

# Career development of doctorally prepared nurses

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## Abstract

**Aim:** To integrate research literature regarding careers, career development and factors influencing the career development of doctorally prepared nurses.

**Design:** An integrative review.

**Data Sources:** Medline, CINAHL and Embase were searched in June 2022 without time restrictions.

**Methods:** Peer-reviewed empirical publications written in English with different types of study designs were included. Two researchers independently applied eligibility criteria, selected studies and conducted quality appraisals using Joanna Briggs checklists. Data were extracted and analysed using a convergent integrated approach with thematic analysis. Themes were established within three categories based on the research questions: career, career development and factors influencing career development.

**Results:** Twenty-two studies were included. Nine themes were identified. One theme regarding careers describes that doctorally prepared nurses need to prioritize work within different positions. The two themes focusing on career development described the need to determine career goals after the doctorate and further develop competencies. Six themes described factors influencing career development: 'Intrinsic motivation to improve health care and nursing education', 'Available support sources', 'Professional development programmes', 'Work-life balance', 'Organizational infrastructures for career advancement' and 'Competition and hostile treatment among colleagues'.

**Conclusion:** Limited knowledge of the careers and career development of doctorally prepared nurses was found. Doctorally prepared nurses need to balance work with various part-time positions. Careers and career development could be supported by the development of structures for career advancement as well as supportive working environments.

**Impact:** Doctorally prepared nurses with strong careers are important to health care and nursing as they generate and implement new knowledge into clinical practice and thereby support the improvement of (nursing) care and patient outcomes. This study provides considerations towards strengthening the careers of doctorally prepared nurses.

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**Reporting Method:** PRISMA.

**Patient or Public Contribution:** No Patient or Public Contribution.

**KEYWORDS**

doctorally prepared nurses, faculty development, nurse, nursing faculty, professional development

## 1 | BACKGROUND

Doctoral education prepares individuals to create, translate and communicate new knowledge as leaders within higher education institutions, as well as outside of academia (Broome et al., 2023). Doctorally prepared nurses have an important role in shaping the future of nursing and health care by developing the research base required to support evidence-based practice in nursing and translating this evidence into practice and education (Dreifuerst et al., 2016; Kim et al., 2022; National Academy of Medicine, 2021). These doctorally prepared individuals have the ability to systematically address issues related to health and healthcare, health outcomes, health disparities and health equity. Nursing practice is dependent on robust research to advance nursing care, inform policy and address the health needs of people and communities (National Academy of Medicine, 2021). Also, doctorally prepared nurses often work as faculty members at universities and thereby also have an important role in teaching (under)graduate nurses and nurse scientists (AACN, 2016; Kim et al., 2022; National Academy of Medicine, 2021). The two primary highest academic degrees for nurses are the research-orientated Doctor of Philosophy (PhD) and the clinically orientated Doctor of Nursing Practice (DNP; Bednash et al., 2014; McNelis et al., 2019). The PhD is not limited to the nursing discipline, as nurses can also obtain doctorates in health sciences or other fields.

Since Florence Nightingale laid the foundation for professional and scientific nursing practices in the 1800s (Hafsteinsdóttir et al., 2019), nursing research has grown exponentially (Kim et al., 2022). There is, however, a lack of comprehensive understanding of the progress of research in nursing globally (Kim et al., 2022). Although the number of doctoral programmes for nurses is increasing (Dobrowolska, Chruściel, Markiewicz, et al., 2021), there are still a limited number of doctorally prepared nurses to respond to the extensive challenges in health care (National Academy of Medicine, 2021). There are no statistics about the number of doctorally prepared nurses globally; it is expected that in most countries less than 2% of nurses hold a doctoral degree, with most of them working in educational settings in Western countries (Cheraghi et al., 2014; Kim et al., 2022; National Academy of Medicine, 2021). Expanding the doctorally prepared nursing workforce is considered difficult in some countries as a limited number of nurses are interested in doctoral education. The reasons for this may include nurses' focus on direct patient care and expectations of high work pressure and becoming too disconnected from patient care when pursuing an academic career (Fang et al., 2016; Stanfill et al., 2019; van Oostveen et al., 2017).

