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Context and implementation of advanced nursing practice in two countries: An exploratory qualitative comparative study

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ABSTRACT

Background: The complexity and difficulties involved in the development and implementation of health innovations, such as advanced practice nursing roles, result in slow and sporadic international acceptance. To manage this complexity, it is advisable to deepen understanding of the context in which these innovation processes take place. However, there is little research specifically concerned with contextual factors that influence the implementation of advanced practice nursing roles.

Purpose: To integrate results and develop a comprehensive understanding of the contextual factors that influence the development and implementation of advanced practice nursing in two countries, Canada and Spain.

Methods: The research method used was qualitative, descriptive, and explanatory. Different qualitative methods, a novel data-collection process, and perspectives from participants in various professional groups were used to triangulate the findings from both settings. Participants with diverse perspectives on practice, organization, and health and regulatory environments were engaged to participate in semistructured focus groups in Catalonia and individual interviews in Quebec. Data gathered were to provide information on a variety of context dimensions: understanding of advanced practice nursing; perceived needs to develop the role; and perceived barriers and facilitators present in the Catalan and Quebec contexts. Thematic analysis was carried out based on the theoretical proposals from the framework and triangulated for both sides.

Findings: Thirty interviews were conducted in Quebec and 44 in Catalonia. Integration of findings reflected a vast predominance of convergent themes despite differences in context and population characteristics. The study identified common and divergent contextual factors in advanced practice development and implementation in these settings. The same perceived barriers and facilitators

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were prominent almost evenly across all groups, although organizational and environmental themes were the most coded and discussed during interviews.
Discussion: Understanding contextual factors will ultimately allow better understanding of complex phenomena in health care. Further reporting of contextual factors that influence the development and implementation of advanced practice nursing roles in other countries is required to compare innovative processes.
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Introduction

Greater life expectancy and advances in science and technology have affected the nature and the prevalence of illnesses and conditions, increasing complexity in health care organizations and patient care (Bergman, Hellström, Lifvergren, & Gustavsson, 2015). The pressing nature of current population health needs suggests that changes in health care delivery are desirable and unavoidable. To respond to these compelling challenges, some health care systems have attempted to find innovative solutions to health delivery issues, such as the expansion of professional roles (Archibald & Fraser, 2013). Optimizing the scope of professional practice to allow human resources to be used to their full potential will, ultimately, sustains the dynamics of intricate health organizations and meet population needs. The expansion of professional roles, such as advanced practice nurses (APNs), has emerged as an innovative solution in pioneering health care reforms.

Two recent studies (Barton, Bevan, & Mooney, 2012; Flynn, Scott, Rotter, & Hartfield, 2017) classify a large number of reported inefficiencies in health care systems and suggest health care quality improvement through the establishment of advanced nursing roles. However, the suitability of the APN as a complex intervention relies upon appropriate development and implementation in a specific context which reflects aspects of the target population (Pfadenhauer et al., 2017). Craig et al. (2008) guidance recommends that greater attention be paid to the contexts in which newly developed interventions take place to identify contextual factors associated with differences in outcomes. The guidance suggests that interventions may work best if they are tailored to local contexts rather than completely standardized (Craig et al., 2008). The need to understand the contextual factors that influence activity and outcomes is well recognized, yet the role that context plays in the development and implementation of health and social care interventions remains poorly understood (Howarth et al., 2016). There is no real understanding of how knowledge acquired in one country can be translated and adapted to be useful in other countries (Dowling, Beauchesne, Farrelly, & Murphy, 2013). Studies rarely undertake systematic analysis of the contextual structure that underlie the production and use of original interventions (Pinto, 2015). Efforts to assess and measure contextual characteristics are made, but are often limited in their ability to describe complex and varied circumstances surrounding the implementation of new knowledge or new nursing roles (Pinto, 2015).

Innovation processes and complex interventions such as APN-role implementation need a deep understanding of the theoretical foundations that underlie them and explain their capacity to produce an effect or not. From this standpoint, the APN context may become a major determinant of a result that could be affected by local laws, governance, and education requirements (Contandriopoulos et al., 2017). Comparing settings/contexts and exploring APN's capacity to produce in the new setting as the same effects were produced in the first, would support adaptation to the new roles that best suited the new context and also support the transfer and modifications that might be required (Craig et al., 2008). It would thereby foster a closer connection between research and planning for innovative and effective APN interventions carried out globally. Deeper understanding of the conceptual underpinnings of the interactions between contexts and interventions (Howarth et al., 2016) will allow analysis of how the problem of interest arises and is maintained in a particular community, organization, or system (Hawe, Shiell, & Riley, 2004). This study uses a Framework of Contextual Factors inspired by Tomoaia-Cotisel et al. (2013) for reporting relevant context in research studies (Figure 1). The framework supports the reporting of relevant context for complex phenomena and is used as a guide to interpret interactions and the development of processes and outcomes. It classifies the most important contextual factors into five specific domains: (a) the practice setting, (b) the larger organization, (c) the external environment and cross-cutting themes, (d) the implementation pathway, and (e) the motivation for implementation. To understand context, identification of distinct data resources from multiple levels and systems is recommended. These recommendations demonstrate that involving diverse participants at multiple stages of implementation, and consistently reporting critical contextual factors, are important challenges for professionals interested in improving the internal and external validity and impact of health care research.

