EVALUATION OF THE USE OF A NURSING DIAGNOSIS RISK FOR FALLS IN THE COMMUNITY OF MADRID (SPAIN) PRIMARY CARE SYSTEM

INTRODUCTION

Falls represent a major health problem in elderly people and can lead to serious complications (physical and psychological health, and socioeconomic conditions) and even death. Falls can be defined as an unintentional event causing loss of balance and hitting the floor or other firm surface (World Health Organization [WHO], 2021). Approximately 30% of people aged over 65 years living in the community can fall at least once a year (Ferrer et al., 2012; Laguna Parras et al.,2010; Lavedán Santamaría et al., 2015; Pérez Sánchez & Gonzalez Ojeda, 2012; Pujiula Blanch et al., 2010; Rodríguez Molinero et al., 2015; Rubenstein & Josephson, 2005). Among these, 50% will suffer a second fall (Lavedán Santamaría et al., 2015; Pujiula Blanch et al., 2010; Rodríguez Molinero et al., 2015). Falls are a major health issue in the elderly due to their physical, functional, psychological and financial consequences.

As front-line practitioners with around-the-clock patient contact, nurses can give valuable information about the patient's healthcare environment (Innab, 2022). Nurses play an essential role identifying, intervening, and assessing problems that may result in falls (Moreira et al, 2022). Nursing methodology is the process of solving daily care problems in a systematic manner. The use of the nursing process and nursing diagnoses allows to clarify the specific contribution of the nurse and to differentiate the nursing role from that of other professionals (Pérez Rivas et al, 2006).

Risk for Falls nursing diagnosis (ND) identifies vulnerable people to suffer this event and serves as the basis for planning care to avoid their occurrence. Risk for Falls ND (00155) used in this article is defined as vulnerable to increased susceptibility to falling, which may cause physical harm and compromise health (NANDA-I, 2015). In the last revision

(NANDA-I, 2021), Risk for adult falls ND (00303) is defined as an adult susceptible to experiencing an event resulting in coming to rest inadvertently on the ground, floor, or other lower level, which may compromise health.

Nursing has three major terminologies: NANDA International (NANDA-I), the Nursing Interventions Classification (NIC), and the Nursing Outcomes Classification (NOC), which. The nursing terminologies provide sets of terms to describe nursing judgments, treatments, and nursing-sensitive patient outcomes (Alyea et al., 2016). The use of standardized nursing terminologies and classification systems provide evidence related to nursing practice.

The record of ND in the Community of Madrid Primary Healthcare System (PHS) started in 2001 with the implementation of the Electronic Health Record (EHR) system called OMI_AP. This system (currently AP_Madrid) includes a managed-care plan using Gordon's functional health patterns as an evaluation model and NANDA, NIC and NOC for the record of the nursing diagnoses and nursing interventions.

There is a gap of knowledge on the use of this ND in the elderly population of the community. However, there is a large number of studies in institutionalized patients (Santos et al., 2020).

OBJECTIVES

The primary objective of the study is to describe the use of the Risk for Falls ND in the Community of Madrid PHS.

The secondary objectives were to (1) identify the presence of risk factors, nursing interventions (NIC), and nursing outcomes (NOC) all related to Risk for Falls ND; (2) identify primary health-care centers recording Risk for Falls ND, and (3) characterize the population with Risk for Falls ND according to age and sex.

METHODS

Design

A descriptive study performing a retrospective review of EHR data was carried out from January 2005 to December 2015.

Setting and Participants

The study included 4208 nurses from 262 PHS centers in the Community of Madrid, attending more than 6 million people. The study population were the patients in which Risk for Falls ND was recorded in the EHR. As this study reviewed the total of patients' EHR in the whole PHS, sample size calculation was not necessary.

Study Variables

The variables recorded included patient's gender and age, identification of the nursing professional, Risk for Falls ND recorded in the EHR, risk factors, nursing interventions (NIC) and nursing outcomes (NOC) of Risk for Falls ND recorded in the EHR.

Data collection

Information from medical history (AP_Madrid) was obtained by researchers from Technical Management of Systems of Information of the PHS and further recorded and anonymized in a Microsoft Access© database.

