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## Description of Advanced Practice Nurses Interventions Through the Nursing Interventions Classification in Different Care Settings for Older People: A Qualitative Study

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**PURPOSE:** To identify the interventions provided by advanced practice nurses to older people in different contexts with standardized nursing language.

**DATA SOURCE:** This is a qualitative study. Content analysis was applied to the texts of experimental research papers about advanced practice nursing for older people.

Deductive coding through the Nursing Intervention Classification was carried out.

**DATA SYNTHESIS:** Seventy-three interventions codified with the Nursing Intervention Classification were extracted, mainly related to the behavioral and healthcare system domains, which could be explained due to the need for improving the psychosocial functioning and self-care of these patients to preserve their quality of life.

**CONCLUSION AND IMPLICATION FOR NURSING PRACTICE:** Advanced practice nurses interventions can be better described, reported, and analyzed along different contexts with standardized languages.

**OBJETIVO:** Identificar las intervenciones realizadas por las enfermeras de práctica avanzada a personas mayores en diferentes contextos de atención con lenguajes estandarizados.

**FUENTE DE DATOS:** Se trata de un estudio cualitativo. Se aplicó análisis de contenido a los textos de estudios experimentales sobre enfermería de práctica avanzada en población mayor y se llevó a cabo una codificación deductiva con las intervenciones de la Clasificación de Intervenciones de Enfermería.

**SÍNTESIS DE DATOS:** Se extrajeron setenta y tres intervenciones codificadas con la Clasificación de Intervenciones de Enfermería, mayormente pertenecientes a los campos Conductual y Sistema Sanitario, lo que podría explicarse por la necesidad de mejorar el funcionamiento psicosocial y de auto-cuidado de este tipo de pacientes, para preservar su calidad de vida.

**CONCLUSIÓN E IMPLICACIONES PARA LA PRÁCTICA DE ENFERMERÍA:** Las intervenciones de las enfermeras de práctica avanzada pueden ser descritas, referidas y analizadas en diferentes contextos con lenguajes estandarizados.

Despite the advanced practice nurse (APN) programs that emerged in the 1960s, it is difficult to precisely determine what the term advanced practice refers to since it has been largely dominated by the influence of the context and the prevailing health policies in which it was developed (Gardner, Chang, & Duffield, 2007). APN has been widely developed in the care of the older population (Low, Yap, & Brodaty, 2011) and with positive outcomes in different settings (Clark et al., 2010; Rask et al., 2007).

However, it is difficult to obtain an adequate overview of the different developed models, their specific components, and what types of outcomes are attributable to them. Interventions deployed by APNs are not always well defined; moreover, in many cases, these interventions are multifaceted and the exact ingredients are not properly reported (Morales-Asencio, 2010). These shortfalls make it difficult for international comparisons, the interpretation of the ingredients of the developed interventions, and the categorization of the nature and scope of the services provided by APNs.

In this sense, the availability of a standardized language to describe nursing interventions like the Nursing Intervention Classification (NIC) (Bulechek, Butcher, & Dochterman, 2008) can provide an additional resource. NIC may permit to classify the components of different APN models and could facilitate the description of APN in a universal language, along with multiple clinical scenarios that are available in a vast majority of healthcare record systems around the world.

#### The Study

##### Aims

The aim of this study was to identify the interventions provided by APNs to older people in different settings with a standardized nursing language (NIC) to determine the patterns of the developed interventions.

##### Design

The design of the study was qualitative with two phases: First, a content analysis was carried out, followed by a consensus method through the Delphi technique. The data sources were the selected studies that belonged to a systematic review about the effectiveness of APN services for older people developed by our research team (Morilla-Herrera et al., 2013). We selected experimental studies from the United States, Canada, Europe, and China of the APN interventions on older people aged 65 years or older receiving hospital services, or as outpatients in home care programs or in

residential care. Studies were assessed by two reviewers with the Cochrane risk of bias tool. They were classified depending on the type of follow-up and the scope of the service. In the second phase, to assure the credibility of the codification process, an external review of the description of the interventions in the studies, as well as the assigned NIC labels, was carried out through the Delphi technique.

#### Data Collection

The content analysis phase was carried out by introducing the text of the papers into qualitative data analysis software (Atlas.ti 6, Scientific Software Development GmbH, Hewlett-Packard, Berlin, Germany) as primary documents of a hermeneutic unit. The codification was conducted by the members of the research team using the NIC interventions as a coding framework and the following contexts of care: residential, hospital, ambulatory, home, and transitional care.

