RIASE
REVISTA IBERO-AMERICANA DE SAÚDE E ENVELHECIMENTO
REVISTA IBERO-AMERICANA DE SALUD Y ENVEJECIMIENTO

NURSING DIAGNOSES, INTERVENTIONS AND OUTCOMES FOR INSTITUTIONALIZED PATIENTS WITH DEMENTIA

Paula,Escalada-Hernández - RN, MsC, PhD Candidate, Public University of Navarra, Pamplona, Spain
Uxua Lazkanotegui-Matxiarena - RN, PMH CNS, Clínica Psiquiátrica Padre Menni, Pamplona, Spain
Mertxe AOlondriz-Urrutia - RN, PMH CNS, Centro Hospitalario Benito Menni, Elizondo, Spain
Marta Alameda-Blanco - RN, PMH CNS, Clínica Psiquiátrica Padre Menni, Pamplona, Spain
Flores del Redal-López, Cristina, RN, PMH CNS, Clínica Psiquiátrica Padre Menni, Pamplona, Spain
Dendarrieta-Bardot, Maite, RN, PMH CNS, Centro Hospitalario Benito Menni, Elizondo, Spain
The CUISAM GROUP[1]

1 The researchers who were part of the CUISAM Group were: Itxaso Marro Larrañaga, Janire Martínez Berrueta, Miren Arbelóa Álvarez, Miriam García Sanabria and David Rodríguez Merchán from Clínica Psiquiátrica Padre Menni (Pamplona, Spain); José Alonso Gónzalez Vargas, Almudena Bueno García, Elena Muñoz Jiménez, Mª Esperanza Pozo Cambeiro, Inmaculada Romero López, Juan Tomás Jiménez Pereña, Laura Cebreros Cuberos, Laura Marín Rubio, Marina Rubio Guerrrero, Rocío Jiménez Sánchez, Sergio Víctor Mata Reyes, Antonia Mª Ariza Nevado and Verónica Aguilar Pérez from Complejo Asistencial Hermanas Hospitalarias (Málaga, Spain); Isabel Feria Raposo, Mª Carmen Vilchez Estévez, Mónica Pastor Ramos and Alberto Carnero Treviño from Benito Menni CASM (Sant Boi, Spain); José Luis Girón García, Nuria García Sola, Natividad Izaguerri Mochales, Elena Martínez Araus, Eva Sanz Báguena, Silvia Gabasa Galbez from Centro Neuropsiquiátrico Nuestra Sra. Del Carmen (Zaragoza, Spain); Manuel García Manso and Emilio Negro González from Complejo Hospitalario San Luis (Palencia, Spain).

VOL. 1 N.º 1 APRIL 2015

ABSTRACT

Aim: To describe the most frequent NANDA-I nursing diagnoses and the associated NIC interventions and NOC outcomes used in nursing care plans for a sample of institutionalized patients with dementia. **Methods**: Descriptive analyses were performed based on a subsample from a multicentric and cross-sectional study. Data were obtained retrospectively from the electronic patient records and included socio-demografic details, NANDA-I, NIC and NOC labels and the HoNOS scale. **Results**: In total, 108 patients diagnosed with dementia were included. The nine most prevalent NANDA-I nursing diagnoses and the NOC outcomes and NIC interventions linked to them were presented. According to HoNOS scale, the most common problems among elders with dementia were cognitive problems and problems with activities of daily living, with relationships and related to physical illness or disability. **Conclusions**: This study identified patterns of nursing care for institutionalized patients with dementia where the most prevalent nursing diagnoses, interventions and outcomes addressed a wide range of functional, psychosocial and physiological care needs.

Descriptors: Nursing diagnosis; dementia; geriatric nursing; nursing intervention classification (NIC); nursing outcome classification (NOC)

INTRODUCTION

Dementia is one of the most prevalent mental health disorders in older adults. It affects 35.6 million people around the world and there are near of 8 million new cases every year (WHO, 2012). This syndrome, characterized by deterioration in cognitive function, gradually affects memory, language, thinking, orientation, behavior and the ability to perform activities of daily living. The progression of this disease, therefore, causes an increasing degree of disability and dependency. As a result, many of the older adults suffering from dementia are attended at residential care facilities at some point in the disease process. In fact, cognitive and functional impairment are two of the main predictors of institutionalization in older adults (Luppa, Luck, Weyerer, Koenig, Braehler, & Riedel-Heller, 2010). In Spain, the prevalence of dementia among older patients in the institutional setting is around 60% (López Mongil et al., 2009).