Data analysis

Quantitative variables were analyzed using mean and standard deviation and qualitative variables using absolute frequencies and percentage. The processing and statistical analysis of the information has been carried out on this database, and accessing personal health data or reviewing EHR was not necessary.

Ethical considerations

The study was approved by the Central Research Commission of Primary Care System (51/16) and the Ethical Committee of Clinical Research of Madrid (Minute 309/16). The study was conducted in accordance with the Basic Principles of Declaration of Helsinki

(1995 Declaration of Helsinki, as revised in Brazil, 2013). Informed consent was obtained from participants prior to inclusion in the study. Data were handled with utmost confidentiality, and patient information was anonymized using dentification codes. Research team guaranteed the confidentiality of the information acquired.

RESULTS

Risk for Falls ND in the Community of Madrid was applied in 53,340 diagnoses, increasing from 650 ND in 2005 to 14695 ND in 2015. We observed a gradual but continuous increase in the incidence of these diagnoses during the period of study, especially in the period 2012-2015. Data regarding the temporary evolution of the ND are shown in Figure 1. Median age of the study population was 73.4 years, being 76.6 in women and 67.4 in men. The number of diagnoses increased in patients older than 70 years: from 71 to 80 years, 7806 (22,8%) in women and 4316 (23,7%) in men. From 81 to 90 years, we found 16477 (48%) in women and 7501 (41,2%) in men.

Two hundred and seventy-sixth nurses in the Community of Madrid PHS out of 4208 total professionals (6.6%) usually used Risk for Falls ND (40 or more ND recorded in the last 6 months). An unusual use is five or less ND recorded in the last 6 months. The PHS centers with the highest rate of ND were Estrecho de Corea (1885), María Jesús Hereza (1200), Ibiza (905), Los Yébenes (879), Aravaca (876), Fronteras (852), Mar Báltico (782), Ciudad Jardín (740), Las Margaritas (734), and Nuestra Señora de Fátima (668).

Note that 116,319 risk factors for Risk for Falls ND were identified, with a mean rate of risk factors per diagnosis of 2.2. Table 1 shows the distribution of the risk factors in the population older than 70 years old. The sum of the percentages is greater than 100%, because each patient who has a Risk for Falls ND may have one or several risk factors recorded in their medical history.

Note that 109,145 NOC outcomes were identified among the study population, with a mean NOC outcome per diagnosis of 2.05. Table 2 shows the distribution of the NOC outcomes, with the most frequent being Fall Prevention Behavior.

There are a total of 104,293 identified NIC interventions. Taking into account the total of diagnoses is 53,340, the mean of NIC interventions per diagnosis is 1.96. The NIC interventions with the highest frequency of appearance are shown in Table 2, with Fall Prevention making up the majority.

DISCUSSION

We have observed a marked increase of the use of the Risk for Falls ND in the Community of Madrid from January 2005 to December 2015. This increase has been particularly significant since the publication of the Guide to Fall Prevention Care of the Community of Madrid (Bayón Cabeza et al., 2012), increasing from 2202 to 7110 nursing diagnoses. This guide includes a standardized care plan for Risk for Falls ND. In our opinion, the importance lies in the correct application of nursing process and the Guide has helped spread this knowledge.

Note that 6.6% of nurses use Risk for Falls ND routinely. We believe that the limited use of this diagnosis may be due to the lack of time, specific training in nursing methodology, fear or uncertainty of taking more responsibility, lack of motivation or practice, pressure of health care, lack of a standardized theoretical model and consensus among nurses,

lack of awareness of the power of nursing professionals and analysis of how to exercise it, and so on. All these reasons cause a reject or misuse of nursing diagnoses.

We attach vital importance to the development and publication of such studies for the dissemination and motivation to Nursing Professionals. We think this could help to reducing some limitations.

To the best of our knowledge, there are no previous studies regarding ND community healthcare setting.

Risk for Falls ND appears to be one of the nursing diagnoses prioritized in the context of Primary Care (Brito Brito, 2009). Moreover, Risk for Falls ND accounted for 43% of the total ND identified in the Continuity of Care Reports at discharge (Villarejo-Aguilar & Pancorbo-Hidalgo, 2011).

