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Editorial

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FROM THE EDITOR

Abdulrazak Abyad
MD, MPH, AGSF, AFCHS
(Chief Editor)
Editorial office:
Abyad Medical Center &
Middle East Longevity Institute
Azmi Street, Abdo Center
PO BOX 618
Tripoli, Lebanon
P + (961) 6 443684
F + (961) 6 443685
E aabyad@cyberia.net.lb

Publishing Office:
medi+WORLD International
Australia
W www.me-jn.com

Publishers and Editor would like to wish our authors and readers a happy, healthy, peaceful and prosperous 2021.

Thank you to all those out there battling the pandemic and we wish everyone a return to a normal life as soon as possible,

A descriptive, cross-sectional study from Tikrit Nursing College, Tikrit University, Iraq was done in the primary school in Balad city from 1st December 2018–3rd April 2019. A convenient sample was chosen composed of (60) teachers (30 males and 30 females) who are working in schools in Balad City. A constructed questionnaire was designed by the researchers to collect information about socio-demographic information and mumps control and prevention knowledge of teachers.

A team from Primary Healthcare Corporation, Qatar and Faculty of Nursing, University of Calgary, Canada, conducted a review to explore the barriers in implementing advanced practice nursing in primary health care settings in order to facilitate its implementation in Qatar.

They concluded that identifying and addressing barriers is necessary to achieve successful implementation of the APN role within primary healthcare in Qatar. Key recommendations for Qatar include integrating key stakeholders in the implementation process, use of a clear job description and policies, and providing designated workspaces for APN practice.

HOW DOES CASE-BASED LEARNING STRATEGY INFLUENCE NURSING STUDENTS' CLINICAL DECISION-MAKING ABILITY IN CRITICAL CARE NURSING EDUCATION? AN INTEGRATIVE REVIEW

Bahaaeddin M. Hammad (1)
Inaam A. Khalaf (2)

(1) Lecturer, School of Nursing / The Arab American University, Jenin, Palestine
(2) Professor, Department of Maternal and Child Health Nursing, School of Nursing / The University of Jordan, Amman, Jordan

Corresponding author:
Bahaaeddin M. Hammad, PhD candidate, MSN, RN.
Lecturer, School of Nursing / The Arab American University, Jenin,
Palestine
Telephone: +970 2418888, +970569344475, Fax: +97042510813.
Email: Bahaa.hammad@aaup.edu

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Abstract

Background: Nursing literature consistently indicates that new graduate nurses lack effective clinical decision-making skills when they transition to clinical practice.

Method: The integrative review method was used to investigate the published nursing literature regarding the effectiveness of case-based learning strategy on the development of nursing students' clinical decision-making skills in critical care nursing education. Database searches identified 104 studies. Abstracts were screened for relevance, a total of 17 articles were screened for this review.
Results: This comprehensive screening process yielded a total of two quantitative, and one qualitative study about the effectiveness of case-based learning strategy on the development of nursing students' clinical decision-making skills.

Conclusion: The CBL strategy is considered to be an effective learning strategy that facilitates the development of clinical decision making skills. More rigorous study is warranted to confirm or disprove the findings of this integrative review.

Key words: clinical decision-making, Nursing education, Case-based learning, student.

Introduction

The ultimate goals of nursing education are to produce competent nurses who provide safe, effective and evidence-based nursing care for today's healthcare environments (1). Increasing the complexity and rapid changes in the clinical status of patient population, especially in critical care units, requires nurses who are able to make appropriate and effective clinical decisions (2). Nursing literature consistently indicates however, that new graduate nurses lack effective clinical decision-making skills when they transition to clinical practice,(3–5) which may contribute to increased adverse events and errors in the first years of their nursing career (6,7) that negatively impact on patient outcomes (3,4).

Effective clinical decision-making (CDM) has been identified as a cornerstone component of competent nursing practice (8,9). Decision-making is the process of making a choice between a number of alternatives to a course of patient care (10,11). Clinical decision-making incorporates a variety of skills including patient data gathering to identify and prioritize patient problems, as well as interpreting and analysing this information to make an appropriate intervention in order to meet all patient needs efficiently and effectively (12). Regardless of the research evidence that CDM skills are one of the essential competencies that should be taking place in nursing education and integrated throughout the nursing curricula, nursing educators are challenged by the diffculty of designing learning environments that facilitate the development of CDM skill sets in nursing students (13,14).

Lectures have historically been the primary teaching strategy adopted in nursing education and remain the main teaching strategy utilized by nursing educators. Nevertheless, the nursing literature reveals that lecture-based learning strategies are an ineffective method used to develop higher order thinking skills such as CDM, as well, lecturing strategies are not welcomed by students, because they do not provide the ground for students' development, motivation and learning (15–18). Lecture-based learning (LBL) strategy does not challenge and encourage nursing students to be involved in the learning process. Also, LBL does not maximize student learning outcomes, which decreases their intention toward learning (18,19). Lecture-based learning is a teacher-centered approach that relies on the passive transfer of knowledge and promotes superficial learning. In lecturing strategy teachers mostly use evaluation methods that reward a learner's ability to reproduce facts without necessarily truly understanding the topic (20,21). Lecturing strategy does not challenge and encourage nursing students to be involved in the learning process. Also, LBL does not maximize student learning outcomes, which can lead to decrease their intention toward learning (19). Active learning strategies such as case-based learning strategy encourages nursing students to be active learners instead of passive learners, and also contribute to building nursing knowledge, promoting high order thinking skills and integrating nursing knowledge to clinical practice (22,23). Case studies are an effective teaching strategy that have been used as a part of traditional classroom, in simulation, and in online courses (24,25).

Case-based learning (CBL) is a teaching strategy within the context of student-centered learning to promote the students' learning and assist them to decide about their prospective field, by the use of case studies (26,27). The instructor in this strategy presents a case scenario that presents a realistic and complex clinical situation and often involves a dilemma, conflict, or problem, which is then followed by various questions related to the case (26,27). Case-based learning has been used in nursing as a teaching strategy, with the aims to develop critical thinking and problem-solving skills (28,29). The cases in CBL contribute to bridging the gap between theory and practice, and between the classroom and the workplace (30).

Utilizing CBL strategy in nursing education has been evident in the nursing literature, and has been explored in a variety of nursing courses and at different level of nursing education(1). But, the majority of these studies were conducted on the effectiveness of this learning strategy regarding critical thinking skills and their impact on integration of nursing theory into clinical practice. While the remaining studies have focused mainly on the students' and faculties' perception and self-reports (1,15). There remains a significant gap in nursing literature as few studies have examined the effectiveness of CBL strategy on the high order thinking skills such as clinical judgment and clinical decision-making skills among undergraduate nursing students (15,24). Therefore, the study was designed to examine the effectiveness of case-based learning strategy on the development of nursing students' clinical decision-making skills in nurse education, specifically in critical care nursing.

Purpose

The purpose of this integrative review was to examine the effectiveness of case-based learning strategy on the development of nursing students' clinical decision-making skills in nurse education, specifically in critical care nursing.

Method

A comprehensive and systematic search of the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, Cochrane for systematic review articles, Pro Quest, Scopus, SAGE Journals, Wiley online Library, Google Scholar, Science Direct and EBSCO electronic databases was conducted to obtain relevant studies related to the influence of case-based learning strategy on nursing students' clinical decision making ability in nurse education, specifically in critical care nursing. Key terms used for these searches included: nursing students, case-based learning, case studies, unfolding case studies, and clinical decision making using Boolean operator AND, OR, and NOT to generate the most comprehensive list of available empirical articles.

Database searches were limited to articles published in English, abstract and peer-reviewed; relevant quantitative, qualitative and mixed methods studies/literature on the area of interest; pertained to nursing education, and nursing student; and CBL used as an education strategy within the field of critical care nursing. No limits were applied for year of publication or methods to ensure that all available manuscripts were retrieved. However, editorial, short communication, letters, non-English and other health professionals or inter-professional studies were excluded. The detailed process of selection is presented in Table 1 (next page).

Results

The search result

The initial search in nursing literature failed to identify any study that mainly focused on the effect of CBL strategy on CDM in the field of critical care nursing to date. Therefore, the search was broadened to include all studies that were conducted in a variety of nursing fields. Additionally, searching in electronic databases with a goal of looking for more studies to produce a global picture of the subject with no restriction regarding the publication language was made as long as English abstract was available.

Subsequently, the searching of electronic database yielded a total of 1,036 articles for integrative review. After removing the duplicates 104 studies were assessed for their relevance to the current review purpose. Of these 104 articles, 87 were removed after abstract review. The remaining 17 studies were independently reviewed by the two investigators based on the inclusion criteria previously described. After discussion between the two investigators, unfortunately, 14 studies were excluded. Therefore three studies were included in this integrative review.

Three relevant studies have been reviewed. Each of the studies were extracted into study purpose, design, participant and findings as presented in Table 1. One of these studies was conducted in Japan, 2020(31) and the remaining studies in Korea, 2010, (32) and 2015(33). Video CBL strategy was used as an educational intervention among midwifery and nursing students respectively. One of them used qualitative method approach, an exploratory design (31) while other studies utilized quantitative approach, nonequivalent control group quasi-experimental design (32,33).

Overall, case-based learning strategy was found to be an effective learning strategy to facilitate the development of CDM skills among nursing students in classroom (31,33) and clinical practice environment (32). For example, Nunohara and colleagues (2020) found that case-based leaning strategy contributed to foster the process of clinical decision-making among midwifery students despite CBL approach that has been utilized among midwifery students.

Discussion

The purpose of this integrative review was to examine the effectiveness of case-based learning strategy on the development of nursing students' clinical decision-making skills in nurse education, specifically in critical care nursing. A comprehensive search of nursing literature for effectiveness of CBL on the development of clinical decision-making skills among nursing students was undertaken, and three studies were found to meet the redefined inclusion criteria. All included studies utilized CBL strategy as an educational intervention. Because of diversity of educational environments, the implementation processes of CBL strategy as an intervention were different. Also, the outcome measures of CDM skills were not the same.

With only three studies to investigate the effect of CBL strategy on the development of CDM skills in nursing education, this review has indicated that CBL strategy in the field of nursing appears largely unexplored in terms of CDM skills although it has been widely used in nursing to investigate critical thinking skills. All three studies that were included in this review used video case-based approach.

Findings from the reviewed studies provided limited evidence regarding effectiveness of CBL strategy on the development of CDM skills among nursing students. In two studies(32,33) CDM skills were measured by Jenkins' clinical decision-making in nursing scale, which was developed to describe the perception of the nursing students in clinical decision-making based on their self-expression(34). Another study used qualitative content analysis method to identify the effectiveness of video case-based approach on CDM processes (31).