Ensuring a high quality care for institutionalized older adults with dementia is a challenging task for nurses given the complexity of health problems faced by these patients. The use of standardized nursing terminologies provides a framework that supports the process of nursing care planning and its documentation (Saranto, Kinnunen, Kivekäs, Lappalainen, Liljamo, & Rajalahti, 2014; Tastan, Linch, Keenan, Stifter, McKinney, & Fahey, 2014) and thus, may help

nurses to deal with dementia patients' needs. The nursing diagnoses classification of NANDA International (NANDA-I; Herdman, 2012), the Nursing Outcomes Classification (NOC; Moorhead, Johnson, M., & Swanson, 2012) and the Nursing Interventions Classification (NIC; Bulechek, Butcher, Dochterman, & Wagner, 2012) are three standardized terminologies that refer to the nursing process elements of diagnoses, interventions, and outcomes, known collectively as NNN taxonomy. Among the existing nursing nomenclatures, these three are the most widely applied and researched worldwide (Anderson, Keenan, & Jones, 2009; Tastan et al., 2014).

In the last years, studies on NNN taxonomy have significantly proliferated (Tastan et al., 2014). There is a research trend towards the identification of patterns and relationships between NANDA-I nursing diagnoses, NIC interventions and NOC outcomes for specific populations (Park, 2014; Thoroddsen, Ehnfors, & Ehrenberg, 2010). As demonstrated by Thoroddsen et al. (2010), this kind of studies has the potential of representing specific knowledge in different clinical specialties. Findings from this research revealed that the NANDA-I nursing diagnoses related with self-care deficits, impaired skin integrity or constipation were more common within geriatric care as compared with the other specialties under study (i.e. surgical, medical and psychiatric).

However, the literature on NNN taxonomy in elderly patients with dementia is scarce. No papers focusing on NANDA-I nursing diagnoses, NIC interventions or NOC outcomes for older adults with dementia in residential care settings were identified. Only two studies offering data about NANDA-I nursing diagnoses in institutionalized patients with some degree of cognitive impairment were found (Güler, Eser, Khorshid, & Yücel, 2012; Lucas Lopes, Gonçalves Tier, Lunardi Filho, & Costa Santos, 2007).

Lucas Lopes et al. (2007) described the most frequent NANDA-I nursing diagnoses in a sample of 55 older residents of a long-term care facility in Brazil. Although medical diagnosis was not specified, it was stated that around 75% of patients had some cognitive limitation. The most prevalent nursing diagnoses within the study sample were related with alterations in sensory perception, nutritional problems, sleeping disorders, impaired physical mobility, skin alterations, elimination problems, impaired social interaction or anxiety, among others (Lucas Lopes et al., 2007). On the other hand, Güler et al. (2012) examined the nursing diagnoses in a sample of 74 older adults living in a nursing home in Turkey. From these, 58,1% had memory disorders. The five most frequent nursing diagnoses in this study were *ineffective health maintenance* (00099), *ineffective role performance* (00055), *risk of falls* (00155), *impaired physical mobility* (00085), *deficient diversion activity* (00097). Moreover, the findings demonstrated that there was a significant relationship between the diagnosis of dementia and the nursing diagnoses *ineffective role performance* (00055) and *impaired verbal communication* (00051).

Considering that patients with dementia in long-term care facilities may present complex health problems, the identification of the most relevant NANDA-I nursing diagnoses, NOC outcomes and NIC interventions among this population may contribute to better know their needs and assist nurses to provide high quality care. For this reason, further research is necessary. Hence, the aim of this study was to describe the most frequent NANDA-I nursing diagnoses and the associated NIC interventions and NOC outcomes registered in nursing care plans for a sample of institutionalized patients with dementia.

MATERIALS AND METHODS

The data reported in this paper were obtained from a subsample of a multicentric cross-sectional study, the CUISAM Project, whose main results are published elsewhere (Escalada-Hernández, Muñoz-Hermoso, González-Fraile, Santos, Gónzalez-Vargas, & Feria-Raposo, 2014). This study was performed between June 2010 and July 2011 in 5 psychiatric clinics belonging to the Congregation of Sisters Hospitallers of the Sacred Heart of Jesus placed in different regions of Spain. The electronic medical records software used in these centers integrates NNN taxonomy. The research data were collected retrospectively from the nursing care plans included in the electronic patient records.

The descriptive analyses presented in this article were based on a subsample from the aforementioned study consisting of all those participants diagnosed with dementia, who had a nursing care plan with NNN taxonomy, and stayed at a long-term psychogeriatric unit during the data collection period. Due to ethical considerations, all patients in a terminal condition were not included.

