ORIGINAL RESEARCH

Role development and utilization of master's-prepared omani nurses working in clinical settings: A multiple case study

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ABSTRACT

Background and aim: The roles of master's-prepared nurses in clinical settings differ by country. Examples include nurse practitioners, clinical nurse specialists, nurse managers, educators, and researchers. Little is known regarding the role development and utilization of master's-prepared nurses in Oman. The aim is to explore the role development and utilization of master's-prepared Omani nurses working in clinical settings in Oman's governmental healthcare system.

Methods: Multiple case study methodology involving two governmental acute care hospitals in Oman. Individual semi-structured interviews were conducted with master's-prepared Omani nurses (n = 19), policymakers (n = 8), and co-workers (n = 8). Relevant documents, including job descriptions and nursing career pathway were reviewed. Interviews and documents were analyzed using thematic analysis.

Results: Master's-prepared Omani nurses were mainly utilized in management, education, and nurse specialist roles. Four overarching themes were identified: 1) Drivers for master's-preparation in clinical settings, 2) The journey after pursuing a master's education, 3) Master's- prepared nurses' roles, their development, and their scope of practice, and 4) Perspectives about the current utilization of master's-prepared Omani nurses. Participants indicated utilization of master's-prepared Omani nurses in clinical settings could be enhanced.

Conclusions: Master's-prepared nurses could play a vital role in supporting the needs of patients and addressing gaps in clinical settings if their advanced knowledge and competencies were fully utilized. Linking master's-prepared nurses' roles to patient, organization, and system needs and engaging stakeholders in developing their roles will enable optimum utilization of this valuable human resource.

Key Words: Acute care hospitals, Advanced practice nursing, Advanced practice nurses, Case study, Oman, Education, Utilization

1. INTRODUCTION

The number of graduate-level nursing education programs has dramatically increased worldwide and their focus has shifted to include advanced and specialized nursing practice.[1] This has occurred in response to an increasing number of patients with complex health and social needs along with challenges related to access to care, cost containment, and the increased use of technology.[2] Responding to such challenges and societal demands, master's-prepared nurses have been utilized differently a cross countries and within

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healthcare settings.[1,3] They have been utilized as advanced practice nurses (i.e., nurse practitioners and clinical nurse specialists). Additionally, many have been utilized in roles geared toward leadership and management, specialized clinical nursing, nursing education, and research. In these roles, they are expected to utilize their advanced knowledge, skills, clinical judgment and research skills to collaborate with other healthcare providers to achieve positive patients and organizational outcomes.[2,3]

Researchers have documented the positive impacts of master's-prepared nurses on organization and patient outcomes.[4] Master's-prepared nurses apply their leadership and critical thinking abilities to analyse and manage complex clinical situations.[5] For example, in community health, mental health, post-transplant care, central venous catheter care, and continuity of care.[6] Moreover, at a systems level, there is evidence that care from these nurses results in increased access to health care and reduced length and cost of hospital stays,[7,8] as well as improved wait times, patient satisfaction, and chronic disease management.[7,9]

Despite these positive outcomes, the global utilization of master's-prepared nurses, including advanced practice nurses, remains suboptimal.[2,4,10] This is attributed to role ambiguity and conflict among healthcare team members, and inadequate role acceptance and understanding by managers. Other influential factors include international variations in role titling, credentialing, education requirements, and scope of practice.[2,10,11]

Advanced practice nursing (APN) roles in Arab countries are at an early stage of development and little is known about the current roles of master's-prepared nurses.[10] Developing an understanding of these roles is foundational to the evolution of APN in Arab countries. This knowledge can inform the development of policies and human resource planning strategies to support and increase their introduction, utilization and retention.[4,12]

In Oman, one of the Arab countries, the number of master's-prepared nurses has increased since Oman established the country's first Masters of Nursing Education program in 2016 with an adult acute care speciality. Currently, Oman has three Masters of Nursing Education programs. Before that, Omani nurses traveled abroad to complete their master's education.[13] Advanced practice nursing roles are evolving in Oman. According to Al Darazi and Al Maqbali,[14] seven Omani nurses were sent oversees to be qualified as advanced practice nurses. Currently, they are working as advanced practice nurses at different facilities. The first Omani nurse practitioner hired in 2016 in pediatric speciality.[14]

Oman has a publicly funded healthcare system, wherein the Ministry of Health (MOH) and a university hospital are the main health care organizations. The number of master's-prepared Omani nurses working at the MOH affiliated hospitals, and the university hospital is approximately 100 (S. H. Al-Zadjali, personal communication, April 7, 2019) and 30 (D. Birru, personal communication, February 22, 2019), respectively. Evidence regarding utilization of these master's-prepared Omani nurses, including those working as advanced practice nurses, is scarce. Indeed, limited empirical evidence is available regarding the utilization of master's-prepared nurses in Arab countries. That evidence showed the majority have been utilized in administrative and educational roles.[10,15] Utilization refers to types of roles nurses fulfill in health care organizations and whether their roles align with their educational preparation and meet organizational goals.[16] Oman has developed a strategic plan for health development (2021–2025) that aims to enhance the utilization of health care professionals, including nurses, in order to increase care quality, health care services, and patient safety.[17] The research reported in this article aligns with this strategic goal by exploring the role development and utilization of master's-prepared Omani nurses. This research could pave the way for the development of APN roles in the country.