Among included studies, video case-based approach was found to be an effective strategy for developing CDM skills among nursing students, (31–33) but this finding cannot be generalized to nursing education, because these studies were limited in terms of small sample size, random allocation to experimental and control groups and implemented one to three case studies in their intervention (31–33). However, lacking robust evidence on this area of interest reflects the gap in nursing literature and the need for further research.

Conclusion

The CBL strategy is considered to be an effective learning strategy that facilitates the development of clinical decision making skills. This integrative review presents evidence that the use of CBL strategy can promote nursing students' Clinical decision-making skills when compared with lecture based learning. In view of some limitations described earlier, additional robust study with larger samples are warranted in nursing education, critical care nursing in particular, to confirm or disprove the findings of this integrative review.

Table 1: Literature review matrix

Table 1: Literature review matrix						
#	Author(s), date and title	Aim	Country, population, and sample size	Article type, Study Design	Educational method	Outcomes and conclusions
1	Yoo et al. (2010) The Effects of Case-Based Learning Using Video on Clinical Decision Making and Learning Motivation in Undergraduate Nursing Students	To examine the effects of case-based learning (CBL) using video on clinical decision-making and learning motivation	Korea Third year nursing students (n=44)	Quantitative Quasi–experimental, non-equivalent control group design	Intervention group: video Case-based learning. Control group: traditional classroom lecture	CBL using video is effective in enhancing clinical decision-making and motivating students to learn by encouraging self-directed learning and creating more interest and curiosity in learning
2	Jeong & Park (2015) Effects of case-based learning on clinical decision making and nursing performance in undergraduate nursing students	To examine the effects of case-based learning (CBL) on clinical decision making and nursing performance	Korea Third year nursing students (n=55)	Quantitative Quasi–experimental, non-equivalent control group design	Intervention group: video Case-based learning. Control group: traditional classroom lecture	The case-based learning education provided to nursing students during clinical practice showed a positive effect of improving the clinical decision-making ability and nursing performance of nursing students.
3	Nunohara et al. (2020) How does video case-based learning influence clinical decision-making by midwifery students? An exploratory study	To explore the influence of video and paper case modalities on the clinical decision-making process of midwifery students during CBL	Japan Midwifery nursing students (n=45)	Qualitative, Exploratory design	Intervention group: video Case-based learning. Control group: Paper CBL	This study clarified the different influences of video and paper case modalities on the clinical decision-making processes of midwifery students

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MUMPS CONTROL AND PREVENTION KNOWLEDGE IN THE PRIMARY SCHOOL IN BALAD CITY

Ahmed Mahmood Younus,
Ashoor R Sarhat,
Karrar AL,
Sajad RJ,
Doaa EK,
Ahlam K

Tikrit Nursing College, Tikrit University, Iraq

Corresponding author:
Ashoor R Sarhat
Tikrit Nursing College, Tikrit University,
Iraq
Email: Ashoor.sarhat@tu.edu.iq

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Abstract

Introduction: Mumps (Parotitis) is an acute salivary glands viral infection due to a paramyxovirus family species. Paramyxovirus, mainly mumps, has an important effect in the etiology and pathogenesis of multiple sclerosis (MS) [1-3]. Characteristic clinical features are; parotid salivary glands swelling with a characteristic "hamster-like" face. Mumps' symptoms include: high temperature, headache, muscle aches, tiredness, and loss of appetite. Symptoms frequently appear 2 weeks after infection, and may continue 2-3 weeks after infection. Clinically symptoms range from severe to asymptomatic in some mumps patients. This study aims to identify mumps control and prevention measures and knowledge in the primary school in Balad city.

Materials and methods: A descriptive, cross-sectional study was done in the primary school in Balad city from 1st December 2018–3rd April 2019. A convenient sample was chosen composed of (60) teachers (30 males and 30 females) who are working in schools in Balad City. A constructed questionnaire was designed by the researchers to collect information about socio-demographic information and mumps control and prevention knowledge of teachers.

Results: The sample consisted of 30 male and 30 females, 35 (58.3%) from the institute and the remaining graduated from education colleges. Teacher age groups were as following; 20-29.9 years were 8 (13.3%), 30-39.9 years 17 (28.3%), 40-49.9 years 19 (31.7%), above 50 years 16 (26.7%). Teachers were classified according to years of experience as follows, less than 9.9 years 11 (18.3%) 10-29.9 years 32 (53.3%), 30-39 6 (10%). Teachers were classified according to source of teacher's knowledge as follows; from books 7 (11.7%), newspapers and magazine 4 (6.7%), internet 27 (45%), previous study 14 (23.3%), and others (group discussion, workshops) 8 (13.3%).

Key words: Mumps Control and Prevention Knowledge, Primary School in Balad city.

Introduction

Mumps (Parotitis) is an acute salivary glands viral infection due to a paramyxovirus family species. Paramyxovirus, mainly mumps, has an important effect in the etiology and pathogenesis of multiple sclerosis (MS) [1-3]. Characteristic clinical features are; parotid salivary glands swelling with a characteristic "hamster-like" face. Mumps' symptoms include: high temperature, headache, muscle aches, tiredness, and loss of appetite. Symptoms frequently appear 2 weeks after infection, and may continue 2-3 weeks after infection. Clinically symptoms range from severe to asymptomatic in some mumps patients [4]. Transmission of Mumps occurs through mucus or saliva. The child can get mumps virus by coughing, sneezing, talking, sharing items and touching of other patients. Transmission of mumps occurs rapidly even before appearance of signs and symptoms. Complications may occur 5 days after acquiring mumps [5]. Encephalitis and meningitis are the worst complications of mumps accompanied by orchitis, mastitis and oophoritis. Complications may affect both males and females. Other complications include the following; deafness, pancreatitis and orchitis . Mumps infections give permanent immunity for life [6]. MMR vaccine (measles, mumps and rubella vaccine) is used in controlling these 3 diseases and used globally. MMR is given in multiple doses to children according to WHO recommendations. MMR 1st dose administration should be from 12 to 15 months of birth. MMR 2nd dose must be given at 4 -6 years. Active MMR vaccination should be re-administered to children from 1-12 years. Active MMR vaccination is given to adolescents, specially females. Now MMRV vaccine has been developed (measles, mumps, rubella and varicella), it must be given to children from 1-12 years [7].

Mumps prevention measures are: hands washing with soap and water, bed rest and sick leave from school for 5 days after the symptoms start, and covering the nose and mouth with a tissue when sneezing or coughing. The treatment is only symptomatic treatment because of the absence of a specific antiviral drug for mumps [8]. Commonly recovery from mumps occurs within 2 weeks. Treatment includes sufficient rest and sleep and taking of painkillers, such as acetaminophen or ibuprofen [9, 10]. The aim of this research is to determine the knowledge and awareness of mumps disease in educated Iraqi teachers.

Subjects and Methods

A descriptive cross sectional study was carried out concerning mumps control and prevention knowledge at a primary school in Balad city, after making official administrative arrangements from Tikrit Nursing College & Ministry of education for data collection. An assessment tool was designed by the researchers which included socio-demographic information on teacher's knowledge about mumps disease. The Validity of Questionnaire was assessed by 12 experts from Tikrit Nursing college and Salah-Aldeen Health Directorate. A pilot study was conducted at the primary schools in Balad city on (10) teachers and it revealed that the Questionnaire was reliable. A convenient sample of (60) teachers were randomly chosen to cover all geographical areas of primary schools in Balad city. Data collection was started on 1st December 2018 to 3rd of April 2019 through use of the questionnaire and by direct interview. Data analysis was done through different approaches.

In this study, the teachers needed to know the signs and symptoms of mumps disease because the children in the primary school may have weaning of immunity due to vaccination. The school children may suffer from outbreaks of mumps disease. The presence of well trained teachers is an important aspect of treatment and prevention of mumps disease. In such circumstances, they will suffer from severity of mumps disease. Symptoms of mumps disease consist of the following; fever, headache, muscle pain, malaise, loss of appetite, salivary glands swelling and tenderness.

Many cases suffer from further symptoms due to involvement of other systems and organs such as headache, fever, neck stiffness, sensitivity to light, and vomiting. However, high temperature may last more than 6 days, and the swelling of salivary glands can last for 10 days or more [11].

Results

The sample consisted of 30 male and 30 females, 35 (58.3%) from the institute and the remaining graduates from education colleges. Teachers' age groups were as following; 20-29.9 years were 8 (13.3%), 30-39.9 years 17 (28.3%), 40-49.9 years 19 (31.7%), and above 50 years 16 (26.7%). Teachers were classified according to years of experience as follows, less than 9.9 years 11 (18.3%) 10-29.9 years 32 (53.3%), 30-39 6 (10%). Teachers were classified according to source of teacher's knowledge as follows; from books 7 (11.7%), newspapers and magazine 4 (6.7%), internet 27 (45%), previous study 14 (23.3%), and others (group discussion, workshops) 8 (13.3%).

Table 1 reveals that teachers' knowledge about the Mumps virus, was above average apart from about the spread of infection in primary school (86.7%) and this represents a good point in the control of the disease. This is a cornerstone in Mumps prevention.

Table 1: Items of teachers' knowledge about the Mumps virus

Do you know that mumps is caused by virus not by bacteria?				
	Yes	I not sure	No	Total
Frequency (%)	53 (88.3)	5. (8.3)	2 (3.3)	60
Do you know that mumps is caused by a virus called (paramyxoviridae)				
Frequency (%)	32 (53.3)	24 (40%)	4 (6.7%)	60
Do you know that mumps symptoms do not appear sometimes				
Frequency	29 (48.3%)	12 (20%)	19 (31.7%)	60
Do you know that humans are considered as a source for the disease				
Frequency	33 (55%)	21 (35%)	6 (10%)	60
Do you notice that serious mumps spreads among primary school students?				
Frequency	52 (86.7%)	8 (13.3%)		60

Table 2: Items of teachers' knowledge about the Methods of Mumps transmission

Do you notice that this disease is contagious?				
	Yes	I not sure	No	Total
Frequency (%)	52 (86.7%)	6 (10%)	2 (3.3%)	60
Do you notice that this disease spreads quickly?				
Frequency (%)	47 (78.3%)	11 (18.3%)	2 (3.3%)	60
Do you notice that this disease virus is transferred by breath				
Frequency	44 (73.3%)	15 (25%)	1 (1.7%)	60
Can mumps can be transferred directly by contact with a diseased person				
Frequency	49 (81.7%)	9 (15%)	2 (3.3%)	60
Do you notice that the season for spreading this disease is spring and winter?				
Frequency	45 (75%)	12 (20%)	3 (5%)	60
Can mumps be transferred by contact with respiratory secretion of a person with Mumps				
Frequency	50 (83.3%)	8 (13.3%)	2 (3.3%)	60
Do you notice that this disease could be transferred by the afflicted person's cough?				
Frequency	42 (70%)	18 (30%)		60
Do you notice that this disease could be transferred by the afflicted person's nose				
Frequency	47 (78.3%)	11 (18.3%)	2 (3.3%)	60
Do you notice that mumps can be transferred by eating with a diseased person?				
Frequency	53 (88.3%)	6 (10%)	1 (1.7%)	60
Do you know that this disease could enter the body through breathing?				
Frequency	45 (75%)	12 (20%)	3 (5%)	60
Can mumps can be transmitted through eye secretions of an infected person's eye?				
Frequency	19 (31.7%)	25 (41.7%)	16 (26.7%)	60

Regarding Teachers' knowledge about transmission methods of Mumps, the study stated that most of them with knowledge of 70-84% excepts for the statement of (Do you know that this disease can enter through membranes and eye secretions of the infected eye?) was yes in 31.7% of cases. This point needs to be taken into account in future workshops and training courses.