Many studies deal with the complexity of APN development and implementation by addressing contextual factors that facilitate or hinder the process (Chaudoir, Dugan, & Barr, 2013). An understanding of the role that context and work environment plays, in the

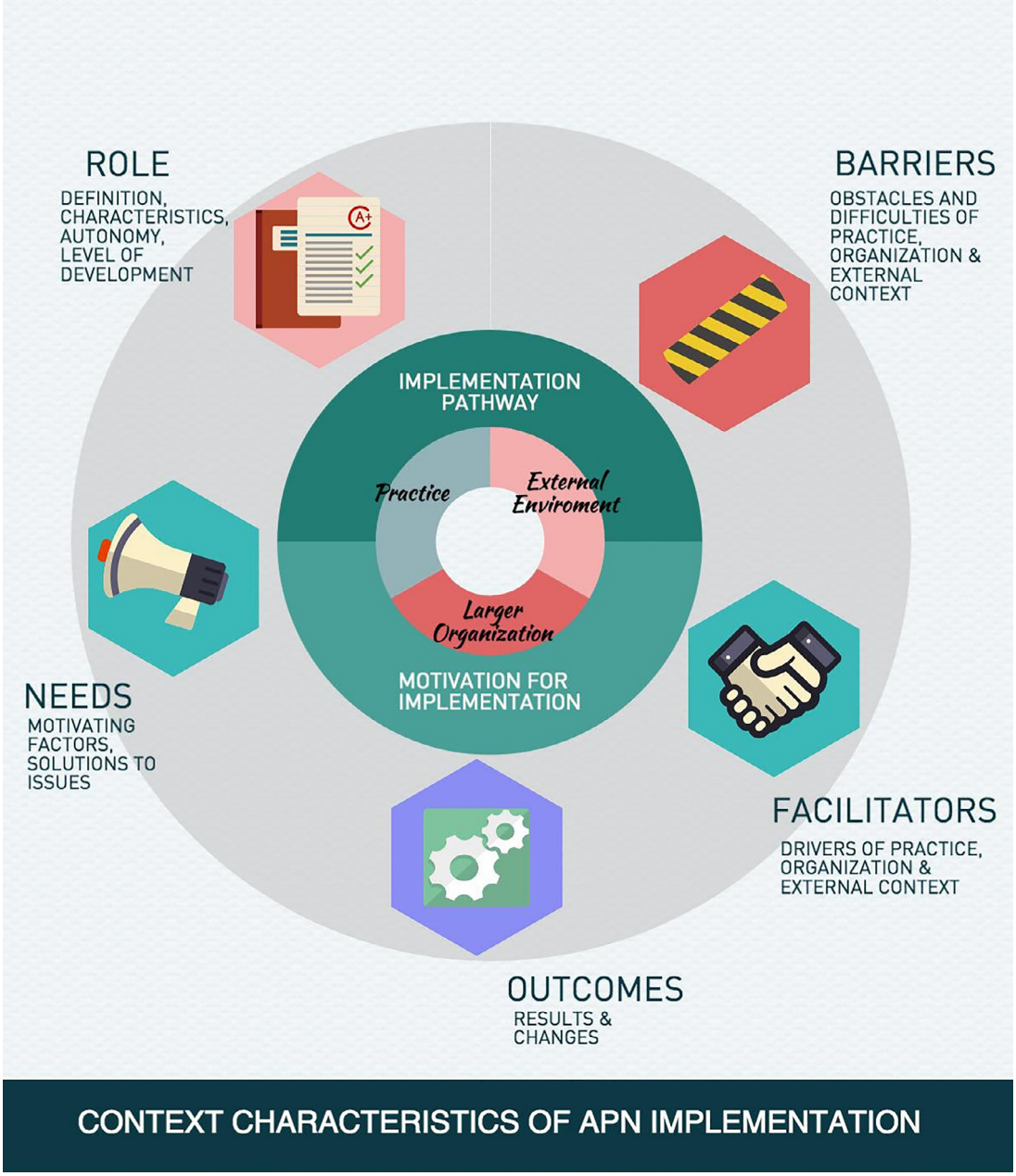

Figure 1 – Context characteristics of APN implementation.

development of health care interventions, remains misunderstood (Dowling et al., 2013; Howarth et al., 2016). There are no studies that compare the context of APN implementation across countries. To overcome these difficulties, examination of how these roles are implemented in their practice context (Andregård & Jangland, 2014) and how contextual factors interact in distinct settings, have been proposed. In order to gain insight into the context that goes beyond borders, this study aimed to explore and integrate the contextual factors that interinfluence the development and implementation of advanced practice nursing in two countries; Canada and Spain. More specifically, in Quebec and Catalonia, which both share common concerns about the organization of health systems. Within these two contexts, the challenges of coordination, continuity, access, and financing of health services are sufficiently important to encourage innovation and solutions outside the usual frameworks. In recent years, Quebec's health care system has been the subject of considerable debate (Pineault et al., 2009). Similarly, the Catalan health care system is in the process of transformation, guided by the 2016- 2020 Strategic Plan for Health Research and Innovation (Government of Catalonia Ministry of Health, 2016). The problems observed call for the restructuring of organizations and professional collaborations. This study specifically explored (a) the

perception/understanding of APN, (b) felt needs and motivations to develop APN, (c) perceived added value/outcomes of APN, and (d) perceived barriers and facilitators present in the Quebec (Canada) and Catalonia (Spain) contexts at the external, organizational and practice level.

Methods

Study Design

This study used a qualitative, descriptive design (Sandelowski, 2000) involving findings from focus groups, and individual interviews. A secondary analysis of these findings in a case study in Quebec, and a qualitative, descriptive study in Catalonia was used to triangulate the data. Triangulation analysis was selected to explore and compare contextual factors in the two different countries. In Quebec, the team carried out an implementation study using a case-study research design in three health regions where initial data collection was conducted through individual semistructured interviews. At the Catalan site, semistructured focus groups were formed to explore answers to the research questions (Table 1).

To shed light on a phenomenon such as APN, the use of multiple methods and data sources to help facilitate deeper understanding is recommended (Angen, 2000). A triangulation analysis of the varying qualitative approaches, collection procedures, and data sources was performed to contrast the extent to which evidence of contextual factors converged or provided unique contributions in both study regions. The use of triangulation (Patton, 1999) of methods, procedures, investigators, subjects, and settings allowed cross-checking and examination of the consistency of results on the development and implementation of APN.