Data collected for the main study, the CUISAM Project, included socio-demographic information (i.e. age, gender, marital status, socio-economic status, education and employment situation), medical diagnosis (according to ICD-10 classification) and the Health of the Nation Outcome Scale (HoNOS) in its Spanish version (Uriarte et al., 1999). HoNOS is a 12-items scale designed to assess the physical, functioning, and psychosocial problems associated with mental illness. The total HoNOS score can vary from 0 to 48, as scores on each item range from 0 (i.e. without problems) to 4 (i.e. serious or very serious problems) (Wing et al., 1998). Different studies have reported good psychometric properties for this instrument (Pirkis et al., 2005). In addition, NANDA-I, NIC and NOC codes of those nursing diagnoses, outcomes and interventions registered in nursing care plans were recorded. In order to avoid gathering an overwhelming amount of data, a maximum of 15 NANDA-I nursing diagnoses for each participant, 5 NOC results for each diagnosis and 14 NIC interventions for each NOC result were collected. Data were analyzed with MS Excel. According to the aim of this paper, descriptive analyses were performed using absolute frequency distribution and percentage.

The CUISAM Project was approved by the Ethical and Scientific Research Committee of Navarra. Data were treated with maximum confidentiality and anonymity was granted by assigning and ID-number to each patient record.

RESULTS

The socio-demographic details of the participants are described in Table 1. In total, 108 patients diagnosed with dementia were included. From these, 64.81% (n=70) were females and 35.19% (n=38) were males. The mean age was 81.46 ± 9.70 years (range 59-98). More than 40% of subjects were widower, around 70% had a socio-economic status between low and medium, all of them were pensioners and approximately 60% had primary school level education. In relation to type of dementia, the majority of participants (n=64, 59.26%) were diagnosed with dementia in Alzheimer disease, 27 (25.00%) with unspecified dementia, 15 (13.89%) with vascular dementia, 1 (0.93%) with dementia in Pick disease and 1 (0.93%) with dementia in Parkinson disease.

Data	n	%
Age groups		
19-30 years	15	2.17
31-50 years	101	14.62
51-65 years	153	22.14
66-85 years	326	47.18
? 85 years	96	13.89
Gender		
Women	70	64.81
Men	38	35.19
Marital status		
Single	20	18.52
Married	35	32.41
Divorced/Separated	8	7.41
Widower	45	41.67
Socio-economic status*		
Low	16	14.81
Low-medium	22	20.37
Medium	31	28.70
High-medium	21	19.44
High	3	2.78
Unkown	15	13.89
Education		
Illiterate	12	11.11
Primary school level	66	61.11
Secondary school level	10	9.26
University level	8	7.41
Unknown	12	11.11

Table 1. Socio-demographic details of the patients with dementia

**The socio-economic level was obtained from the social data in the medical records, being defined at the discretion of the social workers of each centre.*

The results on HoNOS offer information about the severity and type of problems associated with a mental illness such as dementia faced by study participants. The mean of HoNOS total score within the subsample under study was 16.81 ±6.06. Analyzing the score of each item (Figure 1), it can be observed that near of 99% patients had a score indicative of the presence of problems (between 1=minor problem requiring no action and 4=serious or very serious problems) in those items related to cognitive problems and problems with activities of daily living. Approximately 80% of subjects scored between 1 and 4 in the items about problems with relationships and physical illness or disability problems. The less frequent problems among patients with dementia were substance abuse, non-accidental self-injury and problems with depressed mood with a score between 0 (without problems) and 1 (minor problem requiring no action) in more than 90% of cases. Around 70% of them scored between 0 and 1 in the items in relation to overactive, aggressive, disruptive or agitated behavior, problems associated with hallucinations and delusions, problems with living conditions and problems with occupation and activities.