2. METHODS

2.1 Aim and objectives

This research is part of a broader multiple case study that aimed to explore the role development and utilization of master's-prepared Omani nurses and factors impacting their utilization. This paper answers the following research questions: 1) How have master's-prepared Omani nurses working in clinical settings in the governmental healthcare organizations in Oman been utilized? 2) How were their roles developed? Factors impacting their role development and utilization will be published elsewhere.

2.2 Design

This study employed a multiple case study design that included interviews and a document review.[18] Case study research is often used to develop an in-depth understanding, description, and analysis of a phenomenon within contemporary contexts or settings, using one or more cases The phenomenon of interest in this research was the role development and utilization of master's-prepared Omani nurses working in clinical settings in the Oman governmental health care organizations. The two cases were the MOH affiliated hospitals, (Case 1) and a university hospital (Case 2). These two cases were purposively selected for two reasons. First, they are the two primary providers of Oman's governmental

health care system and secondly, they are separate organizations with differences in administration, organizational structure, facilities, nursing practice, rules and regulations, and financial resources (descriptions of the two cases were included in Table 1). Multiple case study was selected to allow thick description, analysis, and comparison of the role development and utilization of master's-prepared Omani nurses within these health care organizations.[18]

Table 1. Descriptions of the two cases

Characteristics	Case One	Case Two
Hospital Type	An accredited academic tertiary care teaching hospital	An accredited academic tertiary care teaching hospital
Bed Capacity	• 738 • 17 general in-patient wards	• 600 • 15 general in-patient wards
Services provided	• Specialized and sub-specialized services of surgery, medicine, paediatric, oncology, obstetrics and gynaecology, and laboratory medicine. • Dental surgery, infection control specialty, physiotherapy, radiology therapy, and clinical dietetics. • Critical care units, including neonatal, paediatric, adult intensive care, post-cardiac surgery, and coronary care. • Specialized units, a specialized nursing care unit, delivery suite, and specialized infant care units	• Specialized medical/surgical services, including internal medicine, general surgery, orthopaedic neurology, cardiac surgery, paediatric obstetrics and gynaecology, psychiatric and laboratory medicine. • Dental surgery, infection control specialty, physiotherapy, radiology therapy, and clinical dietetics. • Delivery suite and a special nursing care unit • Critical intensive care unit, neonatal, paediatric, and adult intensive care, post-cardiac surgery, coronary care, and cardiac intensive care unit.
Specialized Services	Genetic centre, diabetic and endocrine centre, national oncology centre, and a national heart centre	Renal transplant unit, bone marrow transplant unit, and genetic centre.
Nursing workforce	1928 nurses, of which 672 are Omani. 13 Master's-prepared Omani nurses (Al-Hashmi, N, personal communication, October 22, 2020)	1370 nurses, of which 447 are Omani. 39 Master's-prepared Omani nurses (Al-Rasbi, S, personal communication, November 23, 2020)

2.3 Conceptual framework

This study was conceptually guided by two related frameworks; the participatory, evidence-based, patient-centered process for advanced practice nursing role development, implementation, and evaluation (PEPPA) framework[12] and the PEPPA Plus framework.[19] These frameworks have been used to guide and evaluate the development and implementation of advanced practice roles worldwide. These frameworks were selected because Oman is evolving toward the introduction of APN roles.

We used the frameworks to identify data sources and data collection methods, develop interview guides, and frame data analysis. Role structures and processes included in the frameworks informed the deductive codes used for analysis. Examples of role structures include organizational, political, and financial factors and human resource characteristics. Role process examples include clinical, research, education, leadership, and consultation activities.[19]

2.4 Study participants and recruitments

Five units of analysis were included, 1) master's-prepared Omani nurses, 2) their administrators, mangers, or policymakers (for readability, we used the term policymakers to refer to this group), 3) their coworkers, 4) nurse educators, and 5) relevant policy documents. Table 2 summarizes the inclusion and exclusion criteria, and sampling, and recruitment techniques.

Non-Omani master's-prepared nurses were not eligible to participate as the focus of interest was Omani nurses and non-Omani nurses usually come to Oman with temporary contracts and a specific job position. Thus, their experiences and career pathways are likely to differ from Omanis'. Data saturation was attained when interview data provided no new information, thus determining the sample size.[20] One to two additional interviews were conducted for each case to ensure no new information emerged.

Contact information of the Directors of Nursing was obtained from the nursing directorate in each case. The first author collaborated with the Directors of Nursing in each case to recruit the study participants. The Directors' offices sent official invitation emails to all eligible participants via their work emails and the What's App application.

2.5 Data collection

A semi-structured individual interview was conducted with each study participant, either in-person, at their workplace or virtually using Microsoft Teams. The research team de-

veloped interview guides for each participant category and piloted them with the first two participants from each category. No changes were made to the guides and the piloted data were retained in the study. All interviews were conducted in English by the first author and audio recorded (details about the interviews are included in Table 3). All were transcribed verbatim by an official transcriptionist who signed a confidentiality agreement. The first author double-checked all interview transcripts with the audio files. Policy documents related to career pathway and job descriptions of nurses were reviewed.

