

# Advanced practice nurses: Analysis of their role from a multicentre cross-sectional study

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## Abstract

**Background:** Stronger healthcare models are increasingly sought to address new population needs, health workforce inefficiencies and nursing shortages. One strategy is to focus on employees' strengths to capitalize on their competencies and maximize their scope of practice.

**Introduction:** Globally, there is an exponential demand for advanced practice nursing services. This study aimed to identify the roles and positions of nurses who align with APN defining criteria at all levels of care in Catalonia, Spain.

**Methods:** The first step of the study included the translation and validation to Catalan of the Advanced Practice Nurse Role Delineation Tool (IDREPA) and step 2 comprised a multicentre cross-sectional study, in which 126 healthcare centres participated: 1209 nurses were included in the study. The STROBE checklist was used to report this study.

**Results:** Transcultural equivalence and validation of the instrument showed a content validity index of 0.958 and the reliability of the questionnaire. The instrument identified 269 nurses who align with international APN defined criteria. They worked in specialized care, mental healthcare and primary and community care, especially in chronic conditions, ageing and end-of-life care.

**Discussion:** Most areas of Catalonia have access to nurses practicing at APN defining criteria. These nurses were developed as an optimal resource to respond to patient needs in the context of study. Both recognition and strategic implementation are necessary to apply their full competencies to solve healthcare problems.

**Conclusion:** Understanding the supply of services delivered by nurses practicing at an advanced level and their scope of practice may lay the foundations for effective workforce planning in a dynamic context. Nurses who align with APN defining criteria are working mainly in large acute services without regulation and recognition.

**Implications for nursing:** Advanced practice nurses show the value of their role and activities in healthcare services.

**Implications for health policy:** Promoting the establishment of APN defining criteria that includes credentialing and a regulatory framework within international guidelines should be a priority to make an impact on healthcare policy.

## KEYWORDS

advanced practice nursing, cross-sectional study, nursing, Spain, transcultural validation, workforce

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## INTRODUCTION

Internationally, there is a serious nursing shortage of, and a demand for nursing skills (WHO, 2020). Although there are wide differences in nurse ratios worldwide, challenges due to nurse shortages are well documented, including limited access to resources to ensure their job effectiveness (WHO, State of the World Nursing report, 2020). In 2018, the World Health Organization (WHO) stated that 20–40% of health system mis-spending was due to inefficiencies in the workforce and human resources weaknesses (WHO, 2019). Therefore, organizations should introduce new strategies to maximize the effectiveness and sustainability of their workforce.

Nurses can bring healthcare closer to the population, and international bodies, such as the International Council of Nurses (ICN) and the WHO, have advocated supporting the development of advanced practice nurses (APNs) as one strategy to achieve universal health coverage (Bryant-Lukosius et al., 2017). In 2020, the ICN defined APNs as ‘generalist or specialized nurses who have acquired, through additional graduate education (minimum of a master’s degree), the expert knowledge base, complex decision-making skills and clinical competencies for advanced nursing practice, the characteristics of which are shaped by the context in which they are credentialed to practice’ (ICN, 2020). APNs carry out enhanced, expanded nursing interventions and services within some domains, including clinical practice, integrated care, interprofessional collaboration, education, research and leadership, driving clinical practice and health outcomes and providing uninterrupted services to individuals, families and communities (CNA, 2019) (Hamric & Tracy, 2019). In countries where APNs are officially credentialed, a considerably broader level of clinical practice has been achieved (Maier et al., 2017). The global number of APNs and the demands on them have grown exponentially.

## BACKGROUND

Catalonia, a region in the northeast of Spain, has a population of around 7.5 million (WHO, 2019). According to the Council of Nursing Associations in Catalonia, there are 45 646 nurses of whom approximately 80% are estimated to be practicing. The Catalan Health Service provides universal health care (Constante & Beitia, 2015) and has taken various actions towards achieving the Sustainable Development Goals (WHO, 2018) (Department of Health of Catalonia, 2016). There are concerns about accessibility to the health system. In this sense, APNs have been shown to facilitate access to the health system by reducing waiting lists for established procedures, invasive tests and control of long-term chronic conditions (LTCs) (Bryant-Lukosius et al., 2017).