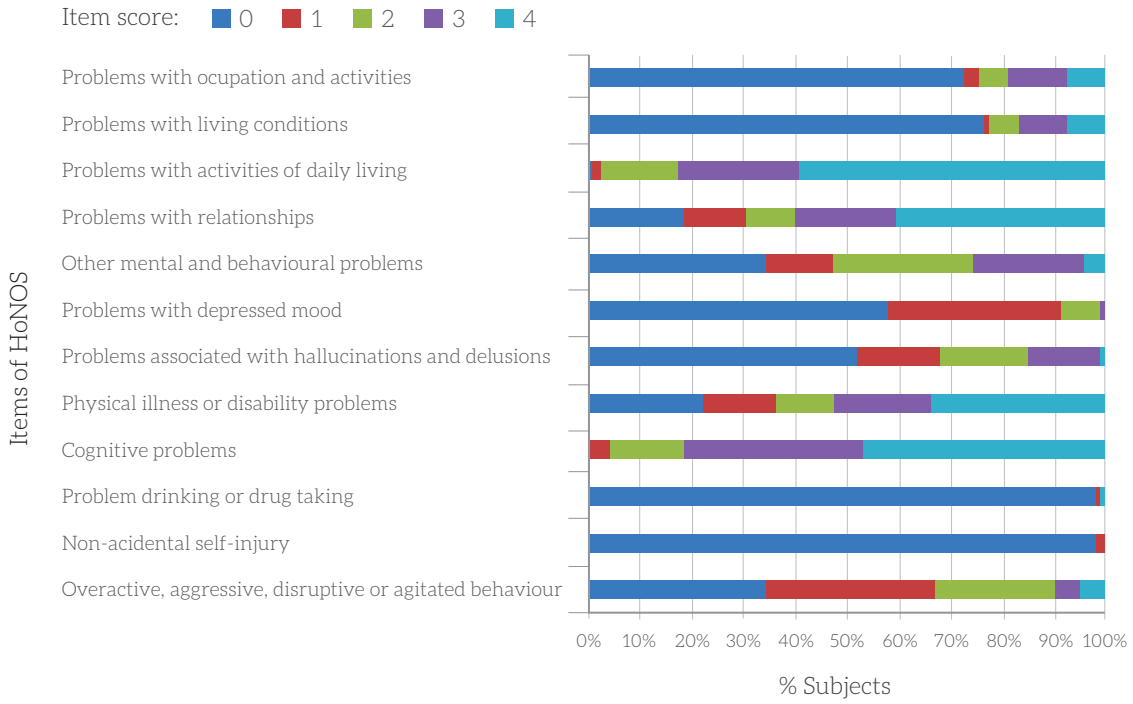

Figure 1. Distribution of the score of each item of HoNOS

NNN labels illustrated the nursing care provided to the patients with dementia. In the nursing care plans for the 108 participants, 902 NANDA-I nursing diagnoses were recorded, averaging to 8.35 ± 3.29 per patient (range 1-15). A total of 1069 NOC labels and 3011 NIC labels were found. The average was 9.90 ± 6.82 (range 1-42) NOC outcomes and 27.88 ± 35.09 (range 1-222) NIC interventions per patient. Table 2 shows the most frequent NANDA-I nursing diagnoses and the associated NOC outcomes and NIC interventions. For the sake of brevity and clarity, only the NANDA-I nursing diagnoses with prevalence higher than 30% are presented in the table. For each nursing diagnosis, the two most frequent NOC outcomes and the five most prevalent NIC interventions within each outcome are described.

Findings showed that the NNN labels included in the nursing care plans of the patients with dementia were primarily related to functional problems, including self-care deficits, psychosocial and physiological problems (see table 2). The three most frequent NANDA-I nursing diagnoses were in reference to different self-care deficits (dressing, bathing and feeding). The NOC outcomes and NIC interventions linked to these NANDA-I diagnoses were focused mainly on self-care assistance and provision of direct care to fulfill basic needs (for example: feeding, dressing, hair care or nail care). In addition, some teaching interventions to promote patient self-care were observed. Regarding physical activity, several NANDA-I nursing diagnoses were described in the care plans, including: *impaired physical mobility (00085)* (39.81%), *impaired walking (00088)* (33.33%), *risk for falls (00155)* (32.41%) and, less prevalent, *impaired bed mobility (00091)* (12.96%). The associated NOC and NIC labels were related to exercise promotion, patient safety measures, teaching activities and direct care actions such as self-care assistance, transferring, positioning and transporting. Measures to prevent patient falls were also described within the NANDA-I nursing diagnosis *risk for injury (00035)* (19.34%).

Several NANDA-I nursing diagnoses, NIC interventions and NOC outcomes within the psychosocial domain were identified in the subsample. Two of the most frequent NANDA-I nursing diagnoses were *impaired verbal communication (00051)* (47.22%) and *disturbed thought processes (00130)* (37.96%). Although less frequent, the NANDA-I diagnoses *impaired memory (00131)* (28.70%), *anxiety (00146)* (21.30%) or *chronic confusion (00129)* (21.30%) were also described in the nursing care plans. In the case of *disturbed thought processes (00130)*, three different NOC outcomes were very prevalent (see table 2). The NIC interventions related to each outcome were very similar, focusing on cognitive stimulation, management of dementia-related symptoms and patient safety (i.e. surveillance or environmental management). On the other hand, the NOC outcomes and NIC interventions for the NANDA-I nursing diagnosis *impaired verbal communication (00051)* were mainly aimed at communication enhancement and active listening.