Table 2. Sample criteria and recruitment process

Units of Analysis	Master's-prepared Omani nurses	Nurse administrators/ managers/policymakers	Co-workers	Nurse educators	Official documents
Inclusion criteria	Being Omani (e.g., having Omani nationality), having a master's degree, working at governmental health care system	Had master's-prepared Omani nurses working under their administration, or supervision, had impacts on their development and utilization, or responsible about setting policy related to their practice -Could be Omani or non-Omani	Worked directly with master's-prepared Omani nurses in a team, were permanent staff, could be with any professional backgrounds	Taught at master's programs in Oman	Have relevant information regarding master's-prepared Omani nurses (e.g., role, scope of practice, career pathway, etc.)
Exclusion criteria	Being non-Omani, not having a master's degree, working only at an educational or a private health care organization	Not working with master's-prepared Omani nurses or has no impact on their role development or utilization	Not a permanent staff or doesn't have direct work experience with a master's-prepared Omani nurses	Not taught at the master's program in Oman	Has no relevant information related to maser's-prepared Omani nurses
Sampling techniques	Purposive (e.g., different roles, years of experience, gender, etc.) Snowballing	Purposive (different administrative roles)	Snow- balling and Purposive (different professional backgrounds)	Purposive	Purposive
Recruitment strategies	Formal email invitation (by the Director of Nursing), What's App invitation (by the Director and the first author (names withheld to maintain annonymity for review)	Formal email invitation (by the Director of nursing) What's App invitation (by the Director and the first author (names withheld to maintain annonymity for review)	Email invitation (by the Director of nursing) What's Up invitation (by the Director, the first author (names withheld to maintain annonymity for review), and the participated master's-prepared Omani nurses)	Email invitation (by the first author (names withheld to maintain annonymity for review)	Suggestion from the Directors of nursing and master's-prepared Omani nurses

2.6 Data analysis

Within case analysis was completed using hybrid thematic analysis[21] followed by a cross case analysis.[18] The following iterative steps were followed: Prior to the analysis, the first author identified deductive codes using the PEPPA[12,22] and PEPPA Plus frameworks.[19] The first author then tested and applied the deductive codes in 10 interviews; revised the deductive codes and added inductive codes; established the coding manual, including both inductive and deductive codes; and applied the coding manual to the remain of the interviews and documents.[21] Coauthors (LW &RMM) independently coded 30% of the transcripts to test the dependability of the coding manual. Coding was comparable, and no additional codes were identified. Related codes were clustered into themes and subthemes, which were identified through discussions among the author team. The cross-case analysis was completed by comparing the findings from the two cases. Specifically, commonalities and differences in the role development and utilization of master's-prepared Omani nurses were examined. NVivo 12 software was used for data management and to support analysis.[23]

2.7 Ethical considerations

Ethical approval was obtained from all involved hospitals prior to data collection. Before the interview, participants were informed that their participation was voluntary and would not impact their work and that they could withdraw from the study within a week from conducting the interview. All participants received an information sheet about the study, and verbal consent was audio recorded. Because of the limited number of master's-prepared nurses and their policymak-

ers in each case, and to maintain confidentiality, demographic data were aggregated and collectively presented.

2.8 Trustworthiness

To ensure trustworthiness of the study, three criteria suggested by Merriam[18] were used, namely internal validity, reliability, and external validity. To enhance the internal validity of the study (i.e., the congruency between the research findings and the studied reality), we used a multiple case study design, triangulation of data sources, and data collection techniques and peer debriefing. We enhanced the study reliability (i.e., "the consistency between research findings and data collected"[18] [p.208] by involving the research team in the analysis and having peer debriefing in every stage of the research and using multiple case study. A detailed description of the cases and participants enables assessment of the external validity or the generalizability of the study findings to other contexts.[18]

To enhance reflexivity, the first author maintained a reflexive diary and disclosed that she worked as a staff nurse in Oman which facilitated participant recruitment, data collection, and analysis.[24]

3. FINDINGS

3.1 Characteristics of participants

We conducted 18 interviews for Case 1 and 17 for Case 2 (see Table 3). Internal documents related to career pathways and job descriptions for nurses were reviewed for each case. One virtual interview was conducted with a nurse educator working at a Master of Nursing Education program.

Four themes were identified that summarize the role development and utilization of master's-prepared Omani nurses: 1) Drivers of master's preparation in clinical settings; 2) Trajectory after graduation, 3) Role development and scope of practice; and 4) Current utilization of master's-prepared Omani nurses. Detailed descriptions of each theme are included below, with similarities and differences identified in the cross-case analysis.

3.2 Drivers of master's preparation in clinical settings

Many patient and organizational needs that master's-prepared Omani nurses could address were similarly identified in both cases. Policymakers indicated Omani nurses were sent for master's education based on defined organizational needs, strategic planning, and budget. Service expansion in specialties and the learning needs of the nursing workforce have driven the need for nurses with advanced degrees who can support management and the nursing workforce by supervising, training, and empowering other nurses and supporting specialized services. They also recognized that nurses with master's degrees were needed because the nursing profession is still relatively new in Oman. All master's-prepared nurses and some policymakers in both cases linked a master's education primarily to nurses' personal and professional development. They indicated that Omani nurses pursued their degrees to increase their knowledge, skills, and confidence to qualify for a more senior position and to raise their self-esteem. A few nurses linked their master's degree to the international standards associated with their roles, such as clinical nurse specialists and nurse educators as summarized in this quote: *"When you compare yourself to others in other countries, they need at least a master's degree to practice as a clinical nurse specialist. This was one of the reasons why I went for a masters."* (a Master's-prepared nurse # N0501, Case 2)