In Spain, unregulated APNs have emerged in response to unmet needs that require enhanced nursing care, but there are few job positions available. As a result, the roles and respon-

sibilities of APNs remain unclear in practice and may vary within organizations.

The development of APNs in Spain lags behind that of other countries as the scaling up of advanced nursing activities are limited by the lack of legislation that recognizes them. Nurses may reach advanced educational levels through master’s degrees or one of the six nursing specialties, which involves a 2-year internal residency in the area of care. These two pathways could be included in the most recent ICN definition of the minimum required education for APNs. In addition, Spanish nursing regulations designate two professional nursing categories: general and specialist nursing. However, the only clearly defined occupational position is obstetric-gynaecological nursing (nurse midwife), which is due to the European Union Midwives Directive 80/155/EEC.

The Advanced Practice Role Delineation tool (Sevilla Guerra et al., 2018), based on the Strong Model of Advanced Practice (Ackerman, 1996) allows a clear delineation and definition of APNs (Gardner et al., 2017). This tool was first modified by Chang et al (2011) and showed evidence of acceptable reliability and validity of a scale capable to reduce role confusion and ambiguity within APN role (Gardner et al., 2012). This is an example of how the level of nursing activity can be measured and nurses who align with APN defining criteria could be identified (Gardner et al., 2015).

Likewise, the WHO has a growing interest in enhancing the status of the nursing workforce worldwide, including the scope and numbers of APNs (WHO, 2020), and is asking countries to provide information on the number of APNs in each region. Since emotional expression is intrinsically linked to the linguistic and cultural environment of the participant, it seems relevant to offer them a questionnaire written in their mother tongue, Catalan. In order to use the Advanced Practice Role Delineation tool in Catalonia, its translation and subsequent adaptation to Catalan culture is necessary, guaranteeing equivalence with the original version.

## Study aim

The main objective of the study was to identify roles and positions of nurses achieving APN practice standards in Catalonia, Spain. The specific objectives were:

- To identify the practice activities of nurses who align with APN defining criteria;
- To describe the practice activities in each of the six domains (direct patient care, integrated care, interprofessional collaboration, education, research and evidence-based practice, and leadership) of APN practice by the nurses identified as achieving APN defining criteria.
- To identify the characteristics of healthcare institutions that have developed nurses who achieved APN defining criteria.
- To identify healthcare services, areas of care and areas of expertise delivered by nurses who achieved APN defining criteria.



- To identify the number and ratios of nurses who align with APN defining criteria in Catalonia with respect to the number of nurses.

## METHODS

### Study design

We carried out a multicentre cross-sectional study. To describe the role of nurses who align with APN defining criteria, the first step included the translation and validation in Catalan of the Spanish Advanced Practice Nurse Role Delineation (APNRD) tool (Sevilla Guerra et al., 2018). This phase followed the recommendations for validation; instrument testing and the development of scales (Streiner & Kottner, 2014) based on STARD diagnostic accuracy information standards (Bossuyt et al., 2003) and guidelines for the preparation of reliable reports and studies (Kottner et al., 2011). To determine cultural equivalence, the study incorporated an easy-to-use guide (Sousa & Rojjanasrira, 2011) to promote adoption, coherence and use. Further information is available upon request. The STROBE checklist was used to report the study.

### Sample and setting

The study setting was all nurses in Catalonia. The target population was all clinical nurses working in hospitals, primary and community care, mental health, drug addiction, women's health, long-term care, and the emergency services (medical emergency service and the Catalan Fire Brigade). A snowball methodology was used in a convenience sample identified by chief nursing officers (CNOs) and head nurses. One hundred twenty-six CNOs and head nurses in the study context were identified and contacted by the authors. These CNOs and head nurses were in charge of 1325 healthcare facilities: 68 hospitals (public and private), 370 primary care centres, 50 long-term centres, 230 mental health centres, 450 welfare resources for the elderly or disabled and other 116 associated centres. Head nurses from the Catalan Fire Brigade and Emergency services were also contacted and invited to take part in the study. Through the head nurse of the Sexual and Reproductive Health Care Service, the authors reached 39 woman's health teams, including midwives. The participating CNOs and head nurses were invited to attend an information session on how to identify participating nurses. In addition, a communication plan was drawn up aimed at all organizations that included directly practicing nurses in Catalonia.