Subjects and Setting

Recruitment was done by purposive sampling at the Quebec and Catalan sites, establishing potential actors to be interviewed a priori. Reaching a comprehensive understanding of the emergence of innovation, such as the implementation of new nursing roles, requires a multilevel analysis among the various actors and levels (Pfadenhauer et al., 2015), reflecting the various types of participants recruited. At both, the Quebec and Catalan sites, participants were mainly employed in a field that was directly or indirectly linked to the process of development and implementation of APN. Participants were selected because they were viewed as able to inform about one or more of the multiple dimensions of the Catalonia or Quebec context: political, cultural, educational, organizational, professional, and/or population.

In Quebec, specifically, potential participants were identified ($n = 27$) in collaboration with the Quebec Ministry of Health and the relevant regional health and social service agencies. Selection was based on two criterias. The first was to be part of a team where a Nurse Practitioner, a type of APN, or Registered Nurse (RN) with an extended scope of practice, had been successfully integrated. The second criterion of public community organizations or publicly-funded medical organizations; suburban or urban) be part of a team of semistructured interviews carried out with members of clinical teams and local managers.

In Catalonia, the participants ($n = 44$) also represented diverse team members involved with APN implementation and significant key stakeholders at a variety of contextual levels: practice, larger organizations, and external environment. In Catalonia, the APN role has not been implemented formally. However, there has been local implementation in some institutions and there are nurses with an advanced practice competency profile that could be compared with APNs roles internationally, as described in previous studies (Sevilla Guerra, Salmerón, & Zabalegui, 2017). Participants in Catalonia were recruited from distinct levels to collect information on experiences from clinicians and managers that help shape the practice environment, and other actors outside the organizational environment, such as those in the political, marketing, financial, and educational spheres, along with views on coordination between levels of care.

Data Analysis

Data collection from participants at both sites was conducted between March 2014 and December 2016. Data were recorded and transcribed at both sites and analyzed following multiple stages to achieve thematic analysis and triangulation of data at both sites.

Table 1 – Research Questions

Topics	Research Questions
Perception/understanding of APN roles	In your own words, how would you define what is Advanced Practice Nursing?
Felt need/key issues or motivations to explore different options, such as the development of APN roles	What need, or key issue could an advanced practice nurse role address, in the context of your team, the larger organization or external environment?
Perceived barriers and facilitators present in the Catalan or Quebec contexts (external, organization, team)	What are the personal, organizational, or external elements that can be barriers or allow APN role development or implementation?

The first stage in thematic analysis carried out was based on the theoretical proposals from the Framework of Contextual Factors (Paillé & Mucchielli, 2009). Secondary data analysis was used in Quebec as it allows us to tap into existing resources (Squires et al., 2015). The codified database was analyzed according to the study objectives; the perception of the APN role, the motivation for implementation and its facilitators and barriers. The Quebec project was a combination of logical and implementation analysis. At the operational level, the research team initially carried out a logical analysis of deployment and advanced nurse practice based on a realistic review of the literature and expert advice. This iterative analysis revealed the structural characteristics and processes of functioning primary care teams based on expanded nursing roles. Second, the team carried out an implementation analysis using a case-study research model (n=6) in three health regions in Quebec. Each case was defined as a clinical team in Quebec in which one or more expanded NP or RN roles were integrated. Analysis of the same intervention in various contexts improved the external validity of results.

The case study data were primarily based on semistructured interviews with members of clinical teams and other key stakeholders such as the Chief Nursing Officer or local services managers. The interviews were audio recorded and codified with QDA software. Secondary data analysis was used as it allowed us to tap into existing resources (Squires et al., 2015) which included the study objectives: the perception of the APN role; the motivation for implementation and facilitators and barriers to implementation. The database was analyzed and codified (2,940 verbatim responses) according to the themes that emerged from the Barcelona data analysis.

In Catalonia, semistructured interview guides were developed, validated, and applied by the researchers at both sites based on the reference framework. Focus groups were designed, distinguishing between groups of clinicians, actors involved in management in a University and Community Hospital in Catalonia, and participants from the wider academic, political, and decision-making settings. Following the group interviews, in situ manual categorization of data and theme-creation was carried out. The manual categorization of data was done by two researchers from each site conducting the focus groups using recorded audio data and notes. This step was followed by revalidation of recorded data with all the researchers. Following initial categorization analysis, results were shared with the participants in the Catalan context. As a second step in analysis, data analysis software NVIVO 11 was used to code focus-group data, exploring conceptual relationships and counting keywords. Data analysis with software in Quebec and Catalonia facilitated identification of patterns and established relationships from complex data. Credibility was achieved at both sites by reading each transcript, coding the data into basic themes at both sites by the same researchers, and finally into a coding frame where all the data at both studies were accounted for in similarity of content and substance, thereby demonstrating internal consistency (Silverman, 1995).

The second stage, triangulation of data, was conducted with the findings of the thematic analysis performed in Quebec and Catalonia. The multistage analysis helped with the reciprocal transfer of data between studies and in finding commonalities and translation of one study's findings into another, using concepts and themes that diverge or applied to both. The Triangulation Protocol for health research studies were used to assist with the integration of data (Farmer, Robinson, Elliott, & Eyles, 2006). Researchers from both sites applied the triangulation protocol by (a) identifying unified sets of themes from the reference framework, (b) converging the themes and data set into a coding matrix, (c) analyzing the findings, (d) comparing the integration, and (e) providing further feedback. Dependability was enhanced by the use of the Framework of Contextual Factors as a topic guide (Tomoaia-Cotisel et al., 2013), confining the final analysis to two members of the research team, and using the coding matrix to display findings, followed by consideration of whether there was agreement (convergence) or contradiction (dissonance) of findings, complementary information on the same topic (complementarity), or data arising from one data set and not the other (silence) (O'Cathain, Murphy, & Nicholl, 2010).