Table 3: Items of teachers' knowledge about Mumps symptoms

Do you notice fever in the afflicted person or not?				
	Yes	I not sure	No	Total
Frequency	50 (83.3%)	5 (8.3%)	5 (8.3%)	60
Does mumps cause difficulty of swallowing as a symptom of the afflicted person?				
Frequency	46 (76.7%)	9 (15%)	5 (8.3%)	60
Do you know that the period of appearance of this disease is from 2 weeks at least				
Frequency	33 (55%)	20 (33.3%)	7 (11.7%)	60
Do you notice that there are pains in muscles in students afflicted with mumps				
Frequency	30 (50%)	23 (38.3%)	7 (11.7%)	60
Do you notice that the afflicted students feel headache?				
Frequency	43 (71.7%)	13 (21.7%)	4 (6.7%)	60
Do you notice that the afflicted students feel fatigue and tired?				
Frequency	49 (81.7%)	8 (13.3%)	3 (5%)	60
Do mumps students suffer from draughts and copiously drink water?				
Frequency	35 (58.3%)	17 (28.3%)	8 (13.3%)	60
Do you notice the swelling of the salivary gland in afflicted persons?				
Frequency	53 (88.3%)	4 (6.7%)	3 (5%)	60
Do you notice unilateral salivary gland swelling in mumps disease students?				
Frequency	57 (95%)	3 (5%)		60
Do you notice bilateral salivary gland swelling in mumps disease students?				
Frequency	45 (75%)	11 (18.3%)	4 (6.7%)	60

Table 4: Items of teachers' knowledge about the side complications of Mumps

Do you know that mumps virus could reach the blood if not treated?				
	Yes	I not sure	No	Total
Frequency	31 (51.7%)	19 (31.7%)	10 (16.7%)	60
Does mumps cause testicular pain and swelling in males and infertility				
Frequency	33 (55%)	19 (31.7%)	8 (13.3%)	60
Do you know that mumps virus leads to abdominal pain?				
Frequency	22 (36.7%)	28 (46.7%)	10 (16.7%)	60
Does mumps virus cause pancreatitis?				
Frequency	20 (33.3%)	24 (40%)	16 (26.7%)	60
Does mumps cause females ovarian inflammation and affect pregnancy?				
Frequency	24 (40%)	22 (36.7%)	14 (23.3%)	60
Do you know the virus leads to neck pain?				
Frequency	45 (75%)	12 (20%)	3 (5%)	60
Do you know the virus leads to inflammation of the brain membranes?				
Frequency	22 (36.7%)	28 (46.7%)	10 (16.7%)	60
Do you know the virus leads to inflammation of meninges?				
Frequency	20 (33.3%)	27 (45%)	27 (21.7%)	60

Regarding the results of Table 4 the study indicates that overall of teachers' knowledge about the Mumps symptoms were answered yes.

In relation to the items of teachers' knowledge about clinical features of Mumps disease the (Yes) responses ranged from 55-95%. This is important in the recognition of disease and taking the precautionary measures and giving sick leave for children and reporting the case to the PHCC.

Mumps complications: regarding the items of teachers' knowledge concerning the complications of Mumps, there was deficiency of knowledge regarding (oopheritis, meningitis, pancreatitis) which ranged from 33-36%. This is an important point in teachers' awareness of dangers of Mumps.

Table 5: Items of teachers' knowledge about control of this disease in schools

Does mumps vaccination with a single dose of measles give lifelong prevention?				
	Yes	I not sure	No	Total
Frequency	28 (46.7%)	18 (30%)	14 (23.3%)	60
Does mumps vaccination with two doses of measles give life-long prevention?				
Frequency	34 (56.7%)	18 (30%)	8 (13.3%)	60
Does Mumps vaccination with three doses of measles give life-long prevention?				
Frequency	31 (43.3%)	26 (5%)	3 (5%)	60
Do you invite parents to carry out mumps vaccination for their children?				
Frequency	41 (68.3%)	3 (5%)	16 (26.7%)	60
Do you suggest a vaccine program for students by cooperation with PHCC?				
Frequency	37 (61.7%)	6 (10%)	17 (28.3%)	60
Do the students wear masks when this disease spreads?				
Frequency	27 (45%)	9 (15%)	24 (40%)	60
Do they prevent sick leave for diseased students until ending the treatment?				
Frequency	51 (85%)	8 (13.3%)	1 (1.7%)	60
Do they separate the afflicted students from non- afflicted persons?				
Frequency	42 (70%)	9 (15%)	9 (%)	60
Is it unnecessary to isolate mumps students from normal students?				
Frequency	24 (40%)	4 (6.7%)	32 (53.3%)	60
Do you give lectures about mumps in classroom?				
Frequency	27 (45%)	7 (11.7%)	26 (43.3%)	60
Do you contribute to explaining details of this disease and about its transfer?				
Frequency	30 (50%)	8 (13.3%)	22 (36.7%)	60
Is it necessary to send suspicious students to the PHCC as correct process?				
Frequency	49 (81.7%)	8 (13.3%)	3 (5%)	60
Do you distribute sterile materials for hands, masks and soft papers?				
Frequency	30 (50%)	11 (18.3%)	19 (31.7%)	60
Do you encourage the students to wash their hands before eating?				
Frequency	51 (85%)	8 (8%)	1 (1.7%)	60
Do you instruct students not to rub and chafe their eyes only after washing?				
Frequency	49 (81.7%)	9 (15%)	2 (3.3%)	60
Do you contribute to instruct the students to wipe their eyes with soft tissues?				
Frequency	52 (86.7%)	5 (8.3%)	3 (5%)	60
Do you advise students to put soft tissues on their mouths when sneezing?				
Frequency	56 (93.3%)	3 (5%)	1 (1.7%)	60

There was a deficiency in teachers' knowledge about MMR vaccination doses, and effect of using face mask to limit the spread. Only 45% of teachers gave lectures about Mumps in classroom.

Discussion

The majority of the study sample lay in the age group of (40-49) years-old more than 19 (31.7%), with equal frequency in males and females (50). The majority of the study sample (58.3) were graduates from education institutes. Most teachers were found with (10-19) years of experience at (53.3%), while internet was the source of teachers' knowledge about mumps in 45.0%. The results of Table 2 indicated that the teachers' knowledge about the Mumps virus, and the study reveals that most teachers' have knowledge about the Mumps virus in Balad city.

Relative to the teachers' knowledge about the Methods of Mumps transfer, the study indicates that most of them had knowledge except one was not sure (Do you know that this disease could enter through membranes and eye secretions of the infected eye? (41.7) (Table 3).

The results of table 4 showed the study indicates that the overall of teachers' knowledge about the Mumps symptoms is yes. While the results of table (5), indicate that the teachers' knowledge about the sides effects of Mumps sits equal between 'yes' and 'I am not sure'.

Regarding the results of table (6), the study indicates that overall teachers' knowledge about control this disease in schools is 'yes'. Relative to the Table ('7), on the difference in teachers' knowledge among age groups, the study indicates that no statistically significant difference in teachers' knowledge was found among age groups. The results of the table show the study indicates that there was no statistically significant difference in teachers' knowledge between gender groups. The findings of the study revealed that there was no statistically significant difference in teachers' knowledge among level of education groups (table 9). Table 10 on difference in teachers' knowledge among level of education groups, reveals that there was no statistically significant difference in teachers' knowledge between gender groups.

The findings of the study revealed that there was no statistically significant difference in teachers' knowledge among years of experience groups. The study findings indicate that a high deficit in their knowledge which indicated that they needed enough education about this disease and increasing of knowledge among all levels of education such as pupils and teachers especially in private schools through public health lessons (24, 25); the sample study wanted more education about the general characteristic of the virus and these results are different from (26), thus the sample study must increase their information about the symptoms of the disease. (27). So it may be necessary to increase teachers' knowledge about side effect of mumps infection (28). Therefore the sample study must increase their information about the control of mumps disease (29, 30).

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BARRIERS TO THE IMPLEMENTATION OF THE ADVANCED PRACTICE NURSING ROLE IN PRIMARY HEALTH CARE SETTINGS: AN INTEGRATIVE REVIEW

Maryam Fatemi (1)
Kathleen Benjamin (2)
Jessie Johnson (3)
Robin O'Dwyer (1)

(1) Primary Healthcare Corporation, Qatar
(2) Adjunct, Faculty of Nursing, University of Calgary, Canada
(3) Faculty of Nursing University of Calgary Qatar

Corresponding author:
Maryam FATEMI, BScN, MN,
Primary Healthcare Corporation,
Qatar
Email: mgfatemi@ucalgary.ca

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Abstract

Background: Advanced practice nurses are nurses prepared with advanced clinical education, skills, and competencies required to assess, diagnose, treat and deliver continuous care for acute or chronic conditions. The move toward using advanced practice nurses in primary healthcare settings in Qatar is inevitable to advance the nurse's role, improve the level of services provided, raise patient satisfaction, and improve the organizational outcomes.

Aim: The aim of this review was to explore the barriers in implementing advanced practice nursing in primary health care settings in order to facilitate its implementation in Qatar.

Method: Whittemore and Knalf's framework guided this integrative review. Fourteen studies published between 2009 and 2019 were included in the review. The mixed-methods appraisal tool was used to assess the quality of the studies. The socio-ecological model was used to categorize and present barriers at the individual; organizational, social, cultural, policies, and environmental level.