Table 3. Demographic characteristics of the study participants

Characteristics	Case One	Case Two
Master's-prepared Omani nurses	n = 9	n = 10
Mean age	43.4	36.3
Gender		
Male	1	4
Female	8	6
Place where master's education was obtained		
United Kingdom	8	6
Oman	-	2
Other	1	2
Mean years of experience after master's education	3.5	3.8
Current role:		
Managers/administers	3	5
Educators	3	1
Specialist nurses/Clinical Nurse Specialists	3	3
Other	-	1
Interview mode/ timing:		
In-person	8	7
Virtual	1	3
Mean length of interviews	69 min	70.2 min
Policymakers	n = 5	n = 5*
Mean age	48.2	43.2
Gender	All female	All female
Education level		
Master and above	2	5
Bachler and below	3	0
Interview mode/timing		
In-person	1	5
Virtual	4	0
Mean length of interviews	79 min	58 min
Co-workers	n = 4	n = 4
Gender		
Male	2	2
Female	2	2
Current role		
Nurses	2	2
Consultant Physicians	2	2
Interview mode/ timing:		
In-person	-	-
Virtual	4	4
Mean length of interviews	52 min	40 min

*Two nurses who were interviewed as master's-prepared nurses and as policymakers.

Many masters'-prepared nurses, their coworkers, and some

policymakers in both cases linked the need for master's-prepared Omani nurses to a lack of nursing research in Oman and the need to increase research and utilization of evidence-based practice in nursing care. Additionally, some identified that having nurses with an advanced degree was an accreditation requirement. A few participants highlighted that having master's-prepared Omani nurses who could practice independently would close the status gap with other health care providers and could eventually improve the image of the nursing profession held by the public and other professions. A master's-prepared nurse asserted that:

"I wanted to strengthen the nurses. I feel our nurses in Oman especially, are hesitant, and led by doctors." (Master's-prepared nurses# N1711, Case 1)

Interestingly, physicians linked their service workload to the need for master's-prepared nurses and explained how the nurses' advanced knowledge and skills could facilitate physicians' work because "they can pick up things that can be important for the physicians the next day."

3.3 Trajectory after graduation

Participants described what master's-prepared Omani nurses experienced after completing their master's education and joining the service. Some nurses from both cases mentioned they met their nurse administrators when they joined the service, however many did not. These nurses stressed that a structured organizational plan was lacking, and their expectations of their role mismatched the nurse administrators' expectations. Although a few nurses expected no changes in their roles, many expected to have a more senior position, work as managers or researchers, take on more responsibilities related to staff education, and/or have more advanced practice responsibilities, such as setting policies and standards. In contrast, the nurse administrators expected master's-prepared nurses to resume employment in their previous workplace and position and asked them to identify their goals and what they wanted to achieve in their units. Some nurses mentioned that these expectations were not discussed with them before they pursued their master's education, which, a master's-prepared nurses summarized in the following quote, created confusion, frustration, and feeling undervalued as master's degree holders by their nurse administrators and team: *When I came, they asked me to go back to bedside nursing until they get a plan. They said you need to work as a bedside nurse for three months and give us a report, an evaluation. I said this is already over. I worked at the bedside for more than 10 years, and I knew what's there. I thought at that time because they did not have a clear plan for me, they were confused about where to put this master's graduate.* (Master's- prepared nurse# MN 2212, Case 2)

Participants reported that most nurses returned to their previous positions, while a few filled emerging needs or positions in the organization. Many of those who returned to their previous positions worked proactively to develop and expand their roles by assuming new responsibilities that utilized their knowledge and skills, with limited to no involvement from the nursing administration or their team. These responsibilities included improving nursing practice through developing protocols, mentoring and teaching nurses, developing educational materials for patients, and participating in research and quality-improvement projects. Nurses and some policymakers emphasized that it was a self-effort. A Master's-prepared Omani nurse described her trajectory as following:

So, when I came back, I came back to the same post. In the beginning, there were no changes, any preparation or any high expectations from the admin. They expected me to resume the same as I did before study. But I started to work on myself, like bringing more new ideas and new thoughts, how can we change, and I applied what I have studied in the current work. (Master's-prepared nurse# N0102, Case 1).

Some nurses reported no changes in their scope of practice; rather, they highlighted being involved more in administrative tasks, such as being members of committees and research projects. Some nurses and policymakers also reported that nurses became more knowledgeable and efficient in their roles and became more assertive in selecting job responsibilities that aligned with their education level.

Some differences were noted between the two cases. Some master's-prepared nurses in Case 2 indicated their role post master's became more focused and limited, whereas their counterparts in Case 1 highlighted that sometimes they held more than one position at a time. Unlike in Case 2, nurses in Case 1 stressed that they were challenged by their nurse administrators and teams and asked to prove their ability to do the work to gain their trust. Many of them went the extra mile to build trust, which took significant time and effort. However, after seeing the outcomes of their practice, many nurses confirmed that others started to give them more opportunities and involved them, as the following quote illustrates: *I have to show my skills to make them understand. For example, if I am discussing any case, I am discussing it comprehensively to show them that I'm a master's-prepared nurse. I am trying to show whatever I learned so that they can see I'm different.* (Master's-prepared nurse#N2412, Case 1)

3.4 Roles development and scope of practice

This theme summarized the common roles of master's-prepared nurses, how their roles were developed, and their scope of practice. Three subthemes were identified: 1) nurses

in administrative and managerial roles, 2) advanced practice/specialized nurses, and 3) clinical nurse educators.