In line with the ICN Guidelines (2020), the inclusion criteria were nurses who (1) provided direct care; (2) solved complex health problems, defined by each organization and based on criteria on the severity of illness, the degree of impairment or disability and the need for comprehensive care management of the person; (3) had a master's/specialist education related to their area of work; and (4) acted as an informal refer-

ence person or consultant nurse due to their clinical expertise in their area of expertise.

### Variables

Variables collected were age, sex, work, job title, professional experience, length of current position, education and job characteristics, such as research involvement, interdisciplinary work and the prescription of medication, according to protocols. We used the Catalan version of the self-appraisal APNRD tool to describe the scope of practice of APNs. In phase I, 38 items considered the dependent variables relating to the activity performed and scope of practice by participating nurses in each of the six domains of advanced nursing practice: (1) direct patient care, (2) integrated care, (3) interprofessional collaboration, (4) education, (5) research and evidence-based practice, and (6) leadership. The APNRD provides an international standardized interpretation of advanced practice to demonstrate achievement of practice at this level. For each domain, there is a definition and description of related activities, often structured by complexity. The practice activities include higher-order problem solving, advanced planning, critical thinking, ethical decision-making and other observable complex actions (Gardner et al., 2017). Furthermore, a nurse practicing at an advanced level is likely to engage in work-related activities of research, leadership and/or education. For each domain, the minimum mean scores to indicate advanced practice were established in previous publications (Gardner et al., 2017). In addition, a minimum of a master's degree or advanced education as per the ICN definition was required.

The study also included an institutional sociodemographic questionnaire, with independent variables aimed at CNOs and stakeholders of the target institutions. The variables included were health region, county, name of the centre, area of care, number of beds, number of nurses, level of healthcare structure, nurse's job position and main area of expertise. These variables aimed to show the characteristics of the participating services and health institutions.

### Data collection

Two data collection online tools were used in phase II. Firstly, CNOs were contacted to identify all nurses fulfilling the inclusion criteria and respond to the institutional sociodemographic questionnaire. Secondly, a sociodemographic questionnaire using the self-assessment Catalan APNRD tool was distributed among the nurses identified by CNOs who were interested in participating in the study. The Survey Monkey online platform was used to distribute questionnaires.

### Ethical considerations

The study was approved by the Ethics Research Committee of the Autonomous University of Barcelona (EXP.4608) and all participants gave written informed consent.

**TABLE 1** Characteristics of participating healthcare centres and institutions ( $n = 126$ )

Variable	N (%)
Area of care	
Community mental health care	3 (%)
Comprehensive home care	2 (1.5%)
Primary care	32 (25.3%)
Sociosanitary centre	21 (16.6%)
Residential home care	1 (0.7%)
Acute hospital	42 (33.3%)
National reference hospital	5 (11.9%)
Provincial hospital	17 (40.5%)
Distric general hospital	15 (35.7%)
Specialty hospital	3 (7.1%)
Private hospital	2 (4.8%)
Mental health centre	7 (5.5%)
Women's health	12 (9.5%)
Welfare resource for the elderly or disabled	3 (2.3%)
Nursing fire brigade	2 (1.5%)
Emergency services	1 (0.79%)

## Data analysis

Descriptive data on the sociodemographic questionnaires are presented as means and standard deviation (SD) for continuous variables and percentages (%) for categorical variables. The study applied the corresponding chi-square tests to examine subgroups. If the conditions for applying the statistical test were not met, the categories of the variables compared were regrouped, or if appropriate, Fisher's exact test was applied. Completed case analysis was applied and 76 (5.7%) questionnaires with missing or uncompleted data were omitted from the analysis. All statistical tests were presented as contrasts of bilateral hypotheses and statistical significance was established as  $p \leq 0.05$ . The analysis was made using R statistical software version 3.6.2.

## RESULTS

### Participants and descriptive data

Across Catalonia, 126 healthcare facilities participated in the study, representing the 9.2% of the healthcare facilities invited. These 126 facilities included 22 727 nurses, representing 49.8% of the nursing population in Catalonia.

Table 1 describes the characteristics of the 126 centres which responded to the institutional questionnaire. CNOs of the participating healthcare centres identified 1421 nurses who met the inclusion criteria, and 1285 nurses (90.4%) agreed to participate: 76 did not complete the questionnaire and 1209 nurses were included in the analysis.