Result: Three main barriers noted were a lack of clarity and support of the role, lack of organizational and policy support for the role, and a lack of designated space for APN practice.

Conclusion: Identifying and addressing barriers is necessary to achieve successful implementation of the APN role within primary healthcare in Qatar. Key recommendations for Qatar include integrating key stakeholders in the implementation process, use of a clear job description and policies, and providing designated workspaces for APN practice.

Key words: advanced practice nursing, clinical nurse specialist, nursing practitioners, primary health care, barriers

Introduction

Over the past decade, there has been a fundamental development in nursing roles to meet the growing population demands for health care services and to improve the quality of services provided in PHC settings. The APN role is an innovation that is being implemented in most countries internationally. As mentioned by Sánchez-Gómez et al. (2019), the APN role was introduced in the United States in the 1970s. APNs have a high level of professional autonomy, advanced skills in health assessment, diagnosis, decision making, and research and are qualified to plan, implement, and evaluate health care programs (Sánchez-Gómez et al., 2019).

According to the Canadian Nurses' Association (CNA; 2008), the term APN has been used as an umbrella term signifying nurses practicing at a higher level by using their graduate educational preparation, knowledge, and skills to meet the health care needs of individuals, families, and communities. APN includes four different categories which are clinical nurse specialist (CNS), nurse practitioner (NP), certified nurse-midwife, and certified registered nurse anesthetic (Hamric et al., 2014). This paper will focus specifically on the barriers reported to the implementation of the CNS and NP roles within a primary health care setting.

The International Council of Nurses (ICN; n.d.) defines APN as a registered nurse who has acquired an expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level (para. 2).

The state of Qatar aspires to follow a global statement that a strong primary health care is the foundation of an effective health system. In 1954, Qatar took its first steps in creating a primary health care system (PHCC, 2018a). In 1978, the Ministry of Health developed a program to build a PHC system which included initiation of PHC services through nine health centers across Qatar (PHCC, 2018a). In 2012, the Emiri Decree No.15 was issued to establish the primary health care corporation (PHCC) as an independent corporation (Hukoomi, 2019). Currently, there are 27 primary health centers in Qatar distributed into three regions: Central, Western, and Northern (PHCC, 2018a).

The APN role implementation is complex and requires prior planning in order to introduce the role and clarify the difference between their role and other professionals. Removing the barriers that prevent APNs from practicing to their full scope is very important to expand services of PHC and to make them more effective and efficient providers of care (Park et al., 2016).

Method

Whittemore and Knafl's (2005) integrative review framework was chosen to guide this review. The five stages of this framework are problem identification, literature search, data evaluation, data analysis, and presentation of the results.

Stage 1: Problem Identification

The first stage of the framework is a "clear identification of the problem" (Whittemore & Knafl, 2005, p. 548). Thus, the focus of this paper was to identify possible barriers to implementation of the APN role and to consider these barriers in relation to the context of PHCC in Qatar.

Stage 2: Literature Search

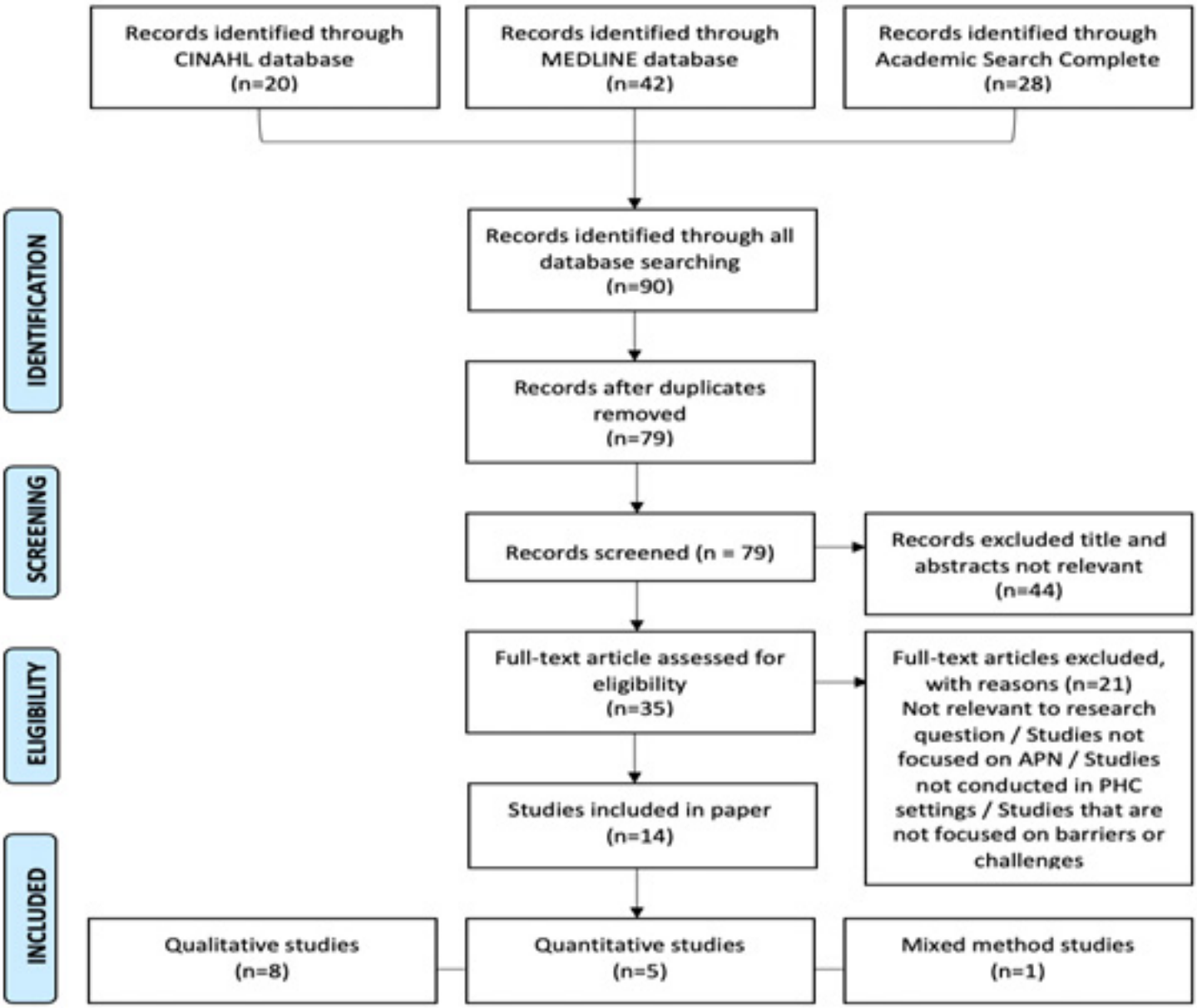
The following data bases were searched: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Pub Med, MEDLINE, and Academic Search Complete. The key search terms were advance nursing practice, advanced practice nurse*, clinical nurse specialist*, nurse practitioner*, nursing role, scope of practice, role implementation*, primary health*, and community care*. The Boolean operators AND and OR were used to combine or broaden the search. Inclusion criteria were: of (a) primary studies, (b) qualitative, quantitative, and mixed studies, (c) published in English, (d) studies published from 2009- 2019, (e) studies that focused on CNS and NP, (f) studies conducted in primary care settings, and (g) studies focused on the challenges and barriers of implementing the APN role implementation. See Figure 1 for literature search flow diagram.

Stage 3: Data Evaluation

The Mixed Methods Appraisal Tool (MMAT) was used to assess the quality of studies in this review. The MMAT was developed in 2006 (Pluye et al., 2011) and has been applied in other literature reviews (e.g., Benjamin & Donnelly, 2013; Gowing et al., 2017; Scott et al., 2019). It is a useful tool because it can assess the methodological quality of different types of research designs, including qualitative, quantitative descriptive studies, quantitative randomized controlled trial, quantitative non-randomized studies, and mixed methods studies.

The two main steps in the MMAT are: (1) answering two general screening questions for any type of study, which must be answered with "yes" to advance to the second step of the appraisal tool and (2) answering five questions specific to the study design. Response options are yes, no, and cannot tell. Unlike the original tool which used a scoring system with possible value of 25% to 100% (Pluye et al., 2011) the revised 2018 tool does not use a scoring system, and step two includes five rather than four questions (Hong et al., 2018). The appraisal found that the eight qualitative studies and one quantitative study met all of the five criteria. One mixed methods study and four quantitative studies meet four of the five criteria.