#### Ethical Considerations

This study was operated with secondary data from primary research studies, and therefore no form of consent was necessary. Selected experts made an explicit declaration of the conflict of interest with any of the analyzed studies in the present research. Approval from the ethics committee was obtained in July 2010, and funding was obtained in March 2011.

#### Data Analysis

For the content analysis, the meaning units were conceived as those constellation of words, sentences, paragraphs, or statements that related to the same central meaning (Graneheim & Lundman, 2004), which in this case was an intervention provided by an APN in the Methods or Results sections. By using NIC as the initial coding categories, a deductive codification process was carried out (Potter & Levine-Donnerstein, 1999). The analysis of the text was developed to interpret the underlying meaning of the interventions described by the original authors (latent content) (Kondracki, Wellman, & Amundson, 2002). Two independent reviewers coded the primary documents for quotes that might be represented by NIC interventions and divided the text into meaning units. Categories were generated by grouping interventions by NIC domains. For the expert consensus analysis, the value ranges of the responses were grouped into three groups (1–3, 4–6, and 7–9) in ascending order of pertinence for the proposed codification. The percentiles and interquartile range (IQR) measured the level of agreement: agreement (scores over third percentile), partial agreement (scores between first and third percentile), and disagreement (scores under the first percentile). The IQR under 3 was considered a situation of great homogeneity, acceptable if its value was 3, and a lack of consensus if the IQR was over 3. The data analysis was carried out using SPSS 20 (SPSS/IBM, Chicago, IL, USA). The consensus phase was supported using the LimeSurvey 2.1 software (Lime Survey, Germany).

A consensus process was deployed with five external experts who were asked to state the relevance of the associations between papers and the NIC interventions previously established by the research team, using a Likert scale with a range of 1–9 through a web platform.

Selected experts were nurses with more than 10 years of clinical practice in advanced roles and a deep knowledge of nursing languages. A first round with the selected quotes and assigned NIC codes were individually distributed among the experts. They were asked to state the adequacy of the selected NIC to describe the interventions developed in each study, besides the possibility of suggesting new NIC interventions in the case that they perceived that insufficient codification had been completed. Two rounds were required to obtain consensus. Finally, the evaluated interventions were distributed by health contexts to carry out an analysis of the density of these interventions in each of

the five health contexts.

## Results

A total of 40 studies, with 73 extracted interventions codified with the NIC, were analyzed. Home care (64 interventions, 37.87%) followed by transitional care (51 interventions, 30.18%) were the contexts of care where more NIC interventions were isolated. Residential, ambulatory, and hospital care did not exceed 15% of the total interventions detected in the studies. The behavioral (27.40%) and healthcare system (24.66%) domains were the more frequent categories detected among the studies. Subsequently, the domains for physiological (simple, 13.7%, and complex, 13.7%), safety (12.33%), family (3.3%), and community (4.11%) interventions were less frequent.

After the initial codification, a total of 468 quotes codified with the NIC were obtained. Of these, 15 were eliminated because panelists identified them as duplicated. Finally, 453 quotes codified with the NIC underwent the first round; after which, discrepancies were found in 100 quotes (21.36%) with an IQR of over 3. Following the second round, consensus was obtained for all of the 453 quotes (IQR under 3) with a maximum level of consensus (median = 9) in 241 quotes (53.20%) and 139 codes (30.68%) with a median of 8 and 72 quotes (15.93%) with a median of 7. Some examples of the quotations and their corresponding NIC interventions can be found in Table 1.

### Home Care

Sixty-four interventions repeated 171 times were extracted (Table 2) from 18 studies (Blue et al., 2001; Bouman et al., 2008; Carroll & Rankin, 2006; Duffy, Hoskins, & Dudley-Brown, 2010; Elley et al., 2008; Imhof, Naef, Wallhagen, Schwarz, & Mahrer-Imhof, 2012; Leung, Liu, Chow, & Chi, 2004; Leung, Yau, et al., 2004; McCorkle et al., 2000; Melis et al., 2009; Parsons et al., 2012; Rondinini et al., 2008; Rosted, Poulsen, Hendriksen, Petersen, & Wagner, 2013; Schein, Gagnon, Chan, Morin, & Grondines, 2005; Stuck et al., 1995, 2000; Trief, 2009). The density of the interventions varied from 1 to 10. The most repeated NIC codes in this context included health education and health screening.