Findings

Sample Characteristics

In Quebec, 20 individual interviews and 3 group interviews were conducted with 27 participants. Most were female (78%) and the majority had a master's Degree (34%) or a PhD (25.5%). All primary health care organizational structures were represented, with 5 participants from community-based nonprofit organizations and 23 from the public sector. These were divided into a family-medicine group (private medical clinics where public hospitals cover nurses' salaries in exchange for the clinic extending its opening hours and increased care continuity), local health and services centers (public organizations providing primary health care and social services) and hospital-based family-medicine units which train medical residents and nursing students. All participants were based in urban or suburban areas.

In Catalonia, a total of 44 participants were interviewed with a response rate of 86.5%. Four semistructured group interviews were conducted in March 2016 with (a) clinicians, mainly consisting of nurses that carry out advanced practices and managers of

different services who were in direct contact with everyday practice, (b) managers and actors involved in management within the hospital organization, and (c) participants from academic, political, and decision-making circles. Participants ranged in age from 20 to over 70 years old. Most were female (68%) and the vast majority had a high educational qualification such as a master's degree (59%) or a PhD (32%). All participants were employed directly or indirectly in the process of developing or implementing APN roles in diverse disciplines including nursing (62%), medicine (27%), human resources (2%), midwifery (2%), psychology (2%), or others including university professors or an economist. A wide range of practice settings were represented with 29 participants based in the hospital setting, 5 in the community, 4 in secondary care and academia, and 2 at other health care providers. Sample characteristics were described in Table 2.

Table 2 – Sample Characteristics by Country

Variable	Quebec ($n = 47$)	Catalonia($n = 44$) n (%)
Age group		
20–29	-	0 (0)
30–39	-	3 (6.8)
40–49	-	16 (36.3)
50–59	-	19 (43.1)
60–69	-	6 (13.6)
>70	-	0 (0)
Sex		
Male	10 (22)	14 (32)
Female	37 (78)	30 (68)
Education level		
Diploma	-	2 (4.5)
Degree	19 (40.4)	2 (4.4)
Masters	16 (34)	26 (59)
PhD	12 (25.5)	14 (32)
Discipline		
Nurse	32 (68)	27 (61.3)
Midwifery	0 (0)	1 (2.2)
Medical doctor	10 (21.2)	12 (27.2)
Pharmacist	0 (0)	0 (0)
Psychology	2 (4.2)	0 (0)
HR Manager	0 (0)	1 (2.2)
Allied health professional	2 (4.2)	0 (0)
Other	1 (2.1)	1 (2.2)
Practice setting		
Community	47 (100)	5 (11.1)
Hospital	0 (0)	29 (65.9)
Aged care	0 (0)	4 (9.09)
Academic	0 (0)	4 (9.09)
Political	0 (0)	2 (4.5)
Sector		
Public	23 (48.9)	37 (84.09)
Private	19 (40.4)	5 (11.3)
Not for profit	5 (10.6)	1 (2.2)
Sole trade	0 (0)	0 (0)
Other	0 (0)	1 (2.2)
Region		
Urban or suburban	47 (100)	37 (84.09)
Regional	0 (0)	4 (9.09)
National	0 (0)	3 (6.8)
Rural and remote	0 (0)	0 (0)

Understanding of Advanced Practice Nursing

Multiple themes and data sets were integrated in a convergence coding matrix of findings (Table 3). The matrix integrated the two sets of results on the essence of the meaning and prominence of themes presented (Farmer et al., 2006). The matrix allowed determination of the degree of data convergence and integration within the findings in each of the explored questions. The APN was seen as the pivotal role inside and outside the service and as the main person of reference with patients and other services. Convergence was found regarding the management model of care of the APN and the increased comprehensive and integrative care that they provide through collaboration.

Motivations for Role Development

The two sites found common ground and converged on the need to implement and develop APN roles to increase support for other health professionals, improve accessibility to health services, and promote change in patient management models. In many cases, advanced practices appeared to be implemented to improve accessibility and the comprehensiveness of patient care; improve access for newborns, and more tailored care for mental health disorders or palliative care. Patients' needs were broad enough for nursing practice to develop and become more autonomous within an integrated team in primary and secondary care. The relational continuity between nurses and patients was seen as necessarily less linear because of the narrower scope of practice and full role implementation process. Referring to other professionals and follow-up was identified as a need to mitigate relational discontinuity.

Clinicians, managers, and participants from the wider environment recognized that, generally, APNs allow improvements in efficacy by allowing physicians to enroll more patients, shorten waiting lists, or be more reactive in complex cases. This improvement was concomitant with changes in service organization such as the arrangement of appointments and follow-ups.

> *"Midwives coordinate all women's health. They have increased the quality of care of the patient, decreased admissions, increased savings and developed a change in the philosophy of care." (Midwife, Maternity Unit, University Hospital)*

> *"APNs, sometimes they have been cost-effective and sometimes they have cost more but it has always increased the quality of patient care, quality of services and service organization. As we review the process and develop re-structuring, we make the process more efficient" (Head Nurse, cardiovascular unit, University Hospital)*

Convergent data showed that the role allowed for more interdisciplinary work where participants emphasized greater exchange of knowledge, patient flow, and team support. There was a view that there