Careers of doctorally prepared nurses can be established in a broad range of fields including research, clinical practice, education,

policy development, industry and politics (Broome & Fairman, 2018). Doctorally prepared nurses can have multiple and overlapping positions that often comprise research, clinical, educational and/or administrative commitments (Chavez et al., 2021). In this paper, career refers to a sequence or collection of work positions held over one's work life, whereas a job or position is a specific work position held over a period (Brown & Lent, 2013). Career development traditionally focussed on the work setting, but the concept has been broadened to include all life roles and places individuals at the centre of their careers (Patton & McMahon, 2014). Nowadays, career development includes a stream of career-relevant events that may or may not be subject to personal agency and is designed to capture career behaviour over one's working life (Brown & Lent, 2013).

There are differences in career opportunities for doctorally prepared nurses across countries. In some countries, there are limited suitable positions available (Hafsteinsdóttir et al., 2017; McKenna, 2021). In addition, doctorally prepared nurses often experience poor conditions of employment with high workloads and limited time for research (de Lange et al., 2019; McKenna, 2021; Singh et al., 2020; Smeltzer et al., 2016). At the start of their career, doctorally prepared nurses need time to adjust to new responsibilities (Heinrich, 2005). Novice doctorally prepared nurses, who pursue careers in academia, often feel unprepared for their new positions (Dunbar-Jacob & Hravnak, 2021; McNelis et al., 2019). Leadership, mentoring and collegial support contribute to the career development of doctorally prepared nurses and are associated with smoother transitions into academic positions, increased professional development, job satisfaction and research productivity (Cullen et al., 2017; Hafsteinsdóttir et al., 2017; Nowell et al., 2017).

Earlier reviews have been conducted on the doctorally prepared nursing workforce and focused on work experiences in the clinical setting, the transfer of clinicians into the academic settings, benefits of mentoring and occupational stress of nurse faculty (Bullin et al., 2018; Cullen et al., 2017; Dobrowolska, Chruściel, Pilewska-Kozak, et al., 2021; Grassley et al., 2020; Hafsteinsdóttir et al., 2017; Nowell et al., 2017; Singh et al., 2020; Wyllie et al., 2016). These reviews either focused on doctorally prepared nurses in the early stages of their careers or described a specific phenomenon related to the work of doctorally prepared nurses. Currently, there is no synthesized evidence describing what the careers of doctorally prepared nurses are, how their careers develop and what factors influence their career development. The findings of this review are expected to provide insight into the current situation as well as considerations to support doctorally prepared nurses in their careers and work.

## 2 | AIM

The aim of this review is to integrate the research literature on the careers, career development and factors influencing career development of doctorally prepared nurses.

## 3 | THE REVIEW

### 3.1 | Design

An integrative review was used to synthesize findings from the research literature regarding careers, career development and factors influencing the career development of doctorally prepared nurses. This design enabled the integration of findings from a broad methodological array of studies (Whittemore & Knafl, 2005). The search results were reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) standards (Page et al., 2021).

### 3.2 | Search methods

Searches were conducted in MEDLINE (PubMed), CINAHL and EMBASE from earliest until 10 June 2022. To reveal all information on careers, time restrictions were not applied during the searches. The search strategy was developed in collaboration with an academic librarian. Background reading and citation search in Scopus were used to increase awareness of relevant search terms. The following terms were used: nurse faculty; academic nurs\*;

postdoctoral nurs\*; tenure\*; nurse professor\*; doctorally prepared nurse\*; PhD nurs\*; Doctor of Nursing Practice; nursing scientist\*; nurse researcher\*; nursing researcher\*; nurse scholar\*; nursing scholar\*; Faculty, Nursing [Mesh]; Nursing Faculty Practice [Mesh]; Career\*; tenure track\*; leadership development; developing leadership; professional development; personal development and work experiences. Different combinations of terms were used in different databases (Table 1). Reference lists of included studies were screened. In the case of missing full-texts, authors were contacted.

### 3.3 | Inclusion criteria

Empirical research studies focusing on careers, career development or factors influencing career development of doctorally prepared nurses were included. Doctorally prepared nurses were defined as nurses with a DNP or PhD degree. Peer-reviewed empirical publications written in English with all types of study designs were included.