Nurses aged 40–54 years (56.2%) were the largest group: 91.2% were females, 80% had been nurses for > 15 years and 59.1% had been in their current job for > 20 years. The most responses were received from acute care (653; 53.9%), primary and community care (310; 25.7%), emergency services (101; 8.4%), social and long-term care (73; 6%) and mental health (72; 6%). The participating hospitals included secondary hospitals (42%), tertiary hospitals (27.9%), district hospitals (16.7%) and specialty hospitals (11.2%), defined as hospitals caring for and treating patients with a specific illness. Table 2 summarizes the sociodemographic characteristics of the study participants, of whom 16.8% stated they were case managers, 13.8% clinical nurses, 12% APNs and 8.3% clinical nurse specialists, among others; 27.9% of participating nurses stated their main area of expertise was in chronic conditions, ageing and end-of-life care.

For the analysis of the construct, an exploratory factor matrix was elaborated and a matrix of six main factors was obtained coinciding with the original scale, which explains 63.72% of the total variance. A psychometric analysis of the scale was carried out in order to validate the groupings of the items in each domain. For the analysis of internal consistency, the reliability with the Cronbach's Alpha coefficient was calculated using the database of the 1209 records corresponding to the total of the questionnaires answered completely. The results of the Alpha of Cronbach for each domain were as follows: expert care planning 0.861, comprehensive care 0.917, interprofessional collaboration 0.838, Training/Education 0.794, evidence-based practice and research 0.899 and professional leadership 0.888. The 38-item scale's reliability had a Cronbach's Alpha of 0.945.

Analysis using the APNRD tool showed that domains 1 and 2 (expert care planning and comprehensive care) had the highest average, and domains 5 and 6 (research and evidence-based practice and professional leadership) the lowest averages. Figure S1 shows the relative frequency of participating nurses in each domain, whether or not they met the standard of each of the APN domains ( $N = 1209$ ).

### Definition of roles and positions of nurses who align with APN defining criteria

A total of 359 (29.7%) of participating nurses met the standards in all six domains and thus, according to the APNRD tool, were identified as aligning with APN defining criteria. Of these, 269 (22.2%) met the minimum education required by the ICN (master's degree or a Spanish nursing specialty). Figure 1 presents the averages of the six APN domains of all nurses identified that were align with APN defining criteria in relation to the minimum education required. The two figures largely overlap, although the average of the professional leadership domain was significantly higher ( $p < 0.05$ ) in nurses who align with APN defining criteria with an advanced level of education. Of the 269 nurses who align with APN defining criteria and met the minimum of a master's degree or nursing specialty, 75% were aged > 40 years, 63% had been working