Table 2. Most frequent NANDA-I nursing diagnoses and the associated NOC outcomes and NIC interventions (continued)

	Code	Label	n	Code	Label	n	Code	Label	n
NANDA-I Nursing Diagnoses	00109	Self-Care deficit: Dressing	95 (87.96%)	00108	Self-Care deficit: Bathing	95 (87.96%)	00102	Self-care deficit: feeding	73 (67.59%)
NOC Results	0302	Self-Care: Dressing	61	0305	Self-Care: Hygiene	69	0300	Self-Care: Activities of daily living (ADL)	39
NIC Interventions	1802	Self-Care Assistance: Dressing/Grooming	53	1801	Self-Care Assistance: Bathing/Hygiene	55	1803	Self-Care Assistance: Feeding	36
	6480	Environmental Management	51	1670	Hair Care	45	1050	Feeding	23
	5606	Teaching: Individual	48	1660	Foot Care	45	5606	Teaching: Individual	1
	1630	Dressing	32	1680	Nail Care	44	1800	Self-Care Assistance	1
	1800	Self-Care Assistance	26	5606	Teaching: Individual	43	6486	Environmental Management: Safety	1
NOC Results	0300	Self-Care: Activities of daily living (ADL)	29	0301	Self-Care: Bathing	31	0303	Self-Care: Eating	29
NIC Interventions	1802	Self-Care Assistance: Dressing/Grooming	25	1801	Self-Care Assistance: Bathing/Hygiene	25	1803	Self-Care Assistance: Feeding	25
	6480	Environmental Management	3	1670	Hair Care	4	1050	Feeding	24
	1800	Self-Care Assistance	2	1660	Foot Care	4	1710	Oral Health Maintenance	18
	1801	Self-Care Assistance: Bathing/Hygiene	2	1680	Nail Care	4	1100	Nutrition Management	3
	4410	Mutual Goal Setting	1	1640	Ear Care	4			

Table 2. Most frequent NANDA-I nursing diagnoses and the associated NOC outcomes and NIC interventions (continued)

	Code	Label	n	Code	Label	n	Code	Label	n
NANDA-I Nursing Diagnoses	00051	Impaired verbal communication	51 (47.22%)	00021	Urinary Incontinence: total*	44 (40.74%)	00085	Impaired physical mobility	43 (39.81%)
NOC Results	0902	Communication	35	1101	Tissue Integrity: Skin & Mucous Membranes	34	0200	Ambulation	25
NIC Interventions	4976	Communication Enhancement: Speech Deficit	27	0610	Urinary Incontinence Care	25	6490	Fall Prevention	27
	4974	Communication Enhancement: Hearing Deficit	26	1804	Self-Care Assistance: Toileting	19	0221	Exercise Therapy: Ambulation	26
	4920	Active Listening	6	3590	Skin Surveillance	15	0222	Exercise Therapy: Balance	21
	6480	Environmental Management	5	3584	Skin Care: Topical Treatments	8	5612	Teaching: Prescribed Activity/Exercise	17
	5820	Anxiety Reduction	3	1610	Bathing	6	0180	Energy Management	17
NOC Results	0903	Communication: Expressive	9	0503	Urinary Elimination	20	0210	Transfer Performance	13
NIC Interventions	4976	Communication Enhancement: Speech Deficit	5	0610	Urinary Incontinence Care	16	1806	Self-Care Assistance: Transfer	7
	5100	Socialization Enhancement	3	0590	Urinary Elimination Management	13	6490	Fall Prevention	6
	5820	Anxiety Reduction	1	1804	Self-Care Assistance: Toileting	7	0222	Exercise Therapy: Balance	4
	5540	Learning Readiness Enhancement	1	4120	Fluid Management	2	0846	Positioning: Wheelchair	4
							0840	Positioning	2

Table 2. Most frequent NANDA-I nursing diagnoses and the associated NOC outcomes and NIC interventions (continued)