### Transitional Care

The 13 studies (Berglund et al., 2013; Brand et al., 2004; Caplan, Williams, Daly, & Abraham, 2004; Cline, Israelsson, Willenheimer, Broms, & Erhardt, 1998; Coleman et al., 2004; Goodwin, Satish, Anderson, Nattinger, & Freeman, 2003; Hordam, Sabroe, Pedersen, Mejdahl, & Soballe, 2010; Huang & Liang, 2005; McCusker et al., 2003; Mion, 2003; Naylor et al., 1999, 2004; Newcomer, Maravilla, Faculjak, & Graves, 2004) included in this category were those in which the APN made at least one visit while the patient was admitted to the hospital, and those who were responsible to follow up with the patient during the transition to home. Fifty-one interventions were extracted, which were mentioned 160 times (Table 2). The density of the interventions varied from 1 to 9. The most repeated interventions in this context included health screening and development program.

### Residential Care

Three studies were obtained (Bellantonio et al., 2008; Leveille et al., 1998; Ryden et al., 2000) with a total of 22 interventions mentioned 28 times (Table 2). Common interventions included coping enhancement, health education, documentation, case management, healthcare information exchange, and referral.

### Ambulatory Care

Three studies were obtained (Callahan et al., 2006; Schraeder et al., 2009; Strömberg et al., 2003) with a total of 21 interventions mentioned 24 times (Table 2). Common interventions included counseling, caregiver support, and case management.

## Hospital Care

The studies included in this context were those in which patients received APN services at the hospital with overnight stay. Only two studies were included (Griffiths, Fernandez, & Ussia, 2001; Harris, Richardson, Griffiths, Hallett, & Wilson-Barnett, 2005) with a total of 11 interventions mentioned 13 times (Table 2). Common interventions included health screening and multidisciplinary care conference.

## Common Interventions in All the Contexts

There were three common interventions identified in the five studied contexts: health screening, case management, and multidisciplinary care conference.

## Discussion

The aim of this study was to translate into the NIC the interventions carried out by APNs in different health contexts for the care of older people to determine the patterns of intervention. In total, 73 different interventions were isolated along the five contexts with a clear predominance of the interventions related to the behavioral and healthcare system domains.

The high volume of interventions found in the behavioral domain, followed by the healthcare system domain, could be due to the need of improving the psychosocial functioning and self-care of these patients to lead them to preserve their quality of life. In the study of McBride, White, Sourial, and Mayo (2004), results in stroke patients were similar in terms of the NIC identified interventions, although they were more focused on reducing the gap among patients, caregivers, and the health system, and which supposed an increase in the interventions belonging to the healthcare system domain. Nevertheless, results showed three repeated APN interventions through the five care contexts so that a common ground was detected, regardless of the context of care. Not surprisingly, the definition of these three interventions matches closely with some characteristics of the APN role (Moloney-Harmon, 1999). To perform these activities, the APN needs to obtain a high degree of autonomy through the acquisition of expert knowledge based on both research and practice, and to lead initiatives among the members of the healthcare team. This could mean that it is possible to define specific advanced nursing roles in different settings with the NIC, as suggested by Solari-Twadell and Hackbarth (2010).

We also found another characteristic of APN that should be highlighted: the provision of continuous/transitional care through hospital admissions, coordinated discharge planning, home monitoring after discharge, telephone follow-up, etc. APN acted as a consultant, and was accessible by telephone for patients and caregivers to solve any doubt or health problem that they could have. Both interventions have demonstrated to improve the quality of life and reduce readmissions (Hordam et al., 2010).

Only three specific NIC interventions belonging to the family domain were extracted from the included studies. In fact, we also found NIC interventions that, not being part of the family domain, included within their scope the patients' families and caregivers (counseling, health education, and support group).

When APNs are focused on a specific population, generally determined by a condition, interventions are more targeted to concrete areas like heart failure (Naylor et al., 2004; Strömberg et al., 2003). The same case occurs for the prevention of falls in older people (Gillespie et al., 2012).