Figure 1: Literature Search Flow Diagram



Stage 4: Data Analysis

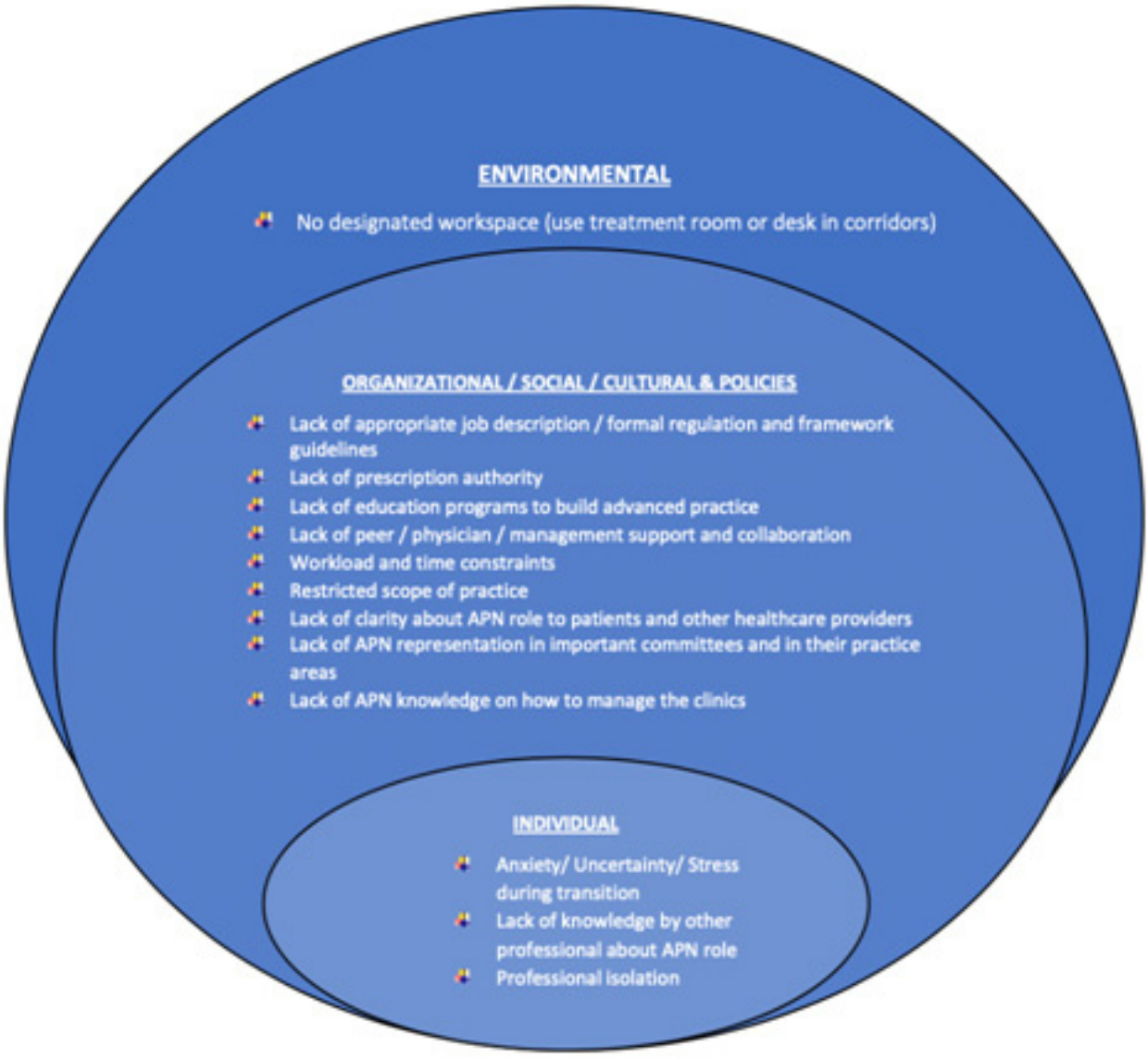
Data analysis involves the following processes: data reduction, data display, data comparison, conclusion drawing and verification (Whittemore & Knafl, 2005). In the data reduction phase, data from diverse methodologies are classified which can be based on the type of evidence, or chronology, or sample characteristics, or predetermined conceptual classification (Whittemore & Knafl, 2005). Data reduction includes techniques of coding the extracted data, which provides organized and concise information of the literature in a matrix or spreadsheet (Whittemore & Knafl, 2005). The organization of data into a manageable structure (e. g. matrix or tables) facilitates the comparison of the primary resources on specific variables, such as sample characteristics (Whittemore & Knafl, 2005). Extraction tables were developed for this review to summarize the information from the 14 articles and to arrange the recognized barriers under certain categories and codes (see Appendix A).

In the data display phase, the extracted data is converted into visuals such as graphs, matrices, charts, or networks and placed around a particular variable (Whittemore & Knafl, 2005). Figure 2 illustrates a diagram to show the barriers extracted from the 14 articles.

Figure 2: Barriers to the Implementation of the APN Role across the 14 Articles

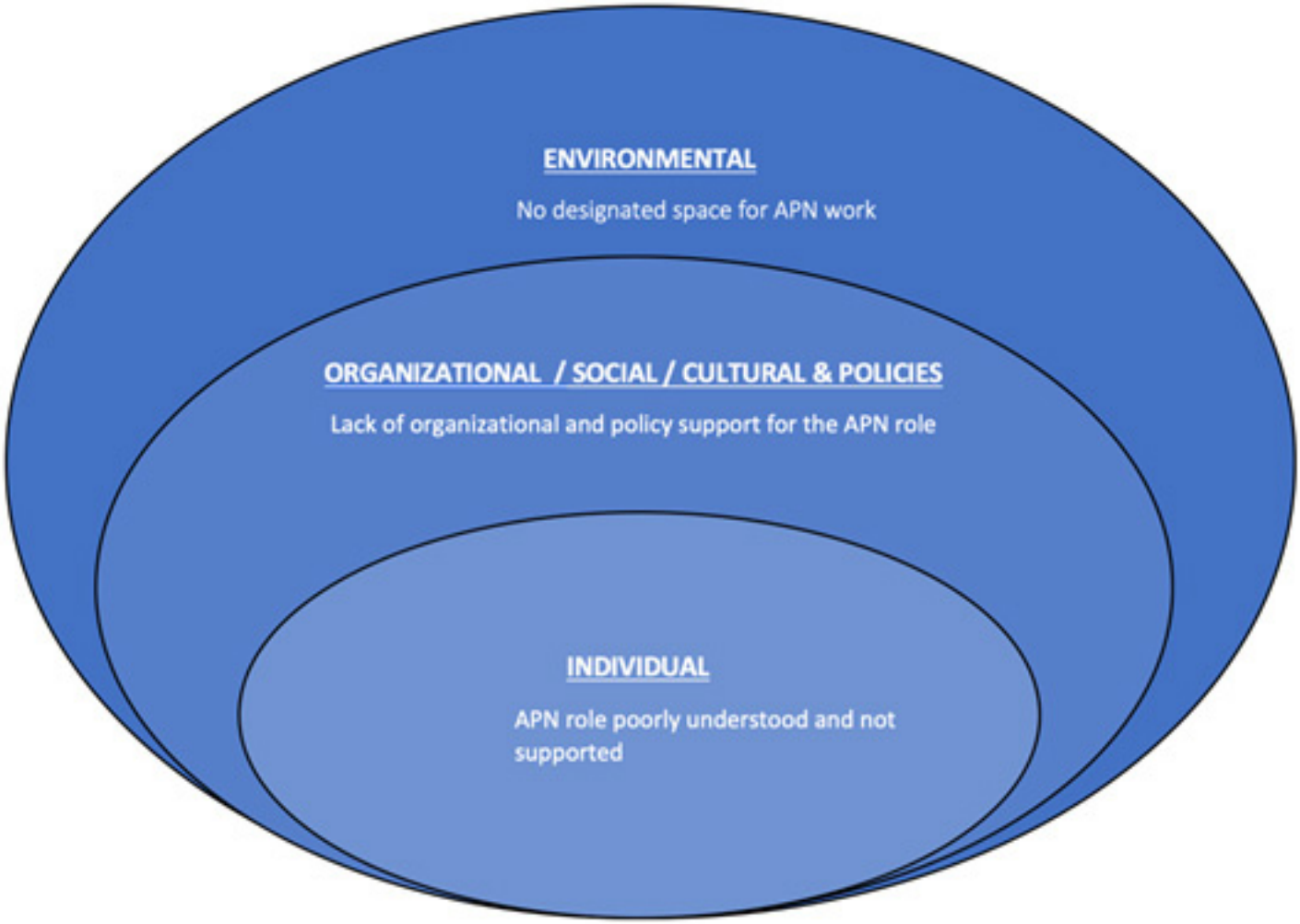
In the data comparison phase, the data is frequently examined to identify themes, relationships or patterns (Whittemore & Knafl, 2005). In this phase, the Socio-Ecological Model (SEM) guided the authors thinking about the barriers, as well as the organization and presentation of these barriers. This model helps researchers to identify factors that may affect behaviors by looking beyond the individual level (e.g. organizational, policy, cultural or environmental level; Golden et al., 2015). Thus, the SEM was used to examine and describe the dynamic relationship among barriers at the individual, organizational, social, and cultural and policy, and environmental levels see Figure 3.

Figure 3: Barriers Categorized at Three Main Levels of the Socio-Ecological Model



In the conclusion drawing and verification phase, the researcher completes the review process through identification of similarities and differences of the information, and integration of all subgroups into an inclusive description of the topic concerns (Whittemore & Knafl, 2005). The three main themes that emerged from the data were: the APN role was poorly understood and not supported, there was a lack of organizational and policy support, and a lack of designated workspace for APN (see Figure 4).

Figure 4: The Major Themes at Each Level of the Socio-Ecological Model



Stage 5: Presentation of the Results

According to Whittemore and Knafl (2005), this phase aims to reach a new understanding of the phenomenon by capturing the depth and clarity of the results.

Characteristics of the Study

The 14 retained studies published between 2009 and 2019 were primary resources including three research approaches, (i.e. quantitative, qualitative and mixed method studies were conducted in the following countries, USA (n = 8), and one in each of the following countries: Norway, Australia, Canada, Bahrain, and Netherlands. There were eight qualitative studies (i.e. two descriptive, one exploratory, one descriptive exploratory, one ground theory, one ethnography, one narrative inquiry, and one qualitative study nested in a RCT). There were five quantitative studies, four were cross sectional descriptive studies and one quasi-experimental design. The primary focus of each study is discussed below.

In the descriptive studies, Poghosyan et al. (2013) investigated NPs role and responsibilities as primary care providers and their perception about barriers and facilitators to their scope of practice. Poghosyan et al. (2018) assessed the perspectives of physicians and APNs regarding the barriers and facilitators related to the implementation of the APN role. In the descriptive, Henni et al. (2018) described the experience of nurses in their new role as advanced geriatric nurses and discussed what strategies the nurses considered important in the development of their new role. McKenna et al. (2015) explored key stakeholder's perspectives of the barriers and enablers influencing the development of APN role in primary care. In the grounded theory study, Kraus and Dubois (2016) explored the attitudes of NP and physicians related to the independent practice of NP. In an ethnographic study, Sharp and Monsivais (2014) described rural NP perceived difficulties related to the business-related aspects of practice. In a narrative study, Hernandez and Anderson (2011) explored the

NP experiences caring for pre-hypertensive patients. In a nested study Voogd- Pruis et al. (2011) examined the experiences, barriers, and facilitators of eight NPs related to the implementation of a nurse-delivered cardiovascular prevention program in primary care.

Regarding the quantitative studies, 2 studies examined job satisfaction among APN in developing countries and identified the barriers and facilitators associated with APN role implementation (Guzman et al., 2010; Steinke et al., 2017). Poghosyan and Aiken's (2015) study aimed to better understand the NP role and organizational characteristics important for NP practice in primary care. Poghosyan et al. (2017), examined and compared the NP patient panel, job satisfaction, turnover, and organizational structure within the employment settings of NP with less than three years with more than three years of NP experience. In a quasi-experimental study, Nasaif (2012) examined the knowledge and attitudes of primary care physicians about NP role pre and post an educational intervention.

There was one mixed method study of Chapman et al. (2018). In the qualitative component, semi-structured interviews were conducted to identify barriers to full utilization of Psychiatric Mental Health Nurse Practitioners (PMHNPs). In the quantitative component, PMHNPs' economic contribution in the public behavioral health systems were assessed.

The SEM was used to guide this literature review. It allows a person to see factors that influence behavior at several layers of a system that goes beyond the individual level only (Golden et al., 2015). Using the SEM, barriers were categorized at three different levels of the model: the individual; the social, cultural, and policy; and the environmental level.