Table 3 – Matrix of Findings for Contextual Factors

THEMES	Case Study Interviews in Quebec	Focus Groups in Catalonia	Relationship
	Understanding of Advanced Nursing Practice		
Prescription and therapeutic adjustment	Some prescription rights under collaborative guidelines for specific situations and conditions. Increased autonomy and greater number of visits.	-	Silence
Evaluation, examination and discharge	Expanded competences in discharge, complex care, and access to specialized resources.	-	Silence
Teaching, Training and Student Supervision	Advisory clinical and managerial role. Mentorship with students and colleagues (strategic meetings…)	-	Silence
Service Coordination and Team supervision	Pivotal role inside and outside the team. Main person of reference with patients and overview of interactions from other services.	Main point of contact for the team and collaborating service.	Convergence
Education and prevention	Therapeutic education and counseling on prevention of complications and healthy living	Promotion of self-care, patient empowerment and lead in shared decision-making with the patient	Convergence
Specialization	Traditional nursing specialized care vs. integrated care	Expertise in process, condition, or symptom. Specialist training and expertise in some areas.	Complementarity—different specializations in distinct settings
Patient management and follow-up	Joint management model of care in collaboration with General Practitioner. Voluntary partnership between General and Nurse Practitioners.	Specific patient management in complex patients requires multiagency involvement and collaboration.	Convergence
Relational continuity and patient trust	Trusting relationships between APNs and the patients/MDTs	Closer relationship with the patient. Nontechnical skills such as communication skills and good relationship with the patient, increasing quality in their interactions.	Convergence
Interprofessional and Interagency collaboration	Increased comprehensive and integrative care through collaboration.	Ability to collaborate with other professionals involved in patient care.	Convergence
Leadership	No leverage to influence practice in medical clinics. Legal limitations. Leadership to broaden scope of practice.	Leader within the multidisciplinary team. Expert lobby in specific areas of care to expand practice.	Convergence
Complex decision-making	-	Capabilities to perform complex interventions and monitor results	Silence
Adoption of evidence-based practice	-	Ability to apply up-to-date research results and knowledge to their practice.	Silence
Comprehensive integrated care	-	Global view of patient process	Silence
Core skills, competences and qualifications	-	Main defining characteristics of APNs	Silence
Autonomy	-	Professional autonomy in activities, decisions, and functions to facilitate care. Higher responsibility and accountability in their tasks.	Silence
Evaluation of outcomes and research	-	Evaluation of health and process outcomes to determine role impact.	Silence
	Motivations for Role Development		
Self-determination	Participation in decision-making processes, assessments of	-	Silence

(*continued*)

Table 3 – (*Continued*)

THEMES	Case Study Interviews in Quebec	Focus Groups in Catalonia	Relationship
	practice and quality improvement involvement.		
Marginalized clientele	Role development due to lack of medical services or specialized follow-up in certain population groups	-	Silence
Accessibility improvement	Need to increase caseload, reduce waiting lists or to be more reactive in the way appointments are made.	Decreased waiting list, closer follow-ups for patients that most need it.	Convergence
Professional role support	Supporting other professionals in practice	Team support and regulation. Access to professional development within the team.	Convergence
Patient management model	Improve accessibility, integration, and comprehensiveness of patient care. Linear relational continuity with patients, avoiding gaps between levels of care. Reduce care fragmentation.	Needs of the own patients within acute and chronic services. Reconsider organizations to give solutions and improve connections between primary and secondary care. Nursing case management. Integration of care.	Convergence
Patient safety	-	Increasing patient safety to improve global resources in specific areas, i.e., anesthesia nurses	Silence
Greater care process and outcomes	-	Economic advantage and sustainability, patient satisfaction, decreased re-admissions, improved patient and process outcomes and quality of care.	Silence
Adoption of evidence-based practices	-	Translational care based on research, experience, and knowledge.	Silence
Patient education and empowerment	-	Doctors and general nurses do not have the sufficient time to dedicate to patient education and empowerment in specific cases.	Silence
	Felt Needs/Outcomes for Role Development		
Accessibility	Reduce waiting lists, increased number of patients enrolled in practice for certain specific or vulnerable patients. Increase availability of time slots. Ensure transmission of information.	Lead and implement new services to improve patient access to care	Convergence
Efficacy and efficiency	Better collaboration and effective follow-ups. Increased safety. Cost-effectiveness	Review of processes and re-structuring of care. Increased savings decreased admissions due to re-organization of professional functions. More safety in the process.	Convergence
Interdisciplinarity	Increased exchange, patient flow and team support. Less parallel practice, expertise is better organized.	Working together within joint care protocols and shared decisions.	Convergence
Clientele benefit from nursing paradigm	Emphasis on promotion and prevention	Nursing global vision supports change of habits and promotes self-care.	Convergence
Change in mindset	Habit of team management and collaboration between professions is gradually developing.	Supporting innovative nursing practice and new roles in practice within the team. Increase collaborative practices	Convergence
Better understanding of nursing roles	Expanded nursing scope of practice is developing and better understood by health professionals	Identify scope of practice, rethink organization of functions, and redefinition of tasks.	Complementarity—Different scope of practice and role definition

(*continued*)

Table 3 – (*Continued*)

THEMES	Case Study Interviews in Quebec	Focus Groups in Catalonia	Relationship
Quality of care and patient satisfaction	-	Value to the system and increased patient confidence in the process.	Silence
Patient empowerment and shared decisions	-	Increased patient education and informed decisions	Silence
Enhance transitional care	-	Continuity of services and standardization of care among levels. Transitional care following hospitalization and discharge and at home.	Silence
Workforce satisfaction	-	Professional development promotes further professional satisfaction.	Silence
	Perceived Barriers and Facilitators		
Facilitators			
Good communication	Joint discussions within the team. Formal or informal regular communication was seen as important.	-	Silence
Right to prescribe	Nurse Practitioners can refill prescriptions but cannot start or adapt a medicine treatment. Collaborative prescriptions can assist with recurrent population issues	-	Silence
Clientele	Triaging of patients helps develop trust and collaboration with the team. APNs can maximize their role through pediatric or chronic disease management in walk-in clinics.	-	Silence
Supportive managers and clinicians	"Embassador" role that contributes to the development of practice autonomy and to negotiations with other key stakeholders.	Nurse managers support and motivation to reorganize team and care.	Convergence
Finance	External funding for resources and shaping scope of care delivered.	Economic funding for implementation and professional wages	Convergence
Political and organizational drive-vision	Leadership and vision of how the care model should be developed.	Political motivation to develop the role. Vision of the agenda for changing professional careers.	Complementarity—different stages of implementation process.
Interprofessional collaboration	Continuing education from physicians on day-to-day basis is recognized. Goal of working together for patients' benefit. Working on collaboration rather than competition.	Need to work across services vs. traditional service models. Being adaptable to patients' needs and prioritizing them over organizational needs in collaboration with others.	Complementarity—in Quebec they look for ways to improve collaboration. In Catalonia, they talk about the need.
Innovation/open-mindedness	Team innovations and being open to new care situations. Flexibility and adaptation to new situations	Innovative ways to improve services. Organizational autonomy to implement new services.	Convergence
Understanding and acceptance of APN by others	Decreased confusion about the role and frustration over mistakes.	Facilitation of implementation if other professionals see APNs as experts and leaders in their respective areas. Knowing the functions and tasks of the role.	Convergence
Development and promotion of the role	Projects illustrating the potential of the role.	Need for organizations to create specific job positions with the person specifications. Create spaces of opportunity to show added value.	Convergence
Planning implementation		Plan and facilitate implementation in practice. Defining team functions	Convergence