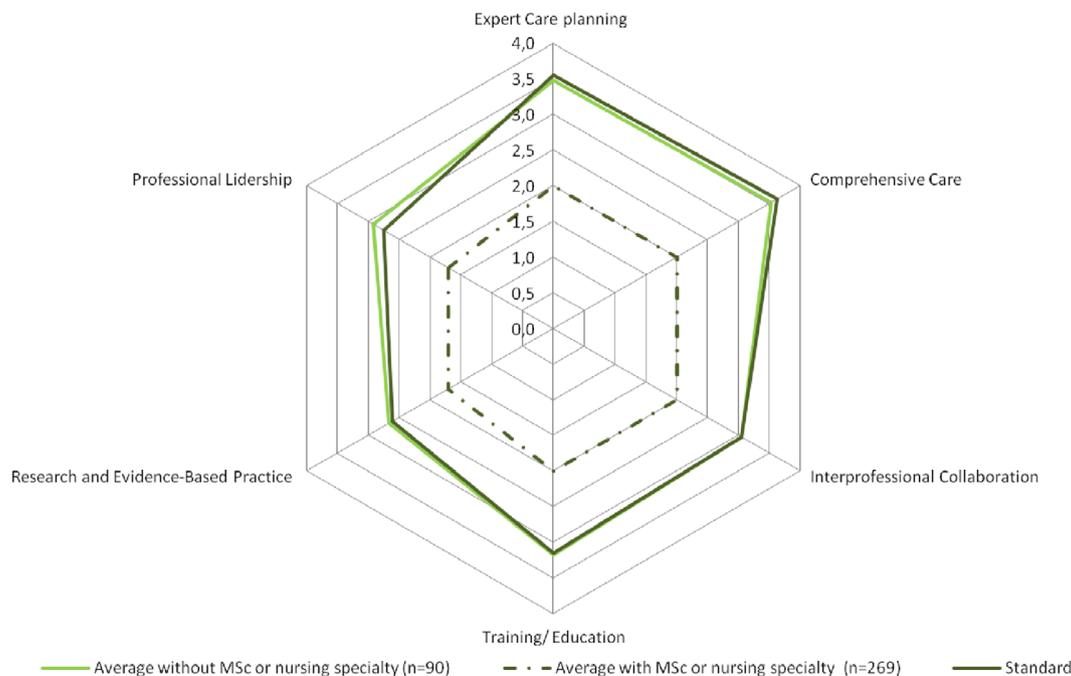


FIGURE 1 Average for each domain and standard APN according to advanced training ( $N = 359$ )

as a nurse for > 20 years and 50% had been in their position for < 10 years: 93.7% had an education directly linked to their current area of practice.

The five most common job titles (> 10%) among participants were case manager, clinical nurse, APN, specialized nurse and referring nurse. However, the greatest number of APNs identified by specific job titles were care coordinator (38.6%), specialist nurse (32.3%) and APN (25.3%). Additionally, one in three nurses with the self-reported title of specialized nurse (32.3%) had the minimum recommended education. Among self-reported APNs, one in four (25.4%) were APN, and 19.5% were case managers and 31.4% nurse midwives.

Nurses who align with APN defining criteria more frequently carried out research, clinical governance, interdisciplinary work and non-medical prescription than other nurses ( $p < 0.05$ ): 35.3% of nurses who align with APN defining criteria offered daily consultations to other health professionals outside their interdisciplinary team, while the remainder offered interdisciplinary consultation services weekly, monthly or occasionally. About 46% regularly prescribed medication according to protocols ( $p < 0.05$ ): regular prescribing under protocol was carried out by 60.4% of nurses who align with APN defining criteria in emergency services, 44.2% in primary and community care and 32.2% in specialized care. The highest percentage of nurses who reported regular prescribing were nurse midwives (65.7), followed by family and community specialists (36.7%). In contrast, mental health APNs prescribed the least. One third of APNs with specialist education reported prescribing under protocol.

Most nurses who align with APN defining criteria stated they made clinical diagnoses in their area of specialization. In addition, items within the interprofessional collaboration domain showed a high level of practice in activities of efficient transition of the patient through the health system and the improvement of care quality in an interdisciplinary care model.

### Characteristics and distribution of healthcare institutions and health services delivered by nurses who align with APN defining criteria

Table 2 shows the distribution of nurses who align with APN defining criteria according to the area of care. The areas of expertise reported most frequently among them were ageing, chronic conditions and end-of-life care (20.1%) as shown in Figure S2. APN ratios were calculated in relation to the number of staff nurses in the participating centres by health region, area of care and level of structure of acute care hospitals. According to the area of care, the highest ratios were in mental health and emergency services (emergency care and fire brigade, both 4.1%) and primary and community care (1.5%).

With respect to the type of hospital, the highest ratio corresponded to specialty hospitals (3.6%), secondary hospitals (1.2%) and district community hospitals (0.8%) (Table S1). Calculation of the rates of APN per bed showed hospitals with the highest number of APN were specialty hospitals (3.5 APN per 100 beds) and national reference hospitals (1.8 nurses per 100 beds). The ratio in participating private hospitals was 0.4 nurses who align with APN defining criteria per 100 beds. The