Barriers at the Individual Level

The individual level involves the individual's knowledge, perceptions, beliefs, and attitudes which is influenced by his/her social and physical environments (Salihu et al., 2015). Several articles revealed that physicians and other healthcare professionals lacked knowledge about the APN's scope of practice, did not accept the APN role or did not allow them to work to their full scope of practice (Guzman et al., 2010; Kraus & Dubois, 2016; Nasif, 2012; Poghosyan et al., 2013; Poghosyan et al., 2017; Voogdt-Pruis et al., 2011).

In a study by Poghosyan et al. (2017), the majority of APNs felt that they were not treated equally to physicians in their workplace. Two articles mentioned that professionals did not support APNs because they felt threatened by the emerging role (Guzman et al., 2010; Steinke et al., 2017). Guzman et al. (2010) reported that the most frequent barriers mentioned by NPs were lack of respect from the physicians and an unwillingness of specialists to accept referrals from NPs. A theme that emerged in Guzman et al.'s (2010) study was professional isolation. APN felt isolated from other staff and they did not feel that they were a part of the healthcare team. Barriers reported in other studies included feelings of uncertainty, anxiety and stress during transition to the NP role (Guzman et al., 2010; Sharp & Monsivais, 2014; Voogdt-Pruis et al., 2011). APNs felt overwhelmed by the demands of their role, and felt they lacked the skills and knowledge on how to manage clinics. They also experienced role conflict between taking care of patients versus managing their clinics (Guzman et al., 2010; Sharp & Monsivais, 2014), and a disconnect between actual practice and the practice model used in schools (Hernandez & Anderson, 2011). In this review, the overarching theme that emerged at the individual level was that the APN role was poorly understood and unsupported.

Barriers at the Social, Cultural, and Policy Level

The SEM facilitates examination of political and social environments of healthcare structures that are not independent from each other to better understand a person's health or behavior (Reifsnider et al., 2005). Poghosyan et al. (2018), reported that stagnant organizational policies were less supportive to expand the NP scope of practice. and both physicians and NP reported that their organization does not keep them informed about the state policy change (Poghosyan et al., 2018). McKenna et al.'s (2015) revealed that there were practice limitations for APNs which included lack of support from management, lack of encouragement for nurses to work to their full scope of practice, and an organizational emphasis on a business model rather than nursing services as well as lack of access and funding for educational and professional development for APNs.

Poghosyan et al. (2013), reported several barriers such as lack of NP patient panel, lack of access to medical organizational supports, no representation of NP in decision making committees, and lack of organizational structure to promote NP's scope of practice. Similar themes were identified in Poghosyan and Aiken's (2015) study: lack of clarity of NP role, lack of NP representation in important committees, and lack of communication between NP and administrators. Almost half of the NPs in Poghosyan et al.'s (2017) study reported that NPs are not represented in important committees within their organization, and both newly hired and experienced NPs reported significant challenges in their relationship with administrators. They reported that administrators did not treat them equally compared to other providers and did not share organizational resources equally with them (Poghosyan et al., 2017). In Hernandez and Anderson's (2011) study, NPs reported that the daily pressure of a tight schedule, double booking of patients, and coordinating care led to a sense of "surviving the day" (p. 93). In this study, time constraints and lack of public support for health promotion activities were identified as a barrier for NPs. Barriers identified in Voogdt-Pruis et al.'s (2011) study included limited patient recording and computer systems, lack of NP's ability to document special circumstances

or treatments, and an unclear communication channel between NP and other healthcare providers.

Henni et al. (2018), described that participants found it difficult to develop an APN role because there were no formal regulations, frameworks, or guidelines. Sharp and Monsivais's (2014) study reported that NPs were underutilized because of the state nursing act, for instance; some states permit NPs to practice independently, while other states require the supervision or collaboration of a physician. In Kraus and Dubois's (2016) study, NPs reported that arbitrary laws and practice restrictions were unreasonable for safe and effective care. Furthermore, the study reported that physicians' focus on NP independence was very patient-oriented and not self-promoting or defiant. Laws in USA did not optimize NP's ability to provide the care that they saw as part of their scope of practice (Kraus & Dubois, 2016).

In Steinke et al.'s (2017) study, NPs reported that the key barriers for them were lack of respect from supervisors and physicians, increase in administrative tasks and workload, lack of vacation pay, and inadequate retirement and leave policies. Barriers reported by Chapman et al. (2018) included lack of an appropriate job description, lack of job offerings for the NP role, lengthy hiring process, and restricted scope of practice for NPs. In Guzman et al.'s (2010) study, barriers reported were: being the only NP working in the unit (39.2%), inadequate salaries (32.1%), lack of the employers' knowledge about the NP role (32.1%), lack of employer support for NP (21.4%), inadequate clerical support (14.2%), lack of NP coverage during sick leave or vacation (10.7%), lack of NP involvement in role development (7.1%), and not being consulted by other staff members (3.6%). In this review, the overarching theme that emerged at the social, cultural, and policy level were lack of job description, policy, and organizational support for the APN role.

Barriers at the Environmental Level

The SEM assumes that there is a mutual interaction between individuals and their environment, which implies that a person is affected by his or her environment and vice versa (Salihu et al., 2015). Only two studies included barriers about the physical environment (McKenna et al., 2015; Voogdt-Pruis et al., 2011). In both studies, participants reported that a lack of physical space acted as a barrier. For instance, there was no designated space for APNs, and they frequently had to use treatment rooms or a desk in corridors. In this review, the overarching theme reported at the environmental level was no designated space for APN work.

Discussion

This integrative review identified barriers faced by APNs internationally during the implementation of the APN role, aiming to consider the potential relevance of these barriers to the context of Qatar. Barriers were categorized at the individual level, organizational level and environmental level.

Individual Level

This review reported that the APN role was poorly understood and unsupported. Similar ideas have been reported in other literature. According to Behrens (2018), for those countries not familiar with the history or scope of the APN role, it is important to explain and share the vision of the role in a way that makes it accepted and welcomed by the culture. Despite the great need for APN, healthcare organizations still lack information on how to use this role, how to facilitate APN employment, and how to benefit from their qualifications (Bryant-Lukosius & Dicenso, 2004). Confusion and conflict around the APN role are significant barriers to APN role incorporation and practice. As mentioned in Gysin et al.'s (2019) study, APNs and general practitioners agreed that the APN role is not fully defined nor well known especially in primary care settings. The introduction of the APN role in PHCC will be completely new, which means that the scope of this new role is unknown to healthcare professionals in Qatar.

Another common barrier related to lack of understanding of the APN role was resistance to change that engendered a lack of support for the role. APN's role contains many complexities that require prior planning for introduction, mentorship, and consideration of the overlap between APN and other professions. According to Sangster-Gormley et al. (2011), the lack of clarity and knowledge about the APN role may lead to resistance to its implementation by other professions. As mentioned by Jokiniemi et al. (2014), physicians can be challengers for the role implementation because they believe that APN would subsume some their professional role and responsibilities. Several participants in Casey et al.'s (2018) study reported that the physicians felt APN were invading their zone. The main reasons for physician resistance to the role implementation was the potential overlap in the scope of practice between physicians and APNs working in primary healthcare settings (Fougere et al., 2016). As mentioned by Mboineki et al. (2018), the lack of physician's awareness and knowledge about the APN role created stress among the APNs. Therefore, the physician's unawareness about the APNs can be one of the key barriers to implementing the role within any healthcare organization. Within the context of PHCC, the main members of healthcare are physicians, nurses, and pharmacists. Thus, implementing the APN role differs from the regular nursing role. As the APN is a relatively new role in the Qatari healthcare system, it is essential that physicians have the required knowledge about the role, such as APNs function, scope of practice, and competencies.

To ensure successful implementation of the APN role, a mixture of stakeholders must be involved such as policy makers, medical professionals and health service managers (Behrens, 2018; Gysin et al., 2019; Oldenburger et al., 2017). Their engagement will contribute to a better understanding of the APN role, which will facilitate the acceptance, recognition and respect of the role to help reach successful implementation (Behrens, 2018; Gysin et al., 2019; Oldenburger et al., 2017). According to Bryant-Lukosius and Dicenso (2004), determining and engaging key stakeholders is very important in the process of developing an APN's role, which can help to define the role of the APN, detect common goals, and identify the requirements of this role within the organization.

The barriers can be converted to facilitate the role implementation by increasing the awareness among physicians to consider APN as a part of their team and not a competitor (Jokiniemi et al., 2014). Clarifying the APN role can help considerably in minimizing the resistance of the role implementation in healthcare organizations. As mentioned in Gysin et al. (2019), physicians confirmed that they were not aware of what is an APN and what they can do in order to cooperate with APNs at work. Therefore, it is important to understand the doctors' knowledge and attitude about APN in PHCC in Qatar because they are the key in helping to facilitate the implementation of the APN role in primary care settings.

Organizational, Social, Cultural, and Policy Level

The main theme that emerged at the organizational, social, cultural, and policy level was lack of organizational and policy support for the APN role. This has several implications for practice and policy. According to Heale and Buckley (2015), the lack of regulation and title protection of the advanced nursing practice is identified as a barrier to the implementation of the APN role. In an integrative review paper by Sangster-Gormley et al. (2011), barriers to implementing the role of APNs exist at the organizational level such as the absence of standard job description and lack of human resource planning which leads to incompetence to practice within the full scope of the APN. At the same time, having a job description can facilitate the presence of settings where relationships are recognized, roles are clear, and work patterns are detailed for APNs (Sangster-Gormley et al., 2011). To ensure securing the APN role, the organization must include a strong evidence-based practice about APN procedures and practices, building a national policy with central stockholders (Jokiniemi et al., 2014). The job description provides a strong regulation of professional legislation which offers health professionals legality through credentialing procedures such as licensure, registration and certification, and authorized clinical tasks (Heale & Buckley, 2015). According to Kooienga and Carryer (2015), efficient health outcomes and easy access to health services have improved dramatically in many countries after introducing APN who have clear authority and laws to implement his or her job comprehensively and effectively.

Lack of job description, policy and framework in the plan of PHCC to implement the APN role must be addressed. Currently in Qatar, there is no job description for the APN role within the PHCC in. To introduce the role of the ANP within the PHCC services, a clear job description, and framework structure should be in place to facilitate the role implementation of the APN. Through the APN's job description, PHCC can construct a practice regulatory model that includes the job titles and specialties, the educational requirements, the scope of practice, and the potential field of work within the institution. PHCC needs an accurate and functional job description for APNs to give directions and guidance for developing, implementing, and evaluating APNs roles. The PHCC can modify an existing international job description in order to create a tailored job description for APNs based on the needs of the population. A job description sets clear expectations at the outset of their employment about what is expected of them in line with the requirements of the community and PHCC needs in Qatar.