A higher incidence of this diagnosis was observed between the age of 81 to 90 years and the difference according to patient's gender increased with age. In our study, Risk for Falls ND were more frequent in women (65.35% versus 34.65%), as the incidence of falls reported in the literature. A previous study from Rodríguez Molinero et al. (2015) also reported a higher incidence of falls in women, which increased with age. In a systematic review of studies carried out in the institutional environment by Da Silva's Gama (2008a) there was an increasing representation of women, and four studies found a significant relationship between falls and old age. In terms of gender distribution, a study published by Lord et al (1994) studied specific risk factors for women at the community level in Australia. Prevalence of falls in both sexes increased from 32 to 42% in the age group of 75 years and over, and up to 50% in people over 80 years of age (Da Silva Gama & Gómez Conesa, 2008b; Pérez Sánchez & González Ojeda, 2012; Rodríguez Molinero et al., 2015;). Moreover, Ferrer et al (2012), states the prevalence of falls in people aged 85 was slightly lower, standing at 28.4%.

In the systematic review of Da Silva Gama et al (2008), a decrease in physical function appeared especially related to loss of balance during walking as a predisposing factor. In the study by Sanches Marín et al (2004) that reviewed the risk factors present for Risk for Falls ND in elderly people in the community, the presence of functional alterations such as difficulty of mobilization of arms and legs in 19.60% and lack of leg muscle firmness

in 9.80%. Again, in Da Silva's Gama described the use of technical aids for walking as related to a higher number of falls; and vision problems as one of the main risk factors. In the Sanches Martín et al study (2004), decreased visual acuity appeared in 47% of the study population who had diagnosis of risk of falls. Factors such as advanced age, history of falls, cognitive function alteration and gait disorders can increase the risk of falls (Ferreira et al., 2020). Nursing interventions such as Risk for Falls ND can help to identify risk factors and reduce the occurrence of falls.

Numerous studies present previous falls as a risk factor for recurrence, both in community and hospital settings (Da Silva Gama et al., 2008; Salvà et al, 2004; Sanches Martín et al., 2004).

The most frequent NOC outcome in our study was Fall Prevention Behavior (35.9%), meeting one of the two criteria established in the care guide for the prevention of falls in Primary Care of the Community of Madrid (Bayón Cabeza et al., 2012) and also by the standardized care guide by Besora Torradeflot et al (2008). NOC outcome Falls may appear in a smaller proportion since its indicators only quantify the number or places where falls occur.

Reviewing other areas, Pérez Sánchez & González Ojeda (2012) in a geriatric setting, established as most used and effective NOC outcomes those related to knowledge, behavior and risk control regarding falls prevention. NOC outcomes used for the prevention of falls are coincident regardless of the field of study.

The most frequent NIC intervention in our study is Fall Prevention (45.9%), being the only intervention that appears in both the care guide of the Community of Madrid (Bayón Cabeza et al., 2012) and the care guide for the prevention of falls by Besora Torradeflot et al (2008).

Reviewing other areas, Pérez Sánchez & González Ojeda (2012), establish Surveillance, Fall Prevention and Vital Signs Monitoring as the most effective NIC interventions in a geriatric setting.

Interventions to prevent falls in older adults with Risk for Falls ND should be directed towards the reduction or elimination of risk factors. Some relevant activities in NIC intervention Fall Prevention may include cane use (Rodríguez-Martínez et al., 2012), physical exercise (Kendrick et al., 2014), safety at home (Gillespie et al., 2012), vision (Gillespie et al., 2012) and drugs control (Gillespie et al., 2012).

A recent study describes (Santos et al., 2020) that the use of the Risk for Falls ND in conjunction with assessments and additional instruments represents an important strategy to identify intrinsic and extrinsic factors contributing to the occurrence of falls in this population in specific contexts.

LIMITATIONS

The use of EHR as a source of information for data collection related to the use of the nursing process does not ensure the quality of records, since these were designed for healthcare purposes and not for research. We consider that the use of the care plans record (in AP_Madrid) and a standardized language such as NANDA-I, NOC, and NIC taxonomies ensures the quality of the information recorded.