(*continued*)

Table 3 – (*Continued*)

THEMES	Case Study Interviews in Quebec	Focus Groups in Catalonia	Relationship
	Well planned integration, definition of roles and functions and involvement of the whole team.	and hiring human resources accordingly.	
Access to professional development and training	Keeping up to date with changing population needs and knowledge. Formal and informal acquisition of knowledge.	Human resource policies that promote permanent employees rather than hiring well-qualified staff increases difficulties and does not promote talent retention. No positions available for APNs. Constant rotation of staff and physicians has to be constantly training nurses to a specific skills within the team.	Dissonance
Self-confidence and increased knowledge	Establish impact of care and maintain continuity. Indicators based on the quality of the relationship developed with the client.	Access to academic training provides methodological resources to evaluate services and improvement of services.	Convergence
Role autonomy and definition of scope of practice	Specific job descriptions and job specifications for APN. Matching care delivery, using the principle of subsidiarity and development of skills in subordinate roles.	Nursing-body agreement on the definition and functions of the role and differentiate them from the role of registered nurses.	Convergence
Autonomy of the system to develop the role	-	Decentralization of care from the national health system allows further flexibility and creativity to develop new roles	Silence
Monitoring outcomes and added value	-	Showing efficiency to improve or maintain outcomes creates new opportunities and role sustainability. Agreement on the need for development.	Silence
Recognition and regulation of the role	-	Legal framework of the role	Silence
Barriers			
Delay in the system	Electronic patient records and computer operation not ready to integrate APNs identification numbers, prescriptions, etc.	-	Silence
Lack of communication	Project implementation from top-down and professionals are not sufficiently informed. Communication within the team.	-	Silence
Organizational limitations	Physical space issues, professionals' schedules, duplication of tasks.	-	Silence
Misreading of the role	Explaining the role is an on-going process that can lead to not achieving full potential or being to expert to perform certain tasks. Some patients could have misconception of the nursing role.	Lack of visibility and definition of the role leads to confusion among health professionals and APNs themselves.	Convergence
Working conditions	No ability to price for professional training, no schedule flexibility, or no compensation for overcharge of work.	Standard nurse-led clinics and rigidity of physicians' schedule decrease flexibility of care. Lack of autonomy makes care situations dependent on other professionals and lacks continuity.	Convergence
Training issues	Academic education not adapted to clinical need. Not enough	Lack of variation in academic training for APNs.	Convergence

(*continued*)

Table 3 – (*Continued*)

THEMES	Case Study Interviews in Quebec	Focus Groups in Catalonia	Relationship
	emphasis on clinical judgment and physical or mental assessment.		
Inertia-development process	Slow implementation process.	Cultural inertia to remain unchanged as professions.	Convergence
Limitation regarding role expression	Legal rules regarding prescription and diagnostic test are restrictive. Noncooperation from other professionals could lead to nonrecognition of nursing autonomy.	Limited scope of practice and autonomy.	Convergence
Role opposition	Interprofessional competition, opposition of physicians or patients to transfer of care to the APN. Opposition from own nursing profession.	Interprofessional and nursing union opposition. Physicians could see new re-organization of functions as professional intrusion. Patients may not agree to see APNs when they have been attended by physicians.	Complementarity—nursing opposition not mentioned in one setting.
Lack of understanding of the need	Covering the gap and understanding the added value in the services provided.	Lack of service evaluation may not show a need for further implementation of roles. No consensus on need.	Convergence
Lack of legal framework	-	Lack of established core competences, formal training, and defined functions. Lack of regulation	Silence
Lack of vision of the role	-	Lack of team leadership and political drive	Silence
Financial issues	-	Decreased budget in organizations	Silence

was less solo or parallel practice and expertise was better integrated in an improved "working atmosphere."

> *"…Increased continuation of services has been seen following the introduction of APNs. We are sharing patient care with different levels of care and standardizing the care among these levels" (Nurse practitioner, primary health care organisation, community services)*

There was also agreement on the need to transform evidence into practice and to have "better links between research and practice" by having leading professionals that can generate protocols, transform knowledge into clinical guidelines, and disseminate results among their peers. This was viewed as a change in the nursing paradigm which benefits patients. The complexity of the population was seen as a major driver for nurses to develop higher competencies, abilities, and autonomy to meet current health demands.

> *"The needs are those of the patient; the characteristics of the patients that we have nowadays in acute and chronic services. The need for the organizations to give solutions for care of these patients" (Nurse, Chronic care program coordinator, Catalan government)*

Other similarities in the datasets were discussed, such as the improvement in outcomes by APNs, better understanding of nursing roles, and the change in professional mind-set. Organizations have seen more consistency in the use of collaboration and team management. The need to understand the new developing roles by other professionals and patients was key to satisfactory team organization.

Other specific needs arising solely in Quebec or Catalonia were categorized as silent in the coding matrix. These included the need to integrate marginalized clientele in Quebec or the need for patient safety, less care fragmentation or more efficient care processes, and outcomes in Catalonia. There were no complementary or dissonant themes regarding motivation for role development.