3.4.1 *Nurses in administrative and managerial roles*

The most common roles of master's-prepared Omani nurses in both cases were administrative and managerial roles. They worked as directors of nursing, ward managers (head nurses), unit or department managers, and heads/managers of non-nursing departments.

According to nurses in these roles, they had well-developed and defined roles with a clear scope of practice. The scope of practice of nurses in administrative and managerial roles in both cases was similar. For example, directors of nursing acted as nurse consultants, performing more senior administrative responsibilities, such as strategic planning, policymaking, and staff recruitment. Unit managers were usually responsible for multiple wards within one speciality area. They had multiple responsibilities, focusing on ensuring proper use and deployment of nursing personnel and resources within their departments and assisting in policy implementation and evaluation. A unit manger detailed her role in the following quote:

As unit manager, I look overall to all the areas under me to make sure patient flow is running smoothly, human resources are adequate, there is enough supply, and no shortage. I also make sure resources are available. I am going to a clinical round as well to see how nurses are running their wards. (Master's-prepared nurse #MN1020, Case 2)

The ward managers were each responsible for supervising one ward, monitored care provided to patients, supervised and evaluated staff nurses, and worked with nurse educators to help staff adjust to their new work environments. Most nurses in these positions were involved in advisory committees and multidisciplinary quality-improvement projects, and some were involved in research. Document review identified high compatibility between the job descriptions of these nurses and the role responsibilities they described during interviews.

3.4.2 *Advanced practice/specialized nurses*

These nurses worked in specialty teams providing specialized care in areas, such as breast cancer, pain management, palliative care, neurology, hepatology, and hematology. They were called specialized nurses in Case 1 and advanced practice nurses (i.e., clinical nurse specialists) in Case 2. They had almost same role activities. Most of these nurses were in these roles before completing their master's education yet were expected to continue the same roles upon completion. However, most participants indicated that advanced practice and specialized nurses should be masters'-prepared, especially when their roles are advanced and autonomous.

The need to assist physicians so that they could save time and provide care for more complex patients was a main driver of the need for advanced practice and specialized nurses. Some participants in Case 2 described advanced practice nurses as physician assistants. For example, this physician described the need for a clinical nurse specialist as follows: *"Their job is to save a lot of time for the physicians. Because physicians cannot do everything by themselves. They're helping them. And they're providing a great service."*(Co-workers# C1403, Case 2)

The role activities and responsibilities of advanced practice and specialized nurses varied by specialty, and physicians played dominant roles in determining nurses' scope of practice (summarized in Table 4).

These activities were based on what nurses practising and what were written in their job descriptions. It is worth noting that, the job description of clinical nurse specialists was not reviewed as it was not available. Nurses in both cases wrote their own job descriptions, which were then approved by their nursing department. Specialized nurses in Case 1 reported their job descriptions as clear and speciality specific, whereas clinical nurse specialists in Case 2 reported theirs as fluid, general, and unclear. Specialized nurses reported that physicians were involved in drafting their job description. When the clinical nurse specialist role was first implemented, there was no job description, and nurses did what their team asked them to do. Interestingly, the physicians indicated that they had not reviewed the clinical nurse specialist's job description and that most of the clinical nurse specialists' responsibilities were enacted by mutual agreement between the team and the nurses. Notably, some advanced practice and specialized nurses in both cases worked as team coordinators and undertook many tasks that did not require a nurse with a master's degree, such as translation and coordinating outpatient clinics, which was highlighted by this clinical nurse specialist:

In the outpatient department, we are responsible for the clinic from A to Z. This means as nurse specialists, we make the appointments for the patients, we do the consent for the patients, we run the clinic, we call the patients, we give them the prescriptions, the papers, we are putting them in the queues and everything. Ideally, we should just provide counselling. But nobody is there to do these tasks, so we agreed to do them. (a Master's-prepared nurse#MN1002, Case 2)

A few advanced practice and specialized nurses in both cases had more autonomous roles, such as being trained by their teams to perform advanced procedures usually done by physicians. In Case 2, a few clinical nurse specialists could see patients independently in a clinic and order predetermined

medications and lab tests based on internal agreement with physicians. These advanced tasks were mostly added to their roles after completing their master's education. These activities were not listed in the job description of specialized nurses.