**TABLE 2** Sociodemographic characteristics of participating nurses (*N* = 1209) and identified APNs (*n* = 269)

Variable	<i>n</i> (%)	APN <i>n</i> (%)
<b>Age (years)</b>		
21–29	59 (4.8%)	17 (6.3%)
30–34	78 (6.4%)	20 (7.4%)
35–39	172 (14.22%)	25 (9.2%)
40–44	287 (23.7%)	70 (26%)
45–49	209 (17.2%)	46 (17.1%)
50–54	183 (15.1%)	41 (15.2%)
55–59	167 (13.8%)	37 (13.7%)
≥60	54 (4.4%)	13 (4.8%)
<b>Gender</b>		
Woman	1103 (91.2%)	237 (88.1%)
Men	106 (8.8%)	32 (11.8%)
<b>Years of professional experience</b>		
0–9	104 (8.5%)	27.9 (10.4%)
10–19	309 (32.2%)	71 (26.4%)
≥20	715 (59%)	170 (63.2%)
<b>Year of experience in current job position</b>		
0–9	607 (50.1%)	140.4 (52.2%)
10–19	452 (37.3%)	98.9 (36.7%)
≥20	150 (12.3%)	34.9 (13%)
<b>Area of care</b>		
Acute services	653 (53.9%)	147 (54.6%)
Tertiary hospital	185 (27.7%)	65 (44.2%)
Secondary hospital	284 (42.6%)	44 (29.9%)
District community hospital	115 (17.2%)	16 (10.9%)
Specialty hospital	73 (10.9%)	20 (13.6%)
Private hospital	10 (1.5%)	2 (1.4%)
Primary and community care	310 (25.7%)	75 (27.9%)
Primary health centre	279 (23.1%)	66 (24.5%)
Women’s health community centre	26 (2.2%)	8 (3%)
Comprehensive home care team	5 (0.4%)	1 (0.4%)
Mental health care	72 (6%)	20 (7.4%)
Mental health centre	36 (3%)	11 (4.1%)
Community mental health centre	36 (3%)	9 (3.3%)
Emergency care and firebrigade	101 (8.4%)	13 (4.9%)
Emergency services	95 (7.9%)	12 (4.5%)
Fire brigade	6 (0.5%)	1 (0.4%)
Sociosanitary and LTC	73 (6%)	14 (5.2%)
Social and health care	69 (5.7%)	14 (5.2%)
Home care	4 (0.3%)	0 (0%)

number of nurses who align with APN defining criteria the minimum level of education per 100 000 inhabitants in Catalonia was 3.6. If there are an estimated 30 000 nurses working in clinical care, 4% (1209) of nurses in Catalonia participated in this study and, of these, 1.2% are identified as nurses who align with APN defining criteria.

## DISCUSSION

We found that 269 nurses fulfilled the requisites to be an APN. This suggests that there is a demand for official recognition of their role. Nursing councils and the health service administration should be aware of this demand and support changes in the legislation to provide this recognition. The 7.5% of nurses aligned with APN defining criteria on the instrument used but did not meet the minimum required education. This may be justified — among other factors — by the relatively recent participation of nurses in master’s degrees and specialty education in Spain. In addition, we found a lack of a job description and person specification that could have influenced the discrepancy between nursing roles. This also occurs in other European countries due to a lack of legal regulation of APNs in Europe (Cabrera & Zabalegui, 2021).

The ambiguity of job titles in nurses who align with APN defining criteria could contribute to confusion and difficulties in job implementation as described by other studies (Schober, 2019). Almost half the nurses who align with APN defining criteria work in national reference hospitals, showing the demand for specialized nurses in acute, complex chronic care (Salmond & Echevarria, 2017). Likewise, mental health and primary care services have expanded in recent years to tackle the increase in chronic conditions (Generalitat de Catalunya, 2017; Josi et al., 2020). As needs grow, services struggle with a shortage of professionals.

Several systematic reviews of the effectiveness of APN in primary care, emergency care and other specialty areas indicate the care provided by APN is equivalent, or in some cases, better than care provided by physicians (Laurant et al., 2018). Thus, APNs are a valuable resource for health systems challenged to meet population health needs.

Evidence-based practice and leadership have developed as APNs core elements (Schober, 2019) (CNA, 2019); however, study results showed that participants have to develop further these two domains. The fact that 65.7% of the nurses identified as aligning with APN defining criteria fulfilled tasks of interprofessional collaboration reflects current APN guidelines (ICN, 2020) describing the optimal evolution and continuity of care for patients within multidisciplinary teams, contributing to improvements in care, service navigation and health outcomes. The study found a general ratio of 1.3/100 beds, 3.5 in specialty hospitals and 1.8 in tertiary hospitals. Similar ratios of APNs have been reported (Hämel et al., 2020) in other countries; however, understanding how context affects implementation of APNs can be crucial to manage difficulties that arise during this process. These results may help to lay the groundwork for a formal designation and to gain an enhanced insight into the dynamics of the context of study and APNs implementation.