Environmental Level

The main theme that emerged was no designated space for APN work. Providing the required physical space is important to facilitate APN's to practice to their full scope of practice which may ensure better patient care in the organization. As mentioned in Sangster-Gormley et al.'s (2013) study, the APNs reported that they could not practice their role until a designated work place was available for them, According to Donelan et al. (2013), most of the study participants agreed that the lack of physical work place was the key factor in limiting the APNs' scope of practice. The APN role does not yet exist in PHCC in Qatar, which means that the healthcare center buildings may not able to provide a designated work spaces for the APNs. Having a designated workplace for the APNs is crucial to facilitate communication and collaboration with the healthcare team (Schadewaldt et al., 2016).

Limitations

Studies included in this review were limited to studies published in English; therefore, other relevant studies in other languages were excluded. Only one Middle Eastern study conducted in Bahrain in 2012 was identified which creates a gap in our knowledge.

Conclusion

This integrative review aimed to identify the barriers to the implementation of the APN role internationally and to consider their relevance within the context of PHCC in Qatar. APNs have the scientific background and skills required to deal with complex health problems among Qatar's population. To ensure effective implementation of the APN role, barriers must be identified and addressed. The main barriers in this review were a lack of understanding and support for the APN role, lack of a job description, policy, and organizational support for the APN role, and no designated space for APN's practice.

Key recommendations for Qatar include: engage all key stakeholders' in the implementation process, create a clear job description and precise framework for APN and, provide a designated work space for APN's within PHCC. By minimizing the barriers to role implementation, PHCC will benefit from the full utilization of the APNs skills and knowledge while tailoring their practice to the community's requirements in Qatar.

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Appendix A

Extraction Tables for the Barriers Identified in 14 Articles Categorized Using the Socio-Ecological Models

		Barriers		
Author (year), Country Focus	**Methodology Design, Sample, Data Collection & Analyses**	**Individual**	**Organizational, Social, Cultural & Policy**	**Environment**
Poghosyan, et al., (2013) USA Facilitators and Barriers for Primary Care Nurse Practitioners	**Design:** Qualitative descriptive **Sample:** Purposive sampling- 23 NPs **Data Collection:** 1. group interview guide developed by authors ($n = 7$) 2. individual interview guide used ($n = 16$) **Data Analyses:** Thematic analysis	Comprehension of NP role: administrators, physician, staff, and patients did not have clear understanding of NP role and Scope of practice.	Getting to know the patient hindered by organizational processes related to patient scheduling. Challenging to care for patients on a shifting basis. There is no NP's patient panel NP role in some clinics not clearly defined. NP and did not receive assistance from medical assistants or other nurses Stressor in workplace: General stressors -lack patient-care support, lack of access to medical organizational supports, poor relations with some physicians and practice administration & little or no representation of NP involvement in decision-making & no one to advocate the creation of organizational structure to promote Scope of Practice for NP regulations require supervision by physician NP has to wait for doctors to sign off. Organization forced to complete forms to maximize reimbursement rather than tracks who provided care. Policies and billing practices main challenges. Only one primary care person could be listed in chart.	
Steinke et al., (2017)	**Design:** quantitative - Cross sectional	Lack of support from nursing colleagues (colleagues may feel	Key barrier lack of respect from supervisors and physicians	

To examine job satisfaction among NP & APNs in developing and developed countries, and to provide insight re the barriers and facilitators for NP and APN. The quantitative results will not be presented because this survey measures job satisfaction primarily. However the authors did capture some insights about the barriers in the open-ended questions at the end of the survey.	descriptive **Sample:** Purposive sampling 1680 completed the survey, N=1419survey analyzed, 85% female, 60% between 42-60 years, most practiced less than 6 years. Participants from 19 countries. **Data Collection:** Invitations sent via ICN nurses Survey tool (modified Misener Nurse Practitioner Job Satisfaction Scale (MNPJSS) had some open-ended questions **Data Analyses:** Thematic analysis Also did linear regression for quantitative data	threatened by emerging of APN roles)	Management not accepting APN. Lack of dual role position (e.g. teaching at university and having a practice. Lack of support for obtaining doctorate degree) Increase in administrative tasks which decreased patient contact and increased workload Lack of vacation pay, retirement and leave policies	
Chapman et al., 2018 California To describe how PMHNPs utilization, identify barriers to full utilization, and assess PMHNPs' economic contribution in public behavioral health systems. Legend: Psychiatric Mental Health Nurse Practitioners =(PMHNPs)	**Design:** Mixed method **Sample:** Convenience sample of mental health & medical directors, PMHNPs, Managers (i.e. HR, quality, finances & billing) **Data Collection:** Semi-structured interviews (in person & over phone) **Data Analyses:** Thematic analysis Quantitative - Data on billing and finances collected and analyzed		Lack of appropriate job descriptions lack of county- approved open positions for the role Lengthy civil service processes for hiring PMHNPs in contract position expressed dissatisfaction of not receiving benefits that psychiatrists receive) Health directors did not understand the details of NP supervision Psychiatrists refusing to supervise PMHNPs Restricted scope of practice for NPs in California (law requires MD supervision)	
Sharp & Monsivais, 2014 Texas	**Design:** qualitative Ethnography **Sample:**	Lack of business skills and knowledge needed to manage clinic ownership.	NP clinic continue to depend on private pay patients, third person payment, and other	

To describe difficulties related to the business-related aspects of practice in role transition of rural (NPs), and to provide implications for practice. Conceptual framework: developed by Sharp (2010)	24 rural NPs, female 93%, 51-60 years old, over 20 years of practice recruited from the National Health Service Corps Database. **Data Collection:** Semi-structured interviews **Data Analyses:** Constant comparison analyses 3 main themes: Scope of practice, business skills, & role conflict	Role conflict experienced between taking care of patients and managing the clinical practice. Anxiety, uncertainty, stress during transition.	government funding. Some states permit NPs to practice independently, others require the supervision or collaboration of a physician. NP underutilized because of state nursing acts. Reimbursement for NP differ from physicians resulting in decreased income	
Kraus & Dubois, 2016 USA To explore the attitudes of NP & physicians related to the independent practice of NP	**Design:** Qualitative grounded theory **Sample:** Purposive sampling 15 physicians & 15 NPs working in academic and private primary care **Data Collection:** Semi-structured in-depth interviews **Data Analyses:** Constant comparison- led to themes and interpretations	For physicians' caveats included knowing your limits, experience and training "NP should know when to ask questions" Most physicians insisted on some degree of supervision to ensure patient safety, given perceived gap in NP training Both groups Both groups rejected the idea that the physician must be a hovering presence to ensure good care quality.	Barriers to independence: Physicians focus on NP independence was very patient- oriented and not self-promoting or defiant. Physicians less frequently than NP referenced laws that did not seem reasonable and did not optimized NP ability to provide the care they saw as part of their SOP. NP also slimily referenced arbitrary laws and practice restrictions that seemed unreasonable for safe and efficient care.	
Guzman, Ciliska, & DiCenso (2010), Ontario Canada To identify barriers and facilitators associated with the implementation of the NPs role in Ontario's public health units, & NPs' job satisfaction- and the relationship	**Design:** Quantitative Descriptive **Sample:** 28 NPs working in 36 Ontario public health units (96.5% response rate) Female, 36 -45 years of age, BScN degree and post-baccalaureate NP **Data Collection:** postal survey **Data Analyses:** Descriptive	Response to short answer questions Themes to emerge was "related to professional isolation" (25%), 3.6% working on their own, & not being part of team 27% Most frequent barriers specific to the relationship between NPs & physician were: unwillingness of specialists to accept referrals from NPs (53.5%), physician lack of understanding of the	Percentage who ranked barriers as the top ranked barrier 39.2% being only NP working in unit. 32.1% salary of NP 32.1% employer knowledge of NP role 28.5% time travelling home to practice 21.2% employer support of NP role 14.2% receiving clerical support 14.2% dealing with client's complex social issues 10.7% NP coverage	

between NP job satisfaction and practice dimension	statistics & several survey questions required short answers, authors coded themes	NP role (42.8%), the personality & philosophy of the physicians (35.7%) The most ranked barriers related to the relationship were: unwillingness of specialists to accept referrals from NPs (53.5%), lack of respect shown by the physicians (46.4%), NPs feel overwhelmed by the demands of their role given their solitary work environment, & isolation from other PHU staff., & some PHU employer may perceive the PHU NP role to become more of a physician replacement.	(vacation or illness) 10.7% union membership. 7.1% NP involvement in developing NP role. 3.6% being consulted by PHU staff, access to PHU programs, NP linkage to PHU programs, working with PHNs, & support for management.	
Nasaif, H. A. (2012) Kingdom of Bahrain To examine the knowledge and attitude of primary care physicians (PCPs) about the NP role prior to and following an educational intervention First study in Bahrain to evaluate PCP knowledge and attitudes prior to NP role implementation.	**Design:** quantitative Quasi-experimental **Sample:** Nonprobability convenience sample N=90 PCPs (27-63 yrs.), majority female, from 12 health centers. **Educational intervention:** two DVD used **Data Collection:** Survey (modified northern emergency nurse practitioner tool) used pre- and post- test **Data Analyses:** Descriptive. Significant difference pre & post- test Knowledge mean scores.	**Pre-test: knowledge of PCPs about NP role:** 85.3% had not read anything about NP, 46.7% had heard about NP 48.9 % strongly agreed, 10% disagreed that they understood the role of NP 46.7% strongly disagreed that they understood how the NP role will function. 41.1% strongly disagreed, 7.8% disagreed that they understood which patients are suitable for management by NP. 43.3% strongly disagreed that they understood the NP scope of practice. 38.9% strongly disagreed, 11.1% disagreed That they understood how the NP is different from an RN. 44.4% strongly	The majority of participants graduated and finished their training in local and regional universities where the NP role does not exist.	