Table 4. Advanced practice/specialized nurses' scope of practice

Nurses Role	Case 1	Case 2
Clinical domain		
Perform patient pre and post-op preparation.	Yes	Yes
Work both in-patient and out-patient	Yes	Yes
Complete patient comprehensive assessment and plan of care	Yes	Yes
Order and administer medication	No	*Yes
Monitor side effects of medications	Yes	Yes
Monitor and interpret lab results	Yes	Yes
Order lab tests	*Yes	*Yes
Assist physician with procedures	Yes	Yes
Perform advanced technical procedures	*Yes	*Yes
Independently run clinic	Yes	Yes
Coordinate patient care to facilitate movement through and across health care settings	Yes	Yes
Liaison between patients and the health care team	Yes	Yes
Patient and family psychosocial counselling	Yes	Yes
Discharge planning	Yes	Yes
Establish goal of care in collaboration with the patient and family	Yes	Yes
Telephone follow up	Yes	Yes
Administrative/Leadership domain		
Establish guidelines and protocols	*Yes	*Yes
Coordinate patient appointments	Yes	Yes
Coordinate out-patient clinics	Yes	Yes
Arrange patient appointments	Yes	Yes
Participate in advisory committees	No	Yes
Coordinate team meetings	No	Yes
Prepare discharge papers	Yes	Yes
Translation	No	Yes
Teaching/education domain		
Identify educational needs of patients and family	Yes	Yes
Provide patient and family education	Yes	Yes
Assess the professional development and learning needs of nurses	Yes	Yes
Provide formal and informal bedside teaching to staff	Yes	Yes
Assess the learning needs of interdisciplinary team members	Yes	Yes
Maintain a university cross-appointment to serve as clinical faculty for undergraduate students	Yes	Yes
Consultation domain		
Provide consultation to improve nursing care	Yes	Yes
Provide case consultation to improve patient care	Yes	Yes
Research domain		
Integrate research findings and best practice to develop clinical policies, practice guidelines and/or protocols	Yes	Yes
Conduct research studies	*Yes	*Yes

*A handful number of nurses engaged in this activity

Another specialized role practiced by master's-prepared Omani nurses in Case 1 only is the research nurse role, which was developed to increase nurses' research capacity and to meet accreditation requirements. This is the only role of those mentioned that was developed to be practiced by a master's-prepared nurse. The role activities included identifying, conducting, and facilitating research in collaboration with multidisciplinary teams as well as training and coaching

nurses on aspects related to research.

3.4.3 *Clinical nurse educators*

The role of clinical nurse educator is considered relatively new and was developed to meet the need to supervise, train, and mentor the growing nursing workforce in both cases. The role was practiced only by master's-prepared nurses in Case 2, whereas it was practiced by both master's- and non-master's-prepared nurses in Case 1. The role was implemented internally in Case 1 and thus may not be practiced in other MOH affiliated hospitals. In both cases, nurse educators highlighted that their role was still not well-established. They relayed that their job descriptions were vague and, in some instances, self-developed. Consequently, some nurse educators had role conflicts with some people in nurse administrative roles, particularly when there was overlap between job descriptions, such as between ward managers and nurse educators in areas related to staff education and improvement of clinical practice as this quote summarized:

Before the clinical educators, this was the role of the ward managers. They are the ones telling, I want to start this course, I want to do this project, I want to do that. So, pulling that authority from them is not easy. And to convince them that this is the role of nurse educator is hard for them to accept. (Master's-prepared nurse#MN2212, Case 1)

The scope of practice of nurse educators in both cases is summarized in Table 4. Nurse educators and policymakers in both cases agreed that the nurse educator role should be practiced by master's-prepared nurses. Notably, nurse educators in Case 1 have a wider scope of practice than their counterparts in Case 2 (see Tables 4-5). For instance, some nurse educators in Case 1 participated in guideline and protocol establishment, equipment selection and training, and performance review and evaluation. However, nurse educator roles varied between departments in Case 1, hence not all were engaged in the above-mentioned responsibilities.

Interestingly, during COVID-19, nurse educators in Case 1 played an important role in training nurses and nursing students, using various virtual teaching techniques on being critical care nurses and maintaining infection control. In contrast, the role of nurse educators in Case 2 vanished, and they were asked to work as bedside nurses.

Table 5. Clinical nurse educators' scope of practice

Nurse role	Case 1	Case 2
Clinical domain		
Work as a nursing consultant	Yes	No
Monitor and evaluate nursing practice and implement evidence-based nursing practice as needed	Yes	Yes
Provide guidance regarding patient care	Yes	Yes
Teaching/Education domain		
Plan and/or deliver and facilitate formal educational events for staff based on identified needs	Yes	Yes
Assess the professional development and learning needs of nurses/ nursing students	Yes	Yes
Monitor, evaluate and document outcomes of educational offerings (presentations, posters, educational documents) of others	Yes	Yes
Provide informal bedside teaching to staff	Yes	Yes
Provide orientation and training to new staff	Yes	Yes
Maintain a university cross-appointment to serve as clinical faculty for undergraduate and/or graduate students	No	Yes
Administrative/Leadership domain		
Participate on advisory committees	Yes	No
Participate in equipment selection	Yes	No
Participate in staff evaluation and appraisal	Yes	No
Assist in developing, implementing and monitoring of nursing standards, policies, and guidelines	Yes	No
Research domain		
Integrate research findings and best practice to develop clinical policies, practice guidelines and/or protocols	Yes	Yes
Design, and apply research and evidence-based practice	Yes	Yes
Act as a resource regarding research issues for other nurses	Yes	No
Consultation domain		
Provide consultation to health care providers to improve the quality of nursing care	Yes	Yes
Provide consultation to inform the development of health policies and/ or practice	Yes	Yes
Provide consultation to select new equipment	Yes	No