Perceived Barriers and Facilitators

Themes discussed on perceived barriers to facilitators of APN implementation are detailed in Table 4. There were numerous themes with common ground which were integrated into data analysis at the three context levels; practice, organization, and environment, as well as in the implementation pathway. Issues related to barriers and facilitators were prominent, almost evenly across practice, organization, or environment levels, although the organization and environment level themes were the most coded and discussed during the interviews.

Discussions about opposition to the roles by patients, other professionals, or organizations were

Table 4 – Common Themes for Perceived Barriers and Facilitators Levels

		Common Themes	Unique Themes in Catalonia
Barriers			
Practice level	IT delay in the system	Lack of communication	Nursing culture and non-challenging of status quo
		Interprofessional opposition	Lack of self-confidence
Organizational level		Organizational limitations	Lack of evaluation
		Misreading of the role	Nursing union opposition
		Training issues	
		Working Conditions	
External environment level		Limitations on role expression	Lack of legal framework
		Misreading of the role	Lack of vision for the role
		Role opposition	Lack of understanding of added value
Implementation pathway		Inertia-development process	Financial issues
Facilitators			
Practice level		satisfactory communication	
		Right to prescribe	
		Self-confidence and knowledge of own role	
		Trust and respect inside the team	
		Collaboration	
		Understanding and acceptance of APN by others	Monitoring access and added value
		Supportive managers and clinicians	Autonomy of the system to the development of the role
Organizational level		Collaborative project development	Access to career ladder
		Innovation and open-minded organization	
		Development and promotion of the role	
		Access to training	
External environment level	Types of clientele	Government drive/vision for the role	
	Explanation of the role to patients	Autonomy and definition of scope of practice	Recognition and regulation of the role
		Agreement on needs	
		Nursing in health policy and decision-making	
Implementation pathway		Professional motivation	
		Finance	
		Planning role integration and evaluation	

widely agreed upon both in meaning and prominence. It was commonly held that, most of the time, openness and willingness of doctors to accept change could influence new nursing role integration. The vision that the physician alone is able to take care of the patient needs time to change. The transfer of care of a patient from a physician to an APN is challenging for relational continuity and can lead to professional or patient opposition. Also mentioned was the fear of jobs being lost or duplication of services. There was consensus that professional competition is a major barrier although many of the participants could see the benefits of defining boundaries and teamwork.

"What I see in practice, it's more a professional territorial definition challenge: "this is medical territory… you should not be allowed to do this…" If we agree that APNs are good for health practice and patients and that some people are able to do certain activities that they are trained for and they have the legal authority to do it, that's perfect. But I think this should be well defined" (Medical director, neurosciences institute, tertiary hospital)

"For me the principal barrier is other professionals. APNs perform certain interventions that are seen as professional intrusion, for example, from doctors or dieticians"

(Medical head, digestive and metabolic disease unit, tertiary hospital)

Complementary data about role opposition was found at the Catalan site, as nursing representatives and nursing unions could be seen as barriers to organizations recruiting talent externally. Although participants acknowledge understanding of the role and definition of APNs, when discussing practice barriers. There was confusion about specific activities and boundaries between professions which lead to a misreading of the role and limitations to role expression. Participants at both sites also engaged in discussions on barriers related to the lack of available adapted academic training and insufficient emphasis placed on about clinical judgment and physical and mental assessment. Continuous education and professional development was seen as inadequate and difficult to integrate into clinical practice.

The lack of a legal framework, vision of the role, and funding were silent data that could not be translated to the Quebec site and highlighted the specific limitations of the Catalan setting. The limitations were not only economic but were further exacerbated within the nursing profession by restrictions in the labor market, the ability to acquire professionals' rights and labor policies that promote professional development. At the Quebec site, limitations were characterized by the organizational and technological limitations of the system which did not keep up with role implementation.

"I think the stakeholders in professional bodies, government, associations, department of health, universities and the groups of interest should be involved in the process of APN consensus and implementation. There should be a diagnosis about the need to implement these kinds of strategies and work together to implement the roles" (President of the Barcelona Nursing Council, Catalonia)

With regard to the facilitators, access to training, promotion of the role and understanding, and acceptance of APN by others were seen as encouraging implementation and role development. Collaborative project developments, as well as role autonomy, played an important role in the discussions. There was common agreement at both sites that there are many nursing specialities and human resource optimization that should be used to maximize their potential. In collaboration, nurses succeed well in balancing the care delivered, using both the principle of subsidiarity and the development of skills within subordinate roles, either by giving more autonomy to these nurses or by developing the informal acquisition of knowledge and expertise. Some commented that clinicians must rely on the principle that the patient's situation dictates which professional will be seen, and not only with whom the patient is enrolled. When professionals understand what APNs can do, they are disposed to refer more complex patients to them. They argue that academic education does not sufficiently prepare professionals to understand each other's roles. When other professionals understand the roles, communication is faster as common vocabulary is acquired. Political motivations to develop the role were also examined. Political drive and continuous turnover of managers can negatively affect the vision for APN development. Managers and key stakeholders that show positive leadership and have a vision of how the care model should be developed is seen as a main facilitator on the implementation pathway.

The right to prescribe, good communication, and the type of clientele were not mentioned at the Catalan site, possibly because the role is not fully implemented. Other issues, such as autonomy within the system to develop the role, monitor outcomes, and regulate of the role were particular to the Catalan site. Access to professional development and training was the only theme that revealed contrasting views in the datasets. While one referred to the formal and informal acquisition of knowledge, the other focused on organizational efforts to train and develop staff internally rather than make APN positions accessible through open recruitment processes. The silent and dissonant data sets were seen as functions of distinct populations and degree of implementation of the APN role.