	Code	Label	n	Code	Label	n	Code	Label	n
NANDA-I Nursing Diagnoses	00130	Disturbed thought processes*	41 (37,96%)	00088	Impaired walking	36 (33,33%)	00155	Risk for falls	35 (32,41%)
NOC Results	0901	Cognitive Orientation	25	0300	Self-Care: Activities of daily living (ADL)	17	1912	Falls Occurrence	17
NIC Interventions	6650	Surveillance	21	0200	Exercise Promotion	17	6486	Environmental Management: Safety	14
	4720	Cognitive Stimulation	15	1800	Self-Care Assistance	17	6490	Fall Prevention	14
	6460	Dementia Management	14	6486	Environmental Management: Safety	16	6610	Risk Identification	13
	6480	Environmental Management	3	6480	Environmental Management	1	6580	Physical Restraint	10
	4820	Reality Orientation	2				1800	Self-Care Assistance	7
NOC Results	1403	Distorted Thought Self-Control	23	0200	Ambulation	12	1909	Fall Prevention Behavior	13
NIC Interventions	6460	Dementia Management	22	0200	Exercise Promotion	8	6486	Environmental Management: Safety	11
	6480	Environmental Management	22	6486	Environmental Management: Safety	8	6490	Fall Prevention	6
	4820	Reality Orientation	14	0221	Exercise Therapy: Ambulation	7	6654	Surveillance: Safety	5
	6450	Delusion Management	14	6490	Fall Prevention	7	5380	Security Enhancement	5
	5820	Anxiety Reduction	8	0960	Transport	2	2380	Medication Management	3

Table 2. Most frequent NANDA-I nursing diagnoses and the associated NOC outcomes and NIC interventions (continued)

	Code	Label	n	Code	Label	n	Code	Label	n
NOC Results	0900	Cognition	22						
NIC Interventions	4720	Cognitive Stimulation	22						
	6460	Dementia Management	12						

** Diagnosis removed from the NANDA-I classification 2009-2011*

In addition, results revealed several physiological problems suffered by the study participants. The NANDA-I nursing diagnoses *urinary incontinence: total (00021)* (40.74%), *impaired urinary elimination (00016)* (29.63%), *constipation (00011)* (28.70%) and *bowel incontinence (00014)* (24.07%) illustrated this. The NOC and NIC labels linked to these diagnoses were related to self-care assistance, incontinence care practices and attention to skin integrity. Skin care was also described by two other NANDA-I nursing diagnoses recorded in the nursing care plans, such as risk for *impaired skin integrity (00047)* (10.18%) and *impaired skin integrity (00046)* (12.04%), and their associated NIC interventions and NOC outcomes.

DISCUSSION

Findings from this study showed the most frequent NANDA-I nursing diagnoses and the associated NIC interventions and NOC outcomes used in nursing care plans for a sample of institutionalized patients with dementia. These NNN labels were mainly related to self-care deficits, mobility impairments, incontinence problems, skin care and psychosocial problems such as impaired verbal communication, disturbed thought processes, impaired memory, anxiety or chronic confusion.

Data regarding HoNOS scale revealed that the most common problems among elders with dementia were cognitive problems and problems with activities of daily living, with relationships and related to physical illness or disability. It can be observed that these areas of difficulty identified by HoNOS are consistent with those reflected by NANDA-I, NIC and NOC labels in the nursing care plans. This coherence supports, to some extent, the validity of the findings.

Although the most frequent nursing diagnoses identified here are comparable to those reported by the existing studies, some differences can be found (Güler et al., 2012; Lucas Lopes et al., 2007). For example, the nursing diagnoses *ineffective role performance* (00055) and *ineffective health maintenance* (00099) were very common among the patients in these studies but they were not present within our sample. The variation among results may be due in part to the fact that only a proportion of subjects in these studies were diagnosed with dementia. On the other hand, the care needs of patients with dementia in long-term care units described in this paper are in the line of other studies that have demonstrated that the dependency in activities of daily living or in self-care is associated with mobility impairments and with incontinence problems (Güler et al., 2012; Wang, Kane, Eberly, Virnig, & Chang, 2009).

It is important to mention that two of the most prevalent nursing diagnoses within the sample (*urinary incontinence: total* (00221) and *disturbed thought processes* (00130)) were removed from

the edition 2009-2011 of the classification of NANDA-I nursing diagnoses (Herdman, 2009). Their presence in the nursing records examined may be explained by the fact that a previous edition of NANDA-I classification was included in the electronic medical records software used in the centers where the research took place. In the case of urinary incontinence: total, alternative nursing diagnoses can be used to illustrate this problem. However, disturbed thought processes was excluded of the classification due to the lack of existing evidence and conceptual development and currently, there is not a similar nursing diagnosis that describes this phenomenon. As suggested by Thomé and colleagues (2014), this may limit the applicability of NANDA-I taxonomy in mental health care settings.