3.5 Current utilization of master's-prepared omani nurses

All participants were asked about their perspectives regarding the current utilization of master's-prepared Omani nurses. In both cases, most participants agreed that master's-prepared Omani nurses were underutilized, mainly in research. They related this to the lack of nurses' personal interest and time and a high workload. A few master's-prepared nurses working as nurse educators and managers indicated that they were underutilized in setting policy or protocols. A master's-prepared Omani nurses in a managerial role said that:

For approximately two years, I have not [been] involved in any research. I was not invited to participate in updating any policy. And I thought that they are not utilizing the master's staff correctly. And sometimes you feel like you are already moved to the corner. (Master's-prepared nurse#MN1003, Case 2)

Some advanced practice and specialized nurses in both cases indicated that they were underutilized because of their limited scope of practice, as some still cannot order medications and labs or run their own clinics. They attributed their underutilization in part to national and organizational regulations that prohibit nurses from ordering medications and lab tests and their overload with non-nursing tasks. Those nurses who were given the authority to order medications and labs reported being well utilized. A physician who worked with a nurse specialist from Case 2 advocated that clinical nurse specialists should be allowed a defined scope in ordering medications: *"At least refilling medicine. Not ordering a new medicine. Why not? We will follow the results. It's only requesting. They are not allowed to order. They should be allowed actually."* (Co-worker#C2104, Case 2).

Conversely, many master's-prepared nurses in Case 1 asserted that they were in fact overutilized because they held multiple roles at a time. In both cases a handful of master's-prepared nurses reported being well-utilized. Notably, these nurses were working in administrative roles. The perspectives of policymakers about the current utilization of master's-prepared nurses differed between cases. In Case 1, most policymakers believed that the current master's-prepared nurses were well utilized saying: *"We are utilizing them properly because we are not giving them more than what they can take. I'm not putting too much on their plate that they cannot swallow"* (a Policymaker#M0601 Case 1). In Case 2, policymakers indicated that the utilization of nurses could be enhanced and maximized. They were aware that nurses might still be unsatisfied with their current utilization as illustrated in the following quote:

I can see there is always room for improvement, I'm sure. Nobody will reach the maximum. Maybe I can see that we are doing our maximum. But for them, their view, maybe they feel they are underutilized. (Policymaker#M1711, Case 2)

4. Discussion

To the best of our knowledge, this is the first study to provide thick description and analysis of the experience of master's-prepared Omani nurses working in two governmental health care institutes in Oman. It adds to the knowledge of how these nurses are utilized, the types of roles they practice, and how such roles were developed. Our findings illustrate that Omani nurses in both cases linked their master's education mainly to fulfillment of their personal and professional development goals. Such findings were not surprising because achieving personal and professional growth has driven nurses internationally to pursue master's education.[25] Interestingly, our study identified enhancing nursing's professional status and being considered equals of other health care providers as motivation for seeking higher education, which echoed the motivations of Jordanian master's-prepared nurses and advanced practice nurses in many Arab countries.[10,15] This might be related to the nursing profession being relatively new or evolving in many Arab countries and might also reflect an active attempt to change the historical view of nursing as a subordinate profession.[15,26] Identifying and understanding the motivational factors for nurses to continue their education are critical to the design of strategies to develop and sustain their roles.

Our findings reveal that in both cases the motivations of policymakers for sending Omani nurses for master's education were different than those of master's-prepared nurses. The policymakers linked master's education mainly to service demand and types of nurses' roles. The three main service demands identified in our study were supporting 1) nursing administration and management, 2) nurses' education and training, and 3) speciality services. This was reflected in how master's-prepared Omani nurses were utilized.

Utilizing master's-prepared nurses mainly in management and education was not surprising because it is consistent with findings reported among master's-prepared nurses in other Arab countries[15,27,28] as well as internationally.[29,30] A recent study investigating the impact of nurses' qualifications on the activity profiles of advanced practice nurses demonstrated that advanced practice nurses with a master's or a PhD degree were more often engaged in management and system level activities than less qualified nurses.[31] This same study revealed no difference in direct clinical care activities among nurses with different educational qualifications, a finding which mirrors our study finding that the scope of practice of clinical nurse specialists with and without mas-

ter's degrees were very similar.[31] However, more research is needed to further compare the activities of master's- and non-master's-prepared Omani clinical nurse specialists.

Utilizing master's-prepared Omani nurses in management and education could contribute to improvements in Oman's contemporary complex health care system by supporting the management, education and mentorship of the upcoming generations of nurses.[26,32] Employing master's-prepared nurses aligns with the tenth five-year plan of health development in Oman, which is directed toward increasing the leadership capacity in nursing.[17]

Our study found that the current utilization of master's-prepared Omani nurses in both cases has not yet been optimized, especially for those working as advanced practice, specialized nurses, and nurse educators. These findings align with what has been found in other Arab countries[10] and internationally.[7,12]

The suboptimal deployment of master's-prepared Omani nurses may be attributed to the ad hoc nature of how nurses' roles (e.g., nurse educators and clinical nurse specialists) were initially developed and implemented in Oman.[12,19] Our study indicates that although these roles might have been developed in response to organization demands, they were developed using a top-down approach without structural elements being in place.[33] These structural elements include, for example, having well-defined role goals based on a systematic needs assessment, multiple stakeholder engagement, clear scopes of practice, and support from nursing administration.[12]

