Article

Nursing epidemiological approach of hypertension management in a Public Health Service from the Northern Region of Portugal

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Abstract: Background: Epidemiological surveillance of nursing diagnosis is an approach anchored on a post-modern epidemiology focused on persons health-disease responses. Regarding to public health priorities, the population where our study occurred had as priority problem the arterial hypertension. Related to this chronical disease, nursing diagnoses about health-disease responses in primary healthcare has as major focus Therapeutic Regime Management. Our aim was to study the nursing diagnosis in this issue, from an epidemiological approach. Methods: A descriptive study from an epidemiological approach was developed, analyzing nursing diagnoses in hypertensive patients. Results: We found 17,7% of undiagnosed patients and better diagnoses in patients with complications than in those without complications. Conclusions: nursing records need to be improved in order to promote more robust studies in the post-modern epidemiology defended for the future.

Keywords: Public Health Nursing; Epidemiological surveillance; Nursing Diagnosis; Arterial Hypertension.

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1. Introduction

The first references to epidemiology date back to V BC and lasted until 1830. Perhaps the work of Hippocrates "Air, Waters and Places" is one of the first references to an epidemiological analysis of infectious diseases (even without understanding them from a microbiological point of view) and its relationship with the environment [1].

Epidemiology has been developing its focus as methodology, expanding the analyses of public phenomena from diseases distribution, starting with infectious diseases (classical epidemiology) [2], to an eco-epidemiology focused in societal and molecular level pathways [3], to interactions between individual and environment [4] and a recently focus on health-disease phenomena with a post-modern epidemiology based on Public Health Nursing science [5]. This means that this post-modern epidemiology assesses, from an epidemiological point of view, the intentional processes (based on knowledge, beliefs or motivation), the unintentional processes (for e.g. the physiological) and the interaction processes with environment (based on nursing science metaparadigmatic concept of Person) [6].

The evolution of epidemiology is presented in figure 1:

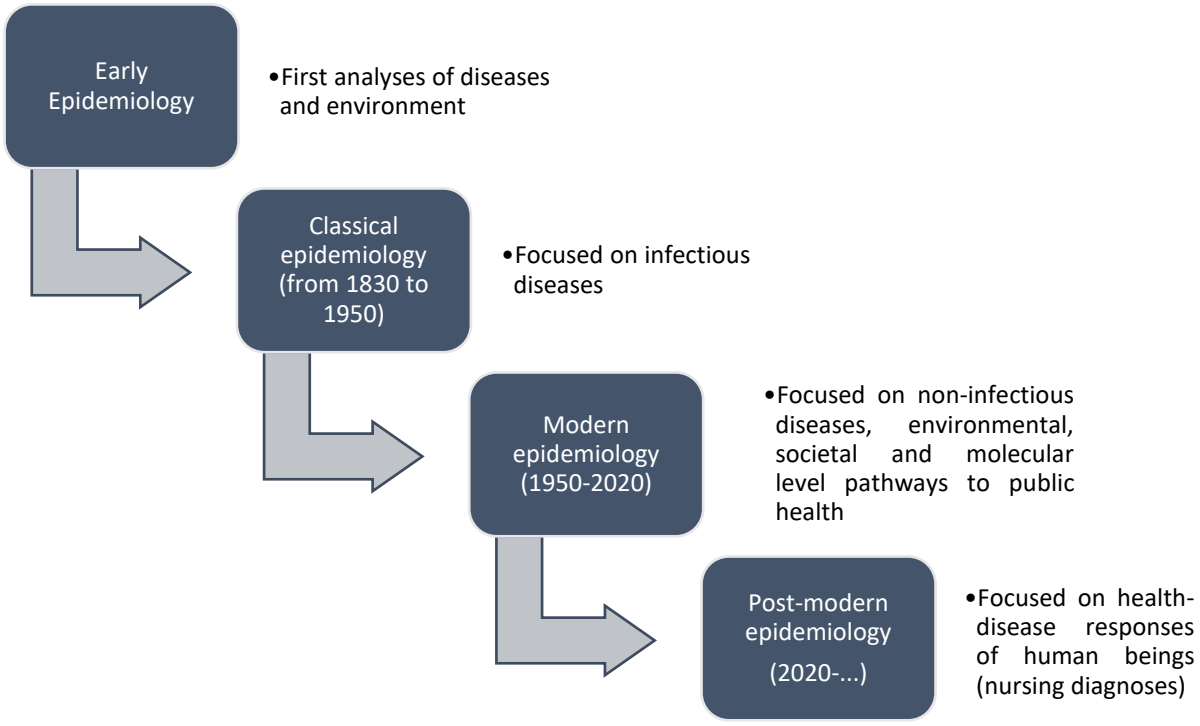


Figure 1. Development of Epidemiology (adapted from Melo (2020) [5])