The nursing care plans of the 108 patients with dementia included an average of 8.35 NANDA-I nursing diagnoses, 9.90 NOC outcomes and 27.88 NIC outcomes per patient. The previously mentioned study developed by Güler and colleagues (2012) yielded contrasting results with an average of 16.82 nursing diagnoses per patient. In addition, it is important to note the wide range that was found for the number of nursing diagnoses, interventions and outcomes per patient. This finding may suggest that nursing care is tailored to respond to the unique needs of each patient. Identifying the average number of NANDA-I, NIC and NOC labels per patient for a specific population may be used to inform management decisions about resource utilization or nursing staffing. Thus, several studies have demonstrated that the number of nursing diagnoses can be used as a indicator of nursing complexity and applied to measure workload intensity (Hoi, Ismail, Ong, & Kang, 2010; Meyer, Wang, Li, Thomson, & O'Brien-Pallas, 2009).

This study is one more example of how the implementation of NNN taxonomy into electronic medical records can be used to extract and analyze nursing care. The results from this research offer a broad picture of the patterns of care for patients with dementia in long-term care facilities. This contributes to enhance knowledge within geriatric nursing specialty as represents the scope of nursing practice in the care of this patients. Furthermore, the information presented in this paper can be utilized to develop standardized nursing care plans that assist nursing professionals in their clinical decision-making process and to design continuing education programs that reinforce geriatric nurses' competence (Park, 2014).

Nonetheless, some of the limitations of the present study deserve consideration. Data from the main study, the CUISAM Project, were collected retrospectively from electronic medical records and not from direct observation of nursing care. Although the use of NNN taxonomy has been proved to improve the quantity and quality of nursing records (Saranto et al., 2014), several studies concluded that nursing professionals tend to register fewer activities than those they actually perform (Jefferies, Johnson, & Griffiths, 2010). Considering this, it could be argued that the prevalence of NNN labels within the study sample might have been higher than it was recorded in the nursing care plans. Another limitation is the modest sample size. Consequently, additional research is needed to complete and validate the findings of this study.

CONCLUSIONS

The data from this research described the core set of NANDA-I nursing diagnoses, NIC interventions and NOC outcomes most frequently applied by nurses for a sample of elders with dementia in long-term care units. These results illustrated that the main focus of nursing care for these patients was the functional and cognitive deterioration caused by the disease. The most prevalent nursing diagnoses, interventions and outcomes addressed a wide range of functional, psychosocial and physiological care needs. This study identified patterns of nursing care for patients with dementia. This information may contribute to improve knowledge within the geriatric nursing specialty and, as a result, to improve the quality of the care provided to the elderly diagnosed with dementia.

ACKNOLEDGEMENTS

We are grateful to the Fundación Mª Josefa Recio and the Clínica Psiquiátrica Padre Menni who funded this project and supported its development..

REFERENCES

Anderson, C., Keenan, G., & Jones, J. (2009). Using bibliometrics to support your selection of a nursing terminology set. *Computers Informatics Nursing, 27*(2), 82-90. doi: 10.1097/NCN.0b013e3181972a24

Bulechek, G., Butcher, H., Dochterman, J., & Wagner, C. (Eds.). (2012). *Nursing interventions classification (NIC)* (6th ed.). MO: Mosby.

Escalada-Hernández, P., Muñoz-Hermoso, P., González-Fraile, E., Santos, B., Gónzalez-Vargas, J. & Feria-Raposo, I. (2014). A retrospective study of nursing diagnoses, outcomes, and interventions for patients with mental disorders. *Applied Nursing Research, In press*. doi: 10.1016/j.apnr.2014.05.006

Güler, E., Eser, Ï., Khorshid, L., & Yücel, S. (2012). Nursing diagnoses in elderly residents of a nursing home: A case in Turkey. *Nursing Outlook, 60*(1), 21-28. doi: 10.1016/j.outlook.2011.03.007

Herdman, T. (Ed.). (2009). *NANDA International nursing diagnoses: definitions and classification, 2009-2011*. Oxford, UK: Wiley-Blackwell.

Herdman, T. (Ed.). (2012). *NANDA International nursing diagnoses: definitions and classification, 2012-2014*. Oxford: Wiley-Blackwell.

Hoi, S., Ismail, N., Ong, L., & Kang, J. (2010). Determining nurse staffing needs: the workload intensity measurement system. *Journal of Nursing Management, 18*(1), 44-53. doi: 10.1111/j.1365-2834.2009.01045.