Discussion

Much of the literature highlights the importance of contexts in facilitating or impeding the implementation of recommendations, even though studies rarely undertake a systematic analysis of the contextual structure underlying the production and use of knowledge at the local level (Estabrooks, Squires, Cummings, Birdsell, & Norton, 2009) and even less frequent compared to areas or countries of implementation. This study describes the contextual structure and perception of APN, the need for implementation and the barriers and facilitators involved in successful implementation in Quebec and Catalonia. A high degree of convergence was found across the sites and clinical areas with respect to identified role perceptions, needs, outcomes, and facilitators and barriers. In regards to understanding of the role, autonomy, service coordination and inter-professional collaboration were the most prominent themes at both sites. Furthermore, identified barriers and facilitators suggest that numerous discussions covered common ground concerning clinical areas and the health system in general. The most common themes on barriers were role opposition by professionals, patients, and nursing unions, as well as training issues, and lack of professional development and financial incentives. Facilitators that promote implementation included understanding and acceptance of APN by others, role autonomy, and supportive managers and key

stakeholders. Identifying these points of convergence empirically builds upon what had been reported by some authors (Nardi & Diallo, 2014) where similar issues were present in dissimilar countries. Some barriers to practice, found in this research, namely prescribing authority and independent practice, echo almost exactly what had been shared at the international level (Fealy et al., 2015). Similar conclusions have also been published elsewhere (Sheer & Wong, 2008). These commonalities are important in the sense that they may lead to greater international understanding of the APN roles implementation process as a whole and, therefore, to better informed global strategies.

Some topics were country specific, as well as some themes regarding outcomes and motivation for APN development. For instance, the few facilitators identified varied substantially across countries. Views on access to professional development and training diverged as participants mentioned different realities in practice. There were some differences and silent data when comparing analyses at the study sites in terms of level of implementation and development of APN roles, although multiple commonalities and integration of data was found across countries. There are relatively few studies reporting on these variations between contexts, despite being crucial to understanding why interventions succeed or fail (Benzer et al., 2013). Moreover, APN roles are flexible (Donald et al., 2010) and complex innovations can be reinvented (Rogers, 2003) but it is important to understand the interaction between needs and context. For instance, according to Brooten, Youngblut, Deosires, Singhala, and Guido-Sanz (2012), in "measuring outcomes of APN practice globally, it is critical to choose health outcomes or health services or system issues important in the country where the APNs practice." Furthermore, the context itself can bring about successful or unsuccessful results. For example, in environments where the APN role is recognized and accepted, effectiveness can be demonstrated (Brooten et al., 2012). Divergent findings can lead to the generation of new theories and further exploration (Perlesz & Lindsay, 2003). Mays and Pope (2000) report that comprehensiveness may be a more realistic goal for the triangulation approach. Thus, apparent contradictions (or exceptions) do not pose a threat to findings but rather extend the scope for determining more precisely how one country or context of implementation differs from others.

Implementation research that considers context is crucial when transferring a complex intervention such as an APN role from one setting to another to ensure, a priori, that the effects are the same. This triangulation process highlights the importance of exploring and understanding disagreements and silent themes that explain the purpose and nature of the data (Farmer et al., 2006). To our knowledge, this is the first study to interpret common and unique context analysis of APN development and implementation in two countries. Previous studies have considered specific barriers and facilitators across a number of countries (Puchalski Ritchie et al., 2016) with respect to APN (Casey et al., 2017) although none have been conducted specifically on APN implementation within countries. The results of this project have the potential to contribute significantly to defining objectives and implementation, and assess the elements characterizing the transferability and implementation of APN roles in order to reduce problems that transcend national boundaries.

Limitations

This study has some limitations. First of all, secondary analysis was used in the Quebec site that may have failed to capture some of the questions under study, particularly those identified as outliers at the Catalan site. However, given that the authors of the present study contributed to both data collection and preparation of the reports for the primary studies, we believe it unlikely that any significant data were overlooked. Second, formal recognition and implementation at the Barcelona site has not yet occurred, so any barriers and facilitators identified maybe perceived rather than demonstrated obstacles and enablers. Perhaps the overall results at the Catalan site will change if reexamined once the implementation process has taken place although the vast commonalities at distinct implementation stages could indicate that it will vary slightly. And third, although a broad range of participant and key stakeholders contributed to the findings, rural and remote areas were not represented. None of the patients were included. Despite the limitations of the context analysis, the study has highlighted the apparent importance to implementation of the involvement of stakeholders in discussions, decisions, and training. Although further research is needed, the findings suggest that context analysis may reveal important commonalities in international areas of practice.

Conclusion

Understanding the contextual factors that influence development and implementation at the practice, organizational, and environmental levels will ultimately allow better understanding of the extent to which the effect of APN can be observed in different settings, allowing analysis and support of innovative APN roles. The development and the introduction of APN roles in a specific health care setting represents a paradigm shift for patients, nurses, physicians, and other health care workers. An increased awareness of what is understood by APN, as well as the needs, barriers, and facilitators that these roles have in their local context allows more confident insight into the

link between APN implementation dynamics and the political and social structures surrounding the role. The idea that APN contexts can converge, and be combined in different analytical methods, could further assist with development and implementation. This to allows improvement of structures, processes, and health outcomes. Cross-verification of results from two sources allows validation and better understanding of efficient and thorough ways to describe, assess, and measure complex contextual characteristics if we intend to continue to develop greater international knowledge about what affects APN role development and implementation to better inform local contexts.

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Ethical Consideration

Ethics committee approval was obtained from the relevant local ethics committee in Quebec (#14-141-CERES-P and MM-CODIM-FP-16-112) and Catalonia (Exp #HCB/2014/0811). Potential participants were asked, prior to inclusion, whether they would agree to take part. The participants were not paid, nor did they receive any other kind of compensation. No minors or patients were included. Participants were assured of the anonymity of their responses in the findings report and research analysis. People who returned the signed inform consent form indicated their consent to participate in the study.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.outlook.2019.02.002.

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