In Portugal, there are different Information Technology (IT) systems that contribute to epidemiological surveillance. In Primary Health Care, nurses make their care records in an IT software called *S-Clínico*, that possibly the record of diagnostic activity, diagnoses and interventions based on the International Classification for Nursing Practice- ICNP [7]. Since 2016, all the parametrization of *S-Clínico* was uniform to all country, so all nurses record their care the same way, with the same codification since then.

Being this a perfect context to develop the epidemiological surveillance of nursing diagnoses, which contributes to one of the major competences of the specialized nurses in community and public health nursing, described in Portuguese law [8]. These nurses, according to legal supports related with Portuguese public health units, should be the ones that work these issues in these specific units [9].

All of these conditions are great opportunities to develop the post-modern epidemiology defended by Melo [5]. However a recent study developed in this problematic, identified that primary health care structures in Portugal have a low level of empowerment to develop the epidemiological surveillance of nursing diagnoses, despite the good environmental and organizational conditions existing nowadays in the country [10].

As epidemiological surveillance of nursing diagnosis is not yet a reality, the understanding of its development in a medical perspective can help identifying the actual major priorities in public health and introducing this new approach in a most understandable way, the importance of nursing diagnosis, to others that are not nurses.

In Portugal, there is a IT software that allows the data analyses of mandatory reporting diseases, called SINAVE (National System of Epidemiological Surveillance). This software allows producing

important public health data, related to diseases prevalence, incidence and its relation with other public health phenomena, such as environmental issues, for e.g.

Each Public Health Unit produces annually a Local Health Diagnosis, from data extracted from SINAVE and other data produced locally by local IT software. This Local Health Diagnosis guides the development of the Local Health Plan annually, which responds to the health needs of that population.

From the analyses of Local Health Diagnosis from the Public Health Unit that was epicenter of this study, the priorities of intervention based on major local diseases were focused in cardiovascular diseases, mainly Arterial Hypertension.

The medical reports on Arterial Hypertension diagnosis evidenced two important codifications of these diagnoses, based on International Classification of Primary Care (ICPC-2) [11]:

K87- referring to the medical diagnosis of Arterial hypertension with complications.

K88- referring to the medical diagnosis of Arterial hypertension without complications.

This diagnosis, read by SINAVE are documented in the IT software S-Clínico too, but in its medical profile.

Nurses, from these reports, identify the chronical patients with Arterial Hypertension, activate their consultation process, and start the Nursing Diagnosis regarding to Chronical Disease. One of the major Nursing Diagnosis in this problematic of chronical diseases is related to "Therapeutic Regime Management" [12, 13]. This nursing focus can be diagnosed as impaired or effective, based on clinical diagnostic criteria related with: knowledge about the therapeutic triangle: food, medication and physical activity; Blood pressure self-monitoring skill learning; Awareness about the chronical condition and life-style; Beliefs about the disease and therapeutic management and Adherence to therapeutic management, as presented in figure 2:

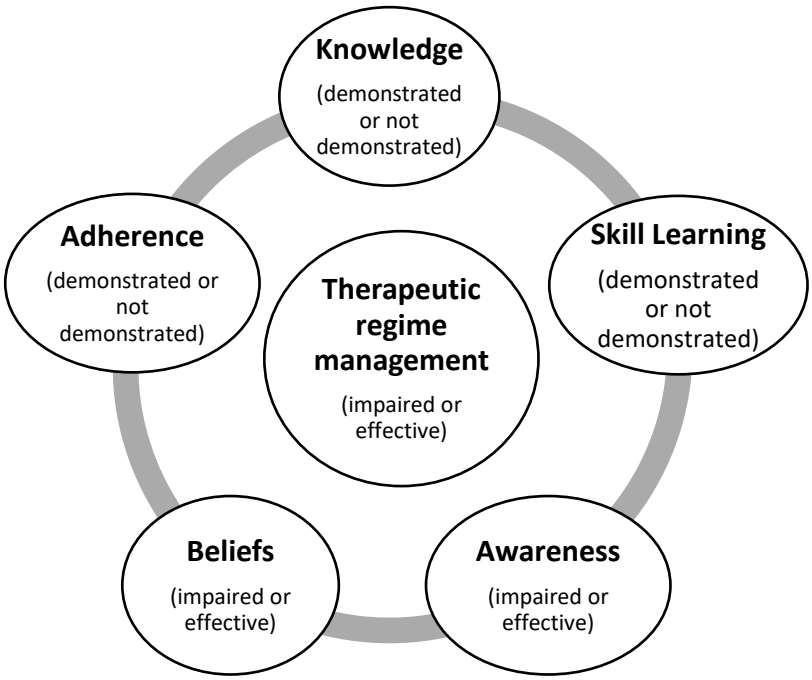


Figure2. Nursing Diagnostic Criteria for Therapeutic Management in chronical disease patients [11, 12]

In this circumstances, we have potentially a clinical relationship between nursing diagnosis related to therapeutic management of Arterial Hypertension (codified according to ICNP) and medical diagnosis of Arterial Hypertension (with complications (K87) or without complications (K88), codified according to ICPC-2.

The interrelation between these different health professionals, responding to local Public Health Needs (although currently based more on disease than in health-disease responses) demands an empowerment of primary health care communities to promote this new epidemiological approach. This process should be based on community partnerships that can be intentionally promoted by public health nurses [14], in a process of community empowerment to promote the epidemiological surveillance of nursing diagnoses [10].

In this context, the aims of our study are:

a) Identify the distribution of nursing diagnoses in the therapeutic regime management, related to the codifications of medical diagnoses associated with arterial hypertension;

b) Identify the documentation rates for nursing diagnoses related to the Therapeutic Regime Management in hypertensive patients.

2. Materials and Methods

The study had an epidemiological approach, with a quantitative methodology, considering a descriptive analysis of the data record on S-Clínico between 01 January 2019 and 31 December 2019.

It was asked to the department of data management of the Primary Health Care organization where the study was developed to extract the data recorded on S-Clínico considering the follow criteria:

- Persons with valid inscription in the health centers of the primary health care organization, considering the inclusion criteria:
    - Activation of the program of Hypertension follow-up;
    - Medical Diagnose of Hypertension with complications (K87);
    - Medical Diagnose of Hypertension without complications (K88);
    - Activation of the Focus Therapeutic Regime Management (without nursing diagnose complete);
    - Complete Diagnose of impaired or effective Therapeutic Regime Management (with the standard national codification);
    - Complete Diagnose of impaired or effective Therapeutic Regime Management (without the standard national codification);

The data were treated using descriptive statistics using the Microsoft Excel 2020 program and it was identified the:

- Relation between nursing diagnostic activity and medical diagnose of arterial hypertension in general, arterial hypertension with complications, and arterial hypertension without complications;
- Number of Diagnoses identified in Therapeutic Regime Management;
- Number of Diagnoses identified related with the national parametrization standards;
- Number of undiagnosed Therapeutic Regime Management Focus or without a judgment according to national parametrization standards.

The study was submitted and approved by the institutional ethical committee with the ethical approval code N 55/CE/JAS from 13/07/2018