Jefferies, D., Johnson, M., & Griffiths, R. (2010). A meta-study of the essentials of quality nursing documentation. *International Journal of Nursing Practice*, 16(2), 112-124. doi: 10.1111/j.1440-172X.2009.01815.x

López, R., López, J., Castrodeza, F. J., Tamames, S., León, T., & Grupo de Trabajo de Atención Sanitaria en Residencias de Ancianos de la Sociedad Española de Geriatría y Gerontología. (2009). Prevalencia de demencia en pacientes institucionalizados: estudio RESYDEM. [Prevalence of dementia ininstitutionalized patients.The RESYDEM study]. *Revista Española de Geriatría y Gerontología, 44*(1), 5-11. doi: 10.1016/j.regg.2008.06.001

Lucas Lopes, F., Gonçalves, C., Lunardi Filho, W., & Costa Santos, S. (2007). Diagnósticos de enfermagem de idosos residentes em uma instituição de longa permanência (ILP). [Nursing diagnosis from elderly people who live in nursing homes]. *Ciência, Cuidado e Saúde, 6*(1), 59-67. doi: 10.4025/cienccuidsaude.v6i1.4974

Luppa, M., Luck, T., Weyerer, S., Koenig, H., Braehler, E., & Riedel-Heller, S. (2010). Prediction of institutionalisation in the elderly. A systematic review. . *Age and Aging, 39*(1), 31-38.

Meyer, R., Wang, S., Li, X., Thomson, D., & O'Brien-Pallas, L. (2009). Evaluation of a patient care delivery model: Patient outcomes in acute cardiac care. *Journal of Nursing Scholarship, 41*(4), 399-410. doi: 10.1111/j.1547-5069.2009.01308.x

Moorhead, S., Johnson, M. & Swanson, E. (Eds.). (2012). *Nursing Outcomes Classification (NOC)* (5th ed.). MO: Mosby.

Park, H. (2014). Identifying core NANDA-I nursing diagnoses, NIC interventions, NOC outcomes, and NNN linkages for heart failure. *International Journal of Nursing Knowledge, 25*(1), 30-38. doi: 10.1111/2047-3095.12010

Pirkis, J., Burgess, P., kirk, P., Dodson, S., Coombs, T., & Williamson, K. (2005). A review of the psychometric properties of the Health of the Nation Outcome Scales (HoNOS) family of measures. *Health and Quality of Life Outcomes, 3*(76). doi: 10.1186/1477-7525-3-76

Saranto, K., Kinnunen, U.-M., Kivekäs, E., Lappalainen, A.-M., Liljamo, P. & Rajalahti, E. (2014). Impacts of structuring nursing records: a systematic review. *Scandinavian Journal of Caring Sciences, 28*(4), 629-647. doi: 10.1111/scs.12094

Tastan, S., Linch, G., Keenan, G., Stifter, J., McKinney, D. & Fahey, L. (2014). Evidence for the existing American Nurses Association-recognized standardized nursing terminologies: A systematic review. *International Journal of Nursing Studies, 51*(8), 1160-1170. doi: 10.1016/j.ijnurstu.2013.12.004

Thomé, E., Centena, R., Behenck, A., Marini, M. & Heldt, E. (2014). Applicability of the NANDA-I and Nursing Interventions Classification Taxonomies to mental health nursing practice. *International Journal of Nursing Knowledge, 25*(3), 168-172. doi: 10.1111/2047-3095.12033

Thoroddsen, A., Ehnfors, M. & Ehrenberg, A. (2010). Nursing specialty knowledge as expressed by standardized nursing languages. *International Journal of Nursing Terminologies and Classifications, 21*(2), 69-79. doi: 10.1111/j.1744-618X.2010.01148.x

Uriarte, J., Beramendi, V., Medrano, J., Wing, J., Beevor, A. & Curtis, R. (1999). Presentación de la traducción al castellano de la Escala HoNOS (Health of the Nation Outcome Scales). [Presentation of the HoNOS Spanish translation (Health of the Nation Outcome Scales]. *Psiquiatría Pública, 11*(4), 37-45.

Wang, J., Kane, R., Eberly, L., Virnig, B. & Chang, L.-H. (2009). The effects of resident and nursing home characteristics on activities of daily living. *Journal of Gerontology: MEDICAL SCIENCES, 64*(4), 473-480. doi: 10.1093/gerona/gln040

WHO. (2012). Dementia. Fact sheet N° 362. Retrieved from http://www.who.int/mediacentre/factsheets/fs362/en/

Wing, J., Beevor, A., Curtis, R., Park, S., Hadden, S. & Burns, A. (1998). Health of the Nation Outcome Scales (HoNOS). Research and development. *British Journal of Psychiatry, 172*, 11-18. doi: 10.1192/bjp.172.1.11

Correspondence: Paula Escalada-Hernández - escalada.paula@gmail.com