CONCLUSIONS

Risk for Falls ND and the care process implementation is increasing among the primary care nurses of the Community of Madrid. Risk factors related to the Risk for Falls ND can be addressed by nurses with activities focused on prevention. Nursing methodology in general and specifically Risk for Falls ND must be included in guides and protocols for the prevention of falls, promoting its use by primary care nurses.

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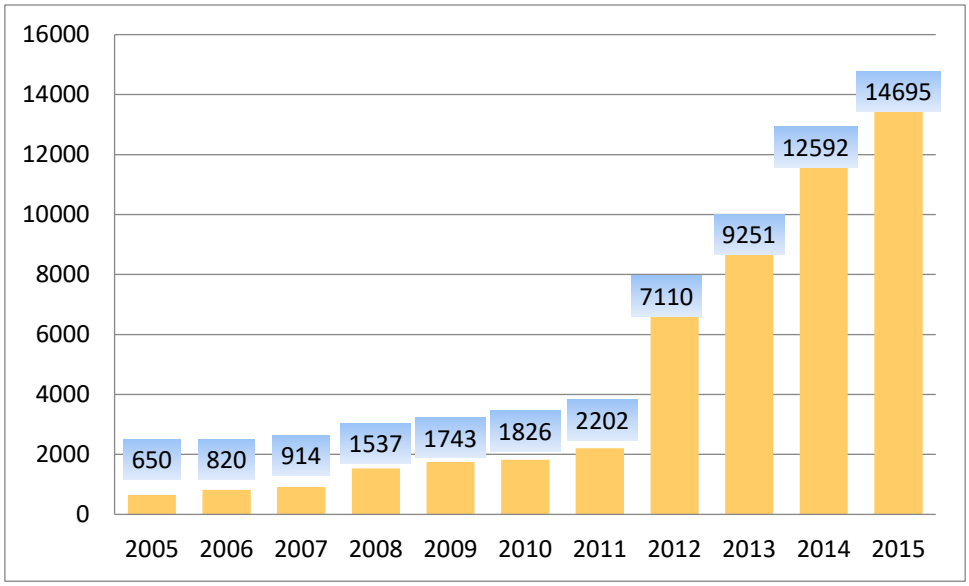

FIGURE 1 Frequency of use Risk for Falls ND by year.

TABLE 1 Distribution of risk factors for the Risk for Falls ND in older than 70.

Risk factors	N	%
Age ≥ 65 years	28215	52,9%
Impaired mobility	20889	39,2%
Impaired balance	14492	27,2%
History of falls	11648	21,8%
Use of assistive device	10038	18,8%
Visual impairment	9970	18,7%
Use of wheelchair	2454	4,6%
Alteration in cognitive Functioning	2434	4,6%
Use of throw rugs	860	1,6%
Cluttered environment	457	0,9%
Difficulty with gait	486	0,9%
Postoperative recovery period	326	0,6%
Alteration in blood glucose level	259	0,5%
Orthostatic hypotension	215	0,4%

TABLE 2 Distribution of NOC outcomes and NIC interventions for the Risk for Falls ND.

NOC outcomes	**N**	**%**	**NIC Interventions**	**N**	**%**
Fall Prevention Behavior	39179	35,9	Fall Prevention	47866	45,9
Family Physical Environment	12344	11,3	Environmental Management: Safety	28179	27
Risk Control	11427	10,5	Risk Identification	6014	5,8
Falls Ocurrence	9029	8,3	Teaching: Individual	5658	5,4
Personal Safety Behavior	7541	6,9	Exercise Therapy: Balance	2228	2,1
Risk Detection	6626	6,1	Exercise Therapy: Joint Mobility	1719	1,6
Knowledge: Personal Safety	5761	5,3	Exercise Therapy: Muscle Control	1718	1,6
Immobility Consequences: Physiological	4544	4,2	Health Education	620	0,6
Balance	4290	3,9	Surveillance: Safety	614	0,6
Security Level: Physical Injury	1127	1	Body Mechanics Promotion	334	0,3
Ambulation: Wheelchair	1053	1	Exercise Promotion	333	0,3
Neurological Status	586	0,5	Medication Management	309	0,3
Mobility	128	0,5	Health Screening	302	0,3
			Self-Care Assistance: Bathing/Hygiene	237	0,3