As a result, many of these roles were shaped using an ad hoc approach leading to intra-organizational variations on the role activities and scope of practice. Such variations led to role conflict, ambiguity, lack of acceptance by others, and underutilization of master's-prepared nurses, which impacted perceptions of the role's legitimacy, effectiveness, and sustainability.[22] For instance, the clinical nurse specialist role in Case 2 was developed to support physicians in speciality service rather than defined patient- and nurse-oriented goals. Therefore, physicians shaped the role activities of clinical nurse specialists. This resulted in their utilization in non-nursing activities and advanced medical procedures. The specialized nurses in Case 1 encountered the same issues as have others as reported in the literature.[22,33,34]

The role variations in our study led to both overutilization and underutilization of clinical nurse specialists. Many authors have asserted the need to have a clear understanding and expectations of nurses' roles before role development occurs.[22,33,34] Our study provides further evidence regarding the vital roles that various stakeholders play in master's-prepared nurses' role development and utilization.

Our study sheds light on the variations of the roles of master's-prepared Omani nurses and their utilization by two health care institutes in Oman. Lack of consistency in roles, scope of practice, and utilization of master's-prepared Omani nurses was evident in both organizations. Our study also documented cross-organizational differences in role titling, scope of practice, and qualifications. For instance, the nurse researcher role existed only in Case 1, whereas the clinical nurse specialist title existed only in Case 2 where a handful of clinical nurse specialists could prescribe pre-defined medications and labs. Currently there is no national regulation or law that authorizes nurses to prescribe medications independently. Furthermore, despite the existence of the nurse educator roles in both settings, variations in the qualification requirements and scope of practice between the two settings were noted. Such cross-organizations variations are expected to impact the visibility, understanding, and utilization of master's-prepared nurses in Oman. Previous studies documented the impact of in-country variations on the effectiveness and utilization of master's-prepared advanced practice nurses globally[11] and in Arab countries.[10] To increase understanding, visibility, legitimacy, and confidence in nursing roles, including the introduction of APN roles in Oman, a more unified approach to role titling and definition, and development of job descriptions, regulations, and scope of practice across healthcare organizations.[22]

4.1 Strengths and limitations

Although our study used a rigorous methodology, namely a multiple case study, there were limitations. Master's-prepared nurses were asked to share the study invitation with their coworkers, perhaps influencing who agreed to participate and introducing selection bias. However, the coworkers included in the study were explicit in their answers and highlighted both positive and negative aspects of their experience working with master's-prepared Omani nurses. Additionally, our study explored the role development and utilization of master's-prepared Omani nurses in only two organizations. However, a thick description of the cases and their context was included to enable readers to evaluate the transferability of the results to other hospitals in Oman and elsewhere.

4.2 Recommendations for future research

This study identified multiple roles for master's-prepared nurses; future research could focus on exploring each of these roles in-depth and evaluating how the competencies and characteristics of APN roles are evident. This is vital for the future direction of implementing APN roles in Oman.

4.3 Implications for policy, practice, and education

This study provides insights that policymakers, healthcare resource planners, and nurse educators can use in Oman, other Arab countries, and beyond. Policymakers and health-resource planners will benefit from using a systematic, evidenced-based need assessment to identify patient, organizational, and system-wide needs for master's-prepared nurses. These data could be used to identify the needed numbers and specialties of master's-prepared nurses. Before sending nurses for master's education, policymakers are advised to discuss with these nurses their anticipated roles after graduation and how their master's education is linked to their roles and organizational needs. Having mutual understanding and agreement upfront is critical for optimal role utilization. Additionally, before developing any new nursing role, involving multiple stakeholders in identifying the role outcomes and expectations is important. Examining the organization and working environment to ensure the needed support and resources for role development are in place is essential to manage any barriers that might impact role development and utilization. Policymakers are advised to use the findings of this study to evaluate how the current utilization of master's-prepared nurses aligns with the national strategic plan and to design strategies to optimize the utilization of current and future master's-prepared nurses, including setting policies to legitimize their extended roles.

Educators are advised to work collaboratively with policymakers to identify the educational needs of future master's-prepared nurses and to design the curriculum and nursing programs that fit the current and projected health care service needs in Oman.

5. Conclusion

Master's-prepared Omani nurses are mainly utilized in management, education, and advanced practice and specialized nursing care. The utilization of master's-prepared Omani nurses, particularly those working in education and advanced and specialized care, is suboptimal. Developing nursing roles using a systematic bottom-up approach is needed to ensure that nurses have well-defined roles that are aligned with patients and organizational needs. Involving stakeholders such as nursing policymakers and administrators, master's-prepared nurses, health care providers, health care organizations, and nursing education programs is essential in developing nursing roles. Master's-prepared nurses are valuable health human resources and have the potential to strengthen and empower the nursing workforce when their advanced knowledge and skills are well-utilized.

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Authors contributions

Dr. SA was the principal investigator. She was responsible for study design, recruitment, data collection, analysis and drafted the manuscript which was reviewed and revised by all authors. Pro. RMM and Pro. LW were supervising the whole process of the research, including research design, data collection, analysis and writeup. They actively participated in the data analysis. Dr. HA and Pro. MM provided significant inputs regarding the research design, and data analysis. All authors read and approved the final manuscript.

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No additional data are available.

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