		disagreed that they had a good understanding of how the NP clinical practice guideline will form the basis for the primary care nurse practitioner. 40% strongly disagree, 33.3% no opinion, 11,1% agreed, 7.8% strongly agreed that they understood the educational preparation required to become a primary care NP. 45.6% strongly disagree, 32.2% no opinion, 10% agreed, 6.7% strongly agreed that they understood the nursing board requirement for endorsement as an NP. **Pre-test: Attitudes of PCPs about the role of the NP** 52.5% agreed that the NP has the skill & knowledge to provide appropriate educational for specific patient groups, & to appropriately refer specific patient groups. 35.6% agreed, 31.1% no opinion, 21.1% strongly disagree, 8.9% disagreed that NP has the skill to prescribe medication. 37.8% had no opinion, 26.7% strongly disagree that the NP has the skill & knowledge to refer patient directly to outpatient specialist clinic. 36.6% agreed, 18.9% strongly disagree,28.9% no opinion that the NP's has the skill & knowledge to write absence-form work certificates. 33.3% had no opinion, 22.2% strongly disagree		

		that the NPs had the ability to discharge patients from health center. 42.2% agreed that the NP has the skill & knowledge to initiate medical diagnosis. 34.4% strongly disagree, 31.1% had no opinion that they had no skill and knowledge to refer a patient directly for admission as an in-patient. 51.1% agreed, 25.6% strongly agreed that the NP will make primary care more effective 54.4% agreed, 23.3% strongly agreed that the NP will improve access to primary care health services in the Kingdome of Bahrain		
Poghosyan, et al., 2017 USA To examine and compare the NP patient panel, job satisfaction, turnover intentions, & organizational structures within the employment settings of NPs with less than three (newly hired) versus those with more than three years of NP experience.	**Design**: quantitative Cross-sectional descriptive **Sample**: N= 342 NPs accessed the survey, 64 NPs not practicing in primary care and 278 NPs completed survey. (n= 98 new hired, 147 experienced) From adult, family, pediatric, women's health, and gerontology settings **Data Collection**: online survey **Data Analyses**: four- point Likert scale job satisfaction (intentions of leaving their job) and Organizational structure (i.e. relationship with	**Overall results**: 29% of both newly hires & experienced NPs reported job dissatisfied & 25.5% of new hires & 14.3% of experienced NPs planned to leave jobs (p=.03). **Group differences**: Role and organizational governance (only significant groups differences were reported in this table) A significantly greater new hires (42.9% vs 27.9% experienced NP disagreed that NP role is understood (p=.02) A significantly greater proportion of new hires 32.7% vs 21.1% of experienced NPs disagreed that staff members understood role (p=.05) A significantly greater proportion of new hires 22.4% vs 9.5% of	53.1% experienced NPs and 41.1% reported having their own patient panel Almost half of NPs reported that NPs are not represented in important committees with their organizations. 30% of newly hired and experienced NPs reported a lack of ancillary staff to prepare patients (e.g. height/ weight) during the visits. NPs in each group reported lacking adequate time during patient's visits. 38% of new hires vs 30.6% of experienced NPs reported not receiving feedback about their performance. 36.7% of new hires vs 26.5% of experienced NPs reported not being	

	physician and administrators, support, and the infrastructure for care delivery)	experienced NPs disagreed that patients understand the role (*p=.01*) **Relation with physicians:** Overall most of NP reported that physicians trusted their care decisions A significantly greater proportion of new hired (33.7%) vs (20.4%) of experienced NP disagreed that physicians may ask for advice (p=0.2) A significantly larger proportion of newly hired NPs (7.1%) vs (1.4%) of experienced NP disagreed with the statement that physicians trust NPs care decisions. **Relations with administration- no Significant group differences):** Majority of experienced and new hires disagree that administrators treat NP and physician equally. Large proportion of newly and experienced hired NPs are dissatisfied with their jobs	able to review outcome measures of their care. Both new hires & experienced NPs reported lack of NP involvement in organization governance. A significant challenge observed in the relationship between NPs and administrators. Administrators did not view NPs equal to other providers & did not share organizational resources equally between these providers.	
Hernandez & Anderson, 2011 USA To explore the NP experience caring for prehypertensive patients	**Design:** qualitative, Narrative inquiry **Sample:** Purposive, N= 8 NPs (5 males, 3 female) age 31-53 yrs. all Master prepared family NPs with 4 months and 18 years of practice experience. caring for prehypertensive patients in primary care.	3 themes emerged **1-Realities of practice** difficult transitions due to the fast-paced managed health care Lack of time (e.g. did not prioritize health promotion into patient's visit) **2-Ambiguous role identity** Disconnect between actual practice & model used in school (socialization nursing model)	**Realities of practice** Time constraints & financial considerations such as billing for healthcare services Lack of public support for health promotion activities. Daily pressure of tight schedules, double booking of patients, and coordinating care with ancillary healthcare services often led to a sense of just "surviving	

	Data Collection: Semi-structured Interviews (initial conducted face to face, follow up conducted by phone audio recorded) **Data Analyses:** Thematic analysis	Difficulty connecting medical & preventative care model **3-<u>Bridging medical and nursing models</u>** Patients' unwillingness to take health promotion seriously, lack of commitment NPs dealt with mounting feelings of helplessness.	the day" Lack of public support for health promotion activities	
Voogdt-Pruis et al. (2011) Netherlands To examine the experiences (barriers and facilitators) of general practitioners and practice nurses implementing nurse-delivered cardiovascular prevention in primary care	**Design:** qualitative study nested in a RCT. **Sample:** 1st interviews N= 6 practice nurses 2nd interviews 6 GPs & 6 general practice nurses (Nurses asked to write down their experiences and then to discuss in Focus groups) **Data Collection:** first focus group then semi-structured individual interviews (overlapping interview guide- 1 for GPs & one for nurses), **Data Analyses:** Context analyses	**Job description:** Nurses need additional training. Fear of losing some nursing tasks. **Guideline:** Lack of knowledge about guidelines for prevention of Cardiovascular Disease (CD). GPs commented that some of the nurses are not really trained on counselling. **Communication:** Lack of communication among GPs & nurses about practice nurses' performance. Insufficient coaching by doctors	**Job description:** GPs lack knowledge of the guideline, job description in shared care. **Guideline:** Shared decision making Equipment Lack of ability to register special circumstances or treatment. **Communication:** Did not know who to communicate with in the case of a patient visiting a specialist. **Context:** Limited patient recording & computer systems Clinic work hours Workload Poor patient recording	**Context:** Lack of physical space
Henni et al., 2018 Norway To describe the experiences of nurses with their new role as advanced geriatric nurses (AGN) in care for older adults and determine what strategies the nurses considered important in the development of their new role.	**Design:** Qualitative descriptive exploratory **Sample:** Sample N= 21 AGN All but one had experience in primary care & all had considerable experience as nurse before becoming as AGNs **Data Collection:** In depth interviews **Data Analyses:** Content analysis		Challenging to integrate & establish a new nurse role in the primary healthcare system Participants felt that it was difficult to develop role because there were no <u>formal regulations, framework or guidelines</u> Lack of engagement from the managers (e.g., Some AGNs felt that the managers had not performed enough to customize the AGN position in a way that optimized the use of knowledge and skills)	

			physicians & collogues were unfamiliar with the AGN role at first, this could lead to some conflicts with diminished as people worked together. The role of AGNs and other advanced practice nurses in Norway are currently unknown	
McKenna, et al., 2015 Australia To explore barriers & enablers influencing the development of advanced nursing roles in general practice from the perspective of key stakeholders in primary care.	**Design**: Qualitative exploratory (3 round Delphi study) **Sample**: N=23 (3 nursing academics, 5 decision makers in PHC, 6 professional organizations, 4 senior staff,4 leading practice nurses, I consumer advocate). **Data Collection**: semi structured interview guide (17 by phone and 5 face to face). **Data Analyses**: Thematic analysis		**Increasing awareness and attractiveness of nursing in general practice:** Limited attention to retention of nurses in primary care. Need for the development of a clear role definition. Finding sufficiently skilled nurses is a key factor in managing existing nursing workload. Difficulties in developing clear career pathway. **Practice limitation:** Nurses not encouraged to develop roles and work to their full scope of practice, many become frustrated and left their specialty. Lack of peer support and management support. Nurses feels frustrated being unable to influence care delivery models. Not having the time to undertake advanced care focused activities, (e.g. evaluation of care outcomes) Emphasis on business model rather than nursing service. **Education and professional development factors:** Lack of access (e.g. difficulty in finding replacement nurses) and funding to appropriate education (e.g. basic PD and post graduate education). Current education focused in	No designed work spaces due to lack of funding. Nurses frequently used treatment rooms or desk in corridors.

			clinical tasks. were more often around clinical tasks and not related to building towards advanced practice.	
Poghosyan & Aiken, 2015 USA To better understand NP roles and organizational characteristics important for NP practice in primary care settings	**Design:** Quantitative cross sectional **Sample:** Convenience sample of 314 NPs, from 2 northeastern states, response rate 40%. Practice setting: community health centers, doctors' office & hospital affiliated clinics. Age: mean 50.6 yrs. range 24 to 75 years. 94.1% female, 88.5% had Master's degree. **Data Collection:** 35 items survey (4-point scale). **Data Analyses:** *descriptive statistics*	**Job dissatisfaction** 13.8% very dissatisfied, only 39.9% very satisfied **Turnover** 14.8% planning to leave their job next year	**Job insecurity** 5.6% likely they will lose their jobs or be laid off in the next 12 months **Lack of clarity of NP role:** 1 in 4 NP indicated that their role is not well understood, NP working with more than 10 NPs (85%) were more likely to report that role was understood versus 73.8% of NPs who worked alone in their organization. **Lack of representation:** 60% reported that NPs are represented in important committees - disparities between the levels of support services provided in some organizations to NPs as compared to physicians. **Organizational relationships:** 49.5% of the NPs reported constant communication between NPs and administrators, 35.4% reported that administration shares information equally with NPs & physicians, 39.5% reported that the administration treats NPs and physicians equally. The highest percentage of NPs having their own patient panel was 61%.	
Poghosyan et al. (2018) USA Assessed the perspectives of physicians & NPs on the barriers & facilitators of implementing the NP Modernization Act 18 months	**Design:** Qualitative descriptive **Sample:** N=26 Purposive snowball (14 NP, mean age 41.3yrs, SD± 3.4 & 12 physicians, mean age 45.7yrs, SD ±2.7) **Data Collection** Semi- structured guide &	NP not well informed of the NP Modernization Act	*Stagnant organizational policy*: organizational bylaws not reformed because lack of leaders to encourage change. NP reported that practices sold to hospitals were less supportive of expanding NP scope of practice. *Lack of awareness of NP competencies:* some physicians & administrators not	

after the policy adaption.	individual interviews **Data Analyses:** Thematic analyses		familiar with the care NPs can deliver or their competencies. Physician perceived that NPs competencies are not generalizable to the overall NP workforce. *Lack of knowledge about the NP Modernization Act:* few physicians aware about Act. Both NPs & physicians reported that their organization do not keep informed about the state policy change. Physician autonomy and resistance to change: two physicians reported resistant to surrender some of their rights	

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