## Limitations

Although the project was widely disseminated, some nurses who align with APN defining criteria may have been missed.



Participants' self-assessments were not contrasted by observable out documentation evidence.

## CONCLUSION AND RECOMMENDATIONS

This is the first scoping study of APNs in Spain. Most nurses who align with APN defining criteria identified work in specialized care and acute hospitals, with the highest percentages in mental health, primary care, and specialized care, mirroring current health issues and threats to health services in Spain. APNs focus on expert care planning and integrated care, the domains that are foremost in clinical practice and have the most potential to make a real difference to patient's outcomes. Promoting the establishment of APN defining criteria that includes credentialing and a regulatory framework within international guidelines should be a priority to make an impact on decision-making and healthcare sustainability.

### Implications for nursing practice

Identifying areas that are actively developing APN roles may be useful in workforce planning. APNs provide autonomous practice, assumption of risks and effective transitions of care in which they play a role. They also place an emphasis on leadership and continuous research to contribute to the development of strategic health policies and services. As our results show similar APN ratios as other countries, recognizing and re-thinking the role of nurses who align with APN defining criteria to enhance health and social care systems should be considered.

### Implications for nursing policy, and/or health policy and/or social policy

The need to identify the most effective interventions and strategies in health services has become a priority to improve and manage the deficit and overload of current and future services. Most health expenditures are designated to chronic diseases and this burden will increase. Healthcare systems should capitalize on the strength of professionals to promote transformation and sustainability. APNs could potentially make real changes in healthcare services as they are closely linked to clinical practice and direct patient care.

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## CONFLICT OF INTEREST

The authors have declared no conflict of interest.

## AUTHOR CONTRIBUTIONS

Study design: SSG, AZ, MCO, MEC, MM and LFE.

Data collection: LFE.

Data analysis: SSG, AZ, MCO, MEC, MM and LFE.

Study supervision: LFE.

Manuscript writing: SSG, AZ, MCO, MEC, MM and LFE.

Critical revisions for important intellectual content: SSG, AZ, MCO, MEC, MM and LFE.

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## REFERENCES

- Ackerman, M., Norsen, L., Martin, B., Wiedrich, J. & Kitzman, H. J. (1996) Development of a model of advanced practice. *American Journal of Critical Care*, 5(1):68–73.
- Bossuyt, P. M., Reitsma, J. B., Bruns, D. E., Gatsonis, C. A., Glasziou, P. P., Irwig, L. M., Lijmer, J. G., Moher, D., Rennie, D. & de Vet, H. C. (2003) Toward complete and accurate reporting of studies of diagnostic accuracy: the STARD initiative. *British Medical Journal*, 326, 41–44.
- Bryant-Lukosius, D., Valaitis, R., Martin-Misener, R., Donald, F., Peña, L. M. & Brousseau, L. (2017) Advanced practice nursing: a strategy for achieving universal health coverage and universal access to health. *Revista Latino-Americana De Enfermagem*, 25, e2826. <https://doi.org/10.1590/1518-8345.1677.2826>
- Cabrera, E. & Zabalegui, A. (2021) Bologna process in European nursing education. Ten years later, lights and shadows. *Journal of Advanced Nursing*, 77(5), 1102–1104. <https://doi.org/10.1111/jan.14727>
- Canadian Nurses Association. (2019) Advanced practice nursing: a Pan-Canadian framework. Ottawa, Canada.
- Chang, A. M., Gardner, G. E., Duffield, C. & Ramis, M. A. (2011) Advanced practice nursing role development: factor analysis of a modified role delineation tool. *Journal of Advanced Nursing*, 68(6), 1369–1379.
- Constante, C. & Beitia, C. (2015) The Health Plan for Catalonia: an instrument to transform the health system. *Medicina Clinica*, 145(Suppl 1), 20–26.
- Department of Health of Catalonia. (2016) Pla Interdepartamental i Intersectorial de Salut Pública (PINSAP). Barcelona: Interministerial and Intersectorial Public Health Plan.
- Gardner, G. E., Chang, A. M., Duffield, C. & Doubrovsky, A. (2012) Delineating the practice profile of advanced practice nursing: a cross-sectional survey using the modified strong model of advanced practice. *Journal of Advanced Nursing*, 69(9), 1931–1942.
- Gardner, G., Duffield, C., Doubrovsky, A. & Adams, M. (2015) Identifying advanced practice: a national survey of a nursing workforce. *International Journal of Nursing Studies*, 55, 60–70.
- Gardner, G., Duffield, C., & Gardner, A. (2017) The Australian Advanced Practice Nursing Self-Appraisal Tool (The ADVANCE Tool). Queensland University of Technology.
- Generalitat de Catalunya. (2017) Pla director de salut mental i addiccions. Estratègies 2017–2020. Generalitat de Catalunya. Departament de Salut.
- Hämel, K., Toso, B. R., Gonçalves de Oliveira, C. A. & Giovanella, L. (2020) Advanced practice nursing in primary health care in the Spanish National Health System. *Ciència & Saúde Coletiva*, 25(1), 303–314. <https://doi.org/10.1590/1413-81232020251.28332019>
- Hamric, A. B. & Tracy, M. F. (2019) A definition of advanced practice nursing. In M. F. Tracy & E. T. O'Grady (Eds.) *Advanced practice nursing: an integrative approach* (6th ed.) St. Louis, MO: Elsevier, pp. 61–79.
- International Council of Nurses (ICN). (2020) Guideline on advanced practice nursing. Available at: [https://www.icn.ch/system/files/documents/2020-04/ICN\\_APN%20Report\\_EN\\_WEB.pdf](https://www.icn.ch/system/files/documents/2020-04/ICN_APN%20Report_EN_WEB.pdf) (Accessed 26 April 2021).