### 3.4 | Selection process

First, all studies were transferred to Mendeley, where duplicates were removed (Mendeley, n.d.). Thereafter the studies were uploaded into Rayyan (Ouzzani et al., 2016). Two researchers independently assessed the eligibility of the studies by screening titles and abstracts against the inclusion criteria (LD, TBH). Full

TABLE 1 Search string per database.

|   |   |      |
|---|---|------|
| MEDLINE (Pubmed)  | nurse faculty[Title/Abstract] OR academic nurs*[Title/Abstract] OR postdoctoral nurs*[Title/Abstract] OR tenure*[Title/Abstract] OR nurse professor*[Title/Abstract] OR doctorally prepared nurse*[Title/Abstract] OR PhD nurs*[Title/Abstract] OR "Doctor of nursing practice"[Title/Abstract] OR nursing scientist*[Title/Abstract] OR nurse researcher*[Title/Abstract] OR nursing researcher*[Title/Abstract] OR nurse scholar*[Title/Abstract] OR nursing scholar*[Title/abstract] OR "Faculty, Nursing"[Mesh] OR "Nursing Faculty Practice"[Mesh] AND leadership development[Title/Abstract] OR developing leadership[Title/Abstract] OR professional development*[Title/Abstract] OR career*[Title/Abstract] OR tenure track*[Title/abstract] OR work experiences[Title abstract] OR personal development*[Title/abstract]                           | 1396 |
| Cumulative Index of Nursing and Allied Health Literature (CINAHL) | "TI ("nurse faculty" OR "academic nurs*" OR "postdoctoral nurs*" OR tenure* OR "nurse professor*" OR "doctorally prepared nurse*" OR "PhD nurs*" OR "Doctor of Nursing Practice" OR "nursing scientist*" OR "nurse researcher*" OR "nursing researcher*" OR "nurse scholar*" ) OR AB ( "nurse faculty" OR "academic nurs*" OR "postdoctoral nurs*" OR tenure* OR "nurse professor*" OR "doctorally prepared nurse*" OR "PhD nurs*" OR "Doctor of Nursing Practice" OR "nursing scientist*" OR "nurse researcher*" OR "nursing researcher*" OR "nurse scholar*" ) OR MH "Faculty, Nursing" OR MH "Doctorally Prepared Nurses" OR MH "Nurse Researchers" AND "TI ( career* OR "leadership development" OR "professional development*" OR "tenure track *" ) OR AB ( career* OR "leadership development " OR "professional development*" OR "tenure track *" ) | 629  |
| Embase  | 'nurs* faculty':ti,ab,kw OR 'academic nurs*':ti,ab,kw OR tenure*:ti,ab,kw OR 'nurse professor':ti,ab,kw OR 'doctorally prepared nurse*':ti,ab,kw OR 'phd nurse':ti,ab,kw OR 'doctor of nursing practice':ti,ab,kw OR 'nursing scientist':ti,ab,kw OR 'nurse researcher':ti,ab,kw OR 'nursing researcher':ti,ab,kw OR 'nurse scholar':ti,ab,kw AND 'career'/exp OR 'career' OR 'leadership development':ti,ab,kw OR 'developing leadership':ti,ab,kw OR 'professional development*':ti,ab,kw OR 'career*':ti,ab,kw OR 'tenure track*':ti,ab,kw OR 'work experience':ti,ab,kw OR 'personal development':ti,ab,kw<br>Filter: Embase (excl. medline)  | 210  |

texts of potentially eligible studies were reviewed. Discrepancies between researchers in study selection occurred in seven cases, which were solved by discussion. Reasons for exclusion were recorded.

### 3.5 | Quality appraisal

Quality appraisal was conducted to assess the quality of included studies, not to exclude studies. Two authors independently reviewed the methodological quality of the included studies using the Checklist for Qualitative Research and the Checklist for Analytical Cross-sectional studies from the Johanna Briggs Institute (JBI, 2020; LD, TBH). Mixed method studies were evaluated using both JBI checklists as well as the GRAMMS checklist (O’Cathain et al., 2008). For each item, the answer “yes” was assigned one point, whereas a “no” or “unclear” was assigned no points. Cut-off values were used to categorize the studies into ranks. The following ranks were used for qualitative studies: low (0–3 points); moderate (4–7 points) and high (8–10 points) methodological quality (Banwell et al., 2021). In the quantitative cross-sectional studies, studies of low quality scored up to 49% “yes”, studies of moderate quality scored between 50% and 69% “yes” and studies of high quality scored 70% or more “yes” (Polmann et al., 2019). After individual completion of the checklists, the researchers compared, discussed and reached consensus on the scoring.