3. Results

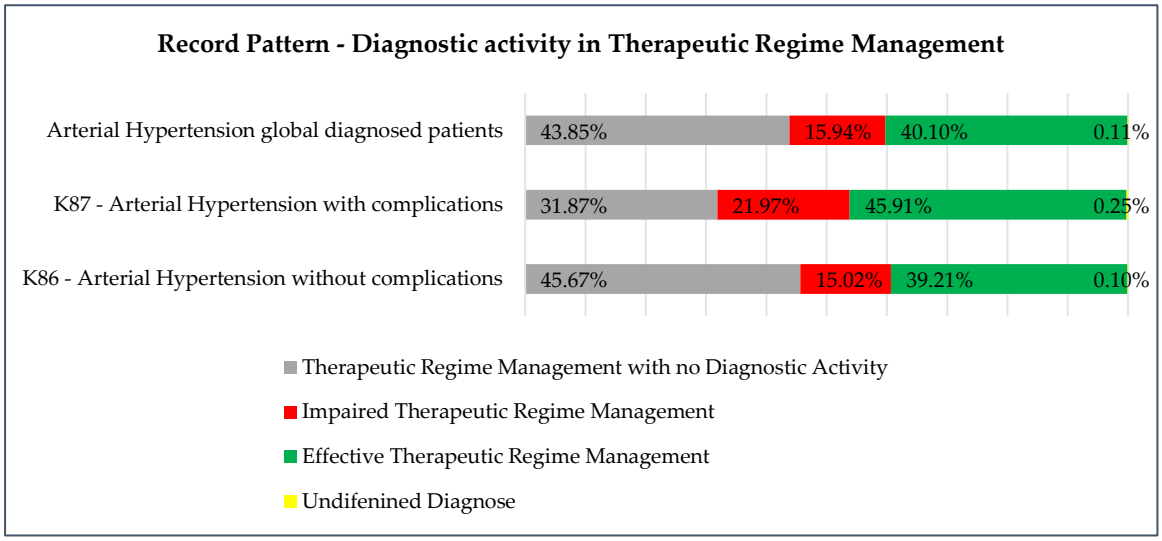
We found a record of 134536 registered users, of which 56% women and 44% men. The distribution of the prevalence of medical and nursing diagnoses are presented on table 1:

Medical Diagnose	n	prevalence
Arterial Hypertension Patients	39059	22,3%
K87 - Arterial Hypertension with complications	5143	2,9%
K86 - Arterial Hypertension with no complications	33916	19,4%

Table 1. Distribution and prevalence of medical and nursing diagnoses in hypertension patients

The prevalence of general hypertension in the population in study was 22,3% (2,9% with complications and 19,4% without complications). We didn´t analyse more deeply this data because was not the aim of our study.

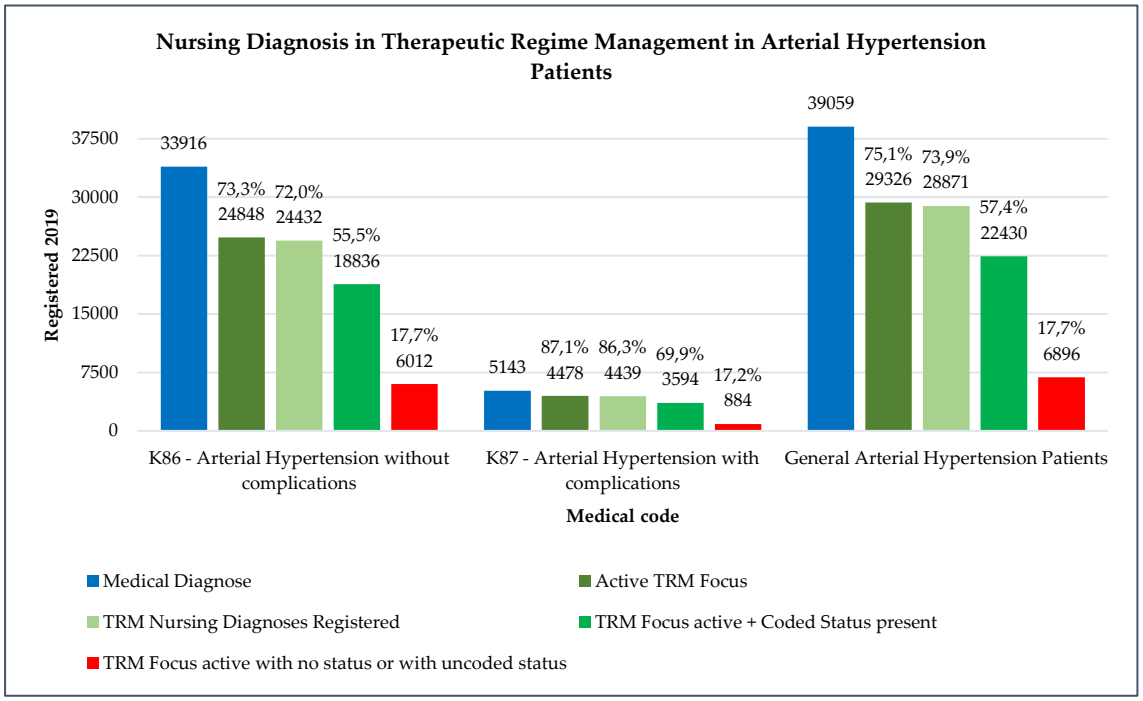
Responding to the aim of identifying the distribution of nursing diagnoses in the therapeutic regime management, related to the codifications of medical diagnoses associated with arterial hypertension, results are shown in Graph 1:



Graph 1. Distribution of nursing diagnostic activity in Therapeutic Regime Management

Globally considered the hypertension patients 43,85% has the activation of the focus "Therapeutic Regime Management", but without any kind of judgment that would define nursing diagnosis. This means nurses activated the program of Hypertension follow-up and clicked on the focus code. However has this happened before the standard national codification that demands the attribution of the judgment of impaired or effective (concerning to diagnostic criteria), the diagnose was not record in S-Clínico. 56,04% of the patients, meanwhile, had complete diagnose: 15,94% a diagnose of impaired therapeutic regime management and 40,10% an effective therapeutic regime management.

Concerning to the aim of identifying the documentation rates for nursing diagnoses related to the Therapeutic Regime Management in hypertensive patients, results are presented in Graph2:



Graph 2. Distribution of Nursing Diagnosis in Therapeutic Regime Management in Arterial Hypertension patients

Globally, patients with Arterial Hypertension Diagnoses have 73,3% of Therapeutic Regime Management activation by nurses. When referred to nursing diagnoses, it were recorded 72% of hypertension patients with complete nursing diagnoses. 55,5% had nursing diagnosis according to national documentation standards defined in 2016 and 17,7% had no complete diagnosis (just the focus activation without complete assessment and clinical judgement or with uncoded status (free writing judgments uncoded that don't allow diagnose interpretation in an epidemiological approach).

When comparing Arterial Hypertension Patients with complications with those without complications, nursing diagnoses have more expression in the first ones, with 87,1% Therapeutic Regime Management activation by nurses, against 75,1% in the seconds. The other data (related with complete diagnoses and coded diagnoses are also higher represented (86,3% and 69,9% against 75,1% and 73,9% respectively). The rate of patients with uncoded diagnoses or no diagnosis are similar in both patients (17,2% in K87 patients and 17,7% in K88 patients).

The population of hypertensive patients with complications is much lower that the patients with arterial hypertension without complications (5143 and 39059 respectively).

4. Discussion

Our results evidence that nursing diagnosis need to increase quality in order to promote a robust epidemiological surveillance.

The rate of uncoded diagnosis need to decrease to lower levels, even in this reality, considering the totality of hypertensive patients, 17,7% can be potentially easily improved. The low community empowerment levels shown by studies reveal [10], demand the importance of empowering

intervention by community and public health nurses to the primary healthcare nurses as a whole, regarding epidemiological surveillance of nursing diagnoses.

Patients with complications, although in low number, have better rates of nursing diagnosis, regarding to Therapeutic Regime Management. This can be related with the fact that these patients have more nursing consultations with family health nurses. The higher prevalence of effective Therapeutic Regime Management, comparing with impaired one, is also a good indicator of the state of control of disease for hypertensive patients. In this matter, the patients with complications have higher prevalence of effective Therapeutic Regime Management when compared with patients without complications. Maybe this orientates to the necessity of increase nursing consultations in these patients, in order to avoid the development of complications.

Even Arterial Hypertension being an important disease in a public health perspective in the population studied, nurses still not evidence their contribution in an objective path that consolidate the data analysis that relates nursing diagnoses with public health determinants in the population.

Although this new epidemiological approach focused on nursing diagnoses finds a perfect context in Portugal, to be developed with the perspective defended by Melo [5, 14], and anchored on nursing science in its way of look to Person in the intentional, unintentional and environmental interaction processes [6], it is still making its first steps.

With our research it were created the first Nursing Diagnoses Observatories, based in public health units, involving all nurses and other organizations with intentional community partnerships related with epidemiological approach of nursing diagnoses [14].

Other studies must be developed regarding to comparative and relational studies, but for now, this descriptive study, at the same time mixed approach studies related to community empowerment are being developed can definitely improve the conditions to promote more robust epidemiological studies in the future.

Despite the evidence of needed improvements in nursing records, concerning to arterial hypertension we found good results with rates of global nursing diagnoses above 70%. This means that nurses are making efforts to contribute to the assessment of the population state of health from this science perspective. With the organizational context promoter of improvements and the increase of nurses community empowerment, epidemiological surveillance of nursing diagnosis can be a reality really soon.

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