]. In Brazil, meanwhile, in a study aimed to verify the degree of therapeutic adherence of users enrolled in the Hiperdia Program in the city of Teresina (state of Piauí), there was a 26.7 percent adherence rate, and patients with diabetes were shown to be more adherent to treatment when compared to hypertensive patients[18]. These findings reflect a low rate of adherence to treatment, which reinforces the importance of nursing interventions that emphasize the family environment, group activities, lifestyle changes, knowledge of the disease, and a less complex drug regimen[19].

Regarding nursing care aimed at self-care in general, it is known that working on strategies that drive the individual's empowerment is fundamental to set them into motion to find feasible solutions that allow it to be achieved. There is no universal definition for the word empowerment, but it has been increasingly leading to health promotion actions and becoming an essential strategy for the management of chronic diseases[20]. Thus, a strategy to work on empowering people with SHBP and DM is encouraging the individual's active participation in preparing his or her care plan during the nursing consultation, emphasizing his or her responsibility for the success of the desired results.

Another relevant finding was related to the number (37.4%) of NIC interventions that did not correspond to nursing care prescribed by nurses,

which reflects the relevance of using classification systems to broaden the nurse's performance at the face of health care needs and nursing issues. This result highlights the need to raise awareness among professionals about the importance of using classification systems to base their practice on and to encourage them to ground their clinical practice in the scientific literature[13].

When analyzing the domains of non-mapped NIC interventions, 40 percent belong to the behavioral domain. Thus, the tendency in nursing, of directing action to caring for the physiological dimension, with fewer interventions directed to psychosocial aspects, is noticeable. It is emphasized that symptoms of distress and depression are prevalent among people with DM, and health professionals often do not realize that psychosocial well-being influences everything from social interaction to adherence to treatment[21].

The nurse's psychosocial approach during the nursing consultation makes it possible to identify the factors that permeate eating habits, the lack of motivation to exercise, and non-adherence to the drug treatment[8]. Therefore, considering psychosocial needs is indispensable in achieving the expected results.

Thus, it is clear that NIC is a scientific literature that provides nurses with a diversity of nursing interventions that potentiate the specificity of the nursing consultation for hypertensive and diabetic patients, ensuring higher quality and efficacy during treatment.

It should also be pointed out that not using the Nursing Process as a methodological tool for conducting the consultation with the hypertensive and diabetic patient at the health units included in the study was a limiting data collection factor, since there are no standardized records in medical records and, therefore, the gathering of this information was restricted to the interview.

Conclusion

This study allowed the identification of the main nursing cares prescribed by PHC nurses when providing care to hypertensive and diabetic patients, as well as the verification of the equivalence of

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these with 67 NIC interventions. The most frequent NIC interventions were: "Heart precautions;" "nutritional counseling;" "teaching: prescription drugs, nutrition control," and "teaching: foot care."

No equivalents were found in the NIC for nursing care: "Guide the patient not to cross their legs during blood pressure measurement" and "guide the patient to empty their bladders before measuring blood pressure." This points to the need for further research that allows for the improvement of the NIC classification regarding the care on how to measure blood pressure.

It was also noted that most of the non-mapped NIC interventions are in the behavioral domain. Thus, it is noted there is a need for new studies that address the impact of interventions associated with behavioral and psychosocial aspects on the quality of life of hypertensive and diabetic patients with a view to planning care that includes these individuals' true health needs.

In clinical practice, the NIC interventions identified in this study may support the development of nursing care plans for hypertensive and diabetic patients. In addition, the results may favor the creation of software to support the registration of the Nursing Process, including the computerized nursing prescription that uses standardized language. Finally, it is suggested that a care protocol should be structured for hypertensive and diabetic patients containing the identified NIC interventions, considering that the standardization of care records will allow for the assessment of the clinical progress that has been made, for the recovery of these people's health status and well-being, and it will favor the implementation of actions aimed at preventing complications, thus ensuring better quality of care.

Collaborations

1. design, project, analysis and interpretation of the data: Vanete Aparecida de Sousa Vieira; Luciana Regina Ferreira da Mata

2. article writing and critical review of the intellectual content: Vanete Aparecida de Sousa Vieira; Cissa Azevedo; Luciana Regina Ferreira da Mata

3. final approval of the version to be published: Fabiana de Castro Sampaio; Patrícia Peres de Oliveira; Juliano Teixeira Moraes; Luciana Regina Ferreira da Mata

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