The use of the NIC to register these standardized interventions in clinical records would permit the management of information systems to obtain analyses of the impact of APN in routine clinical practice, and to establish comparative analyses among different settings, modalities of service, types of target patients, etc. Some promising results to achieve glycemic control in poorly controlled type 2 diabetic patients have been

reported with the use of NIC and other standardized nursing languages in routine clinical practice (Cárdenas-Valladolid et al., 2012). Moreover, it would be much easier to determine the specific ingredients deployed by APNs in the care of older people because NIC permits to analyze the concrete activities that integrate each intervention (Bulechek et al., 2008). In addition, a “dose effect” of APN care could be analyzed to test the model across groups (Brooten et al., 2002).

Furthermore, some core interventions have been detected along different settings. In the case of an extensive implementation of the NIC in the clinical records of patients cared by APNs, it would be possible for a thorough identification of many other potential “core” interventions with the use of some techniques like data mining, which has shown promising results in nursing care plans (Almasalha et al., 2013). This information could be used as a guide to manage APN’s competencies, skills, and the definition of essential services for older people.

#### Limitations

The reason for the differences in the quantity of articles between contexts could be explained by the difficulties to assess whether the outcomes registered in the patients who participated in hospital, residential, or ambulatory care were attributable to the APN interventions or to other health professionals interventions. Nevertheless, the representativeness of the different contexts of care for older people was sufficiently guaranteed.

Some authors have warned that the findings of qualitative research could be distinct from the data upon which they are based (Sandelowski, 2004). Consequently, coders could have analyzed what authors wrote about the interventions, which could not be exactly what providers performed. Even with this limitation, the included studies were those that obtained the best quality after critical appraisal, and the description of the intervention was one of the criteria to select them.

We are conscious that this is an initial approach in the endeavor to obtain the best description of the elements of the clinical practice for APN. Further studies are required with APN records in real clinical practice to confirm these data, as it has been reported in APN for people with developmental disabilities (Hahn, 2014), but it is an important first step for mapping the interventions that are key to evaluate the outcomes in the advanced care of older people.

#### Conclusions

APN interventions are complex, but with the use of standardized nursing languages as the NIC they can be better described, reported, and analyzed among different contexts. Moreover, core elements of the APN roles can be identified, and they could be used to delineate or evaluate services. Further studies analyzing the replication of NIC interventions in the clinical practice of APNs who tend to older people among different contexts of care are necessary to confirm these results.

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## TABLES

**Table 1. NIC Interventions and Text Quotes**

<b>Home care</b>		
Stuck et al. (1995)	7960 Healthcare information exchange	"The nurse practitioners <b>discussed each case with the study geriatricians</b> , developed rank-ordered recommendations, and conducted in-home follow-up visits every three months to monitor the implementation of the recommendations, make additional recommendations."
Stuck et al. (1995)	8700 Program development	"The nurse practitioners discussed each case with the study geriatricians, <b>developed rank-ordered recommendations</b> , and conducted in-home follow-up visits every three months to monitor the implementation of the recommendations, make additional recommendations."
<b>Transitional care</b>		
Naylor et al. (2004)	4044 Cardiac care: acute	"APNs participated in a 2-month orientation and training program focused on developing their competencies related to early recognition and treatment of acute episodes of heart failure in elders, with particular attention to how it complicates and is complicated by common comorbid conditions such as diabetes mellitus or depression."
Hordam et al. (2010)	8190 Telephone follow-up	"All patients received the standard postoperative procedure in the hospital, which means discharge after 5-7 days and a clinical control in the outpatient department after 3 months. But the intervention group also received telephone support and counselling 2 and 10 weeks after surgery."
<b>Residential care</b>		
Bellantonio et al. (2008)	6520 Health screening, 5510 Health education, 8700 Program development	"The geriatrician and geriatrics advanced practice nurse conducted medical and cognitive evaluations."
Ryden et al. (2000)	4350 Behavior management	"Aggressive behavior in residents at all three facilities was documented."
Leville et al. (1998)	7920 Documentation	"The GNP contacted each intervention participant's primary care physician to obtain information about the patient's current health problems and the provider's goals for the patient."
<b>Ambulatory care</b>		
Schraeder et al. (2009)	5270 Emotional support, 5510 Health education, 8700 Program development	"This support includes providing individualized assessment, care planning, education, coordination, and psychosocial support."
Callahan et al. (2006)	5520 Learning facilitation	[...] "patient exercise guidelines with a guidebook and videotape; and a caregiver guide provided by the local chapter of the Alzheimer's Association."
Callahan et al. (2006)	5616 Teaching: prescribed medication	"If the nonpharmacological approach failed, the care manager then collaborated with the primary care physician to institute drug therapy for depression, agitation, sleep disturbance, or delusions."
<b>Hospital care</b>		
Griffiths et al. (2001)	7650 Delegation, 7830 Staff supervision	"Patient care is managed by one of three nurse practitioners (F-grade). Nurses lead the multi-disciplinary clinical team."
Harris et al. (2005)	8020 Multidisciplinary care conference, 8700 Program development	"Patient care on the NLIU was managed by one of three nurse practitioners (F grade) responsible for the planning and delivery of nursing care, discharge planning and coordination and leadership of the multidisciplinary team including referral for medical input when required."