- Josi, R., Bianchi, M. & Brandt, S. K. (2020) Advanced practice nurses in primary care in Switzerland: an analysis of interprofessional collaboration. *BMC Nursing*, 19(1). <https://doi.org/10.1186/s12912-019-0393-4>.
- Kottner, J., Audigé, L., Brorson, S., Donner, A., Gajewski, B. J., Hróbjartsson, A., Roberts, C., Shoukri, M. & Streiner, D. L. (2011) Guidelines for reporting reliability and agreement studies (GRRAS) were proposed. *Journal of Clinical Epidemiology*, 64(1), 96–10.
- Laurant, M., van der Biezen, M., Wijers, N., Watananirun, K., Kontopantelis, E. & van Vught, A. (2018) Nurses as substitutes for doctors in primary care. *Cochrane Database of Systematic Reviews*, (7). Art. No.: CD001271. <https://doi.org/10.1002/14651858.CD001271.pub3>
- Maier, C. L., Aiken, L. & Busse, R. (2017) *Nurses in advanced roles in primary care: policy levers for implementation*. OECD Health Working Papers, No. 98. Paris: OECD Publishing.
- Salmund, S. W. & Echevarria, M. (2017) Healthcare transformation and changing roles for nursing. *Orthopedic Nursing*, 36(1), 12–25. <https://doi.org/10.1097/NOR.0000000000000308>
- Schober, M. (2019) Development of advanced practice nursing: the international context. *Enfermería Clínica*, 29(2). <https://doi.org/10.1016/j.enfcli.2018.08.002>
- Sevilla Guerra, S., Risco Vilarasau, E., Galisteo Giménez, M. & Zabalegui, A. (2018) Spanish version of the modified Advanced Practice Role Delimitation tool, adaptation and psychometric properties. *International Journal of Nursing Practice*, 24(3), e12635. <https://doi.org/10.1111/ijn.12635>.
- Sousa, V. D. & Rojjanasrira, T. W. (2011) Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, 17, 268–274.
- Streiner, D. L. & Kottner, J. (2014) Recommendations for reporting the results of studies of instrument and scale development and testing. *Journal of Advanced Nursing*, 70(9), 1970–1979.
- World Health Organization. (2018) United Nations Children's Fund (UNICEF). Global conference on primary health care. Astana, 2018. Available at: <https://www.who.int/primary-health/conference-phc>. (Accessed 17 July 2020).
- World Health Organization. (2019) Regions for health network. Catalonia, Spain. Geneva: WHO.
- World Health Organization. (2020) State of the world's nursing 2020: investing in education, jobs and leadership. Geneva: WHO.

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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