**Table 2. Interventions Described in Each Study, by Nursing Intervention Classification Domains and Contexts of Care**

	Home (90)	Residential <sup>2</sup> (20)	Transitional <sup>3</sup> (20)	Ambulatory <sup>3</sup> (20)	Hospital <sup>1</sup> (10)
Domain: Physiological: Basic					
1650 Eye care	X				
1720 Oral health promotion	X				
1850 Sleep enhancement	X				
1400 Pain management	X		X		
1100 Nutrition management	X			X	
1710 Oral health maintenance	X				X
1660 Nutritional monitoring	X		X		
1800 Self-care assistance	X		X		
5246 Nutritional counseling		X		X	
200 Exercise promotion	X	X		X	
Domain: Physiological: Complex					
3520 Pressure ulcer care	X				
2000 Electrolyte management			X		
4044 Cardiac care: acute			X		
410 Fluid monitoring				X	
2290 Medication prescribing	X		X		
4046 Cardiac care: rehabilitative	X		X		
4050 Cardiac precautions	X		X		
2080 Fluid/electrolyte management	X	X	X	X	
2350 Medication management	X		X	X	
4040 Cardiac care	X		X	X	
Domain: Behavioral					
5250 Relocation stress reduction	X				
5440 Support system enhancement	X				
4360 Behavior modification			X		
4250 Behavior management	X		X		
5270 Emotional support	X		X		
5400 Support group	X		X		
5520 Learning facilitation	X		X	X	
5540 Learning readiness enhancement	X		X		
5602 Teaching: disease process	X		X	X	
5614 Teaching: prescribed diet	X		X		
5618 Teaching: procedure/treatment	X		X		
4920 Active listening		X	X		
5230 Coping enhancement		X	X		
5616 Teaching: prescribed medication	X		X		
4490 Smoking cessation assistance		X	X	X	
5240 Counseling	X		X	X	
5612 Teaching: prescribed activity/exercise	X	X	X	X	
5290 Self-awareness enhancement	X	X	X	X	
5250 Decision-making support	X		X		
5510 Health education	X	X	X	X	
Domain: Safety					
6404 Abuse protection support: elder	X				
6600 Vital signs monitoring	X				
6480 Environmental management	X		X		
6485 Environmental management: home preparation	X		X		
6486 Environmental management: safety	X		X		
6490 Fall prevention	X		X		
6520 Immunization/vaccination management	X			X	
6610 Risk identification		X	X		X
6520 Health screening	X	X	X	X	X
Domain: Family					
7180 Home maintenance assistance	X				
7140 Family support			X	X	
7040 Caregiver support	X		X	X	
Domain: Healthcare System					
7700 Peer review	X				
7850 Staff development				X	
8140 Shift report	X				
7690 Laboratory data interpretation			X		
820 Research data collection	X		X		
7650 Delegation	X			X	X
7830 Staff supervision				X	X
7710 Physician support	X		X		
7800 Quality monitoring	X		X		
7370 Discharge planning	X	X	X		X
7910 Consultation	X	X	X	X	
7920 Documentation	X	X	X	X	
7960 Healthcare information exchange	X	X	X	X	
8100 Referral	X	X	X	X	
880 Telephone consultation	X	X	X	X	
890 Telephone follow-up	X	X	X	X	
7320 Case management	X	X	X	X	X
8020 Multidisciplinary care conference	X	X	X	X	X
Domain: Community					
6484 Environmental management: community	X				
8700 Program development	X	X	X	X	
8500 Community health development	X		X	X	X