### 3.6 | Data abstraction

Data were extracted into a data extraction form including author(s), year, country, aim(s), design, population and outcomes. Data extraction was executed by one researcher (LD) and checked by another (TBH). Extracted data was transferred into NVivo for the analysis (QRS international, version 12; NVivo, 2017).

### 3.7 | Data synthesis

A convergent integrated approach was used to combine data from the included studies. The quantitative data were transferred into qualitative data before applying thematic analysis to generate an overall summary of the findings (Lizarondo et al., 2020). Two authors (LD, TBH) familiarized themselves with the data. Then, data were coded by the first researcher (LD) within one or more of the three categories based on the research questions: careers, career development and factors influencing career development. Within each of the categories, codes were transferred into themes based on their similarity and connections (Polit & Beck, 2017). The process of data synthesis was performed by the executive researcher (LD) and supervised by a senior researcher (TBH) in collaboration with the research group, who met on a regular basis.

## 4 | RESULTS

### 4.1 | Search results

The searches identified 2235 studies. After removing duplicates, 1870 studies remained; after screening the title and abstract against the inclusion criteria, 106 articles were reviewed in full-text. Twenty-two studies met the inclusion criteria and were included (Figure 1). Of the final sample, four were retrieved through reference lists (Heinrich, 2005; Orton et al., 2019; Sebach & Chunta, 2018; Smeltzer et al., 2014). Thirteen authors were contacted to inquire about full-text articles or additional information about fifteen potentially relevant studies, which were excluded as they did not match the inclusion criteria or due to non-response (Figure 1).

### 4.2 | Study characteristics

The included studies were published between 2003 (Jacelon et al., 2003) and 2022 (Hampshaw et al., 2022). Sixteen studies originated from the United States (Aquino et al., 2018; Berman, 2015; Bice et al., 2019; Bruner et al., 2016; Ellenbecker et al., 2017; Emory et al., 2016; Gormley & Kennerly, 2010; Heinrich, 2005; Jacelon et al., 2003; Loerzel et al., 2021; Poronsky et al., 2012; Reid Ponte et al., 2015; Sebach & Chunta, 2018; Smeltzer et al., 2014; Viveiros et al., 2021; Wilson et al., 2017), two studies from Jordan (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013), two from the Netherlands (de Lange et al., 2019; van Dongen et al., 2021), one from the United Kingdom (Hampshaw et al., 2022) and one from Sweden (Orton et al., 2019).

Seven studies used a quantitative design. Of them, six studies used a cross-sectional survey design (Aquino et al., 2018; Bruner et al., 2016; Ellenbecker et al., 2017; Gormley & Kennerly, 2010; Hampshaw et al., 2022; Loerzel et al., 2021), and one study comprised a secondary data analysis (Emory et al., 2016). The sample size within these seven studies varied between 38 (Bruner et al., 2016) and 316 participants (Gormley & Kennerly, 2010). Self-developed instruments were used in six studies (Aquino et al., 2018; Bruner et al., 2016; Ellenbecker et al., 2017; Gormley & Kennerly, 2010; Hampshaw et al., 2022; Loerzel et al., 2021).

Fourteen studies used qualitative designs with interviews (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Berman, 2015; de Lange et al., 2019; Heinrich, 2005; Orton et al., 2019; Reid Ponte et al., 2015; Sebach & Chunta, 2018), narratives (Jacelon et al., 2003; Viveiros et al., 2021), case-descriptions (Poronsky et al., 2012; Wilson et al., 2017), focus group discussions (Smeltzer et al., 2014) or open-ended narrative surveys (Bice et al., 2019). The sample size ranged from 3 (Poronsky et al., 2012) to 19 participants (Bice et al., 2019). Based on the descriptions of the samples, it is expected that there are participants who participated in both the study of Ali Zeilani et al. (2011) and Al-Nawafleh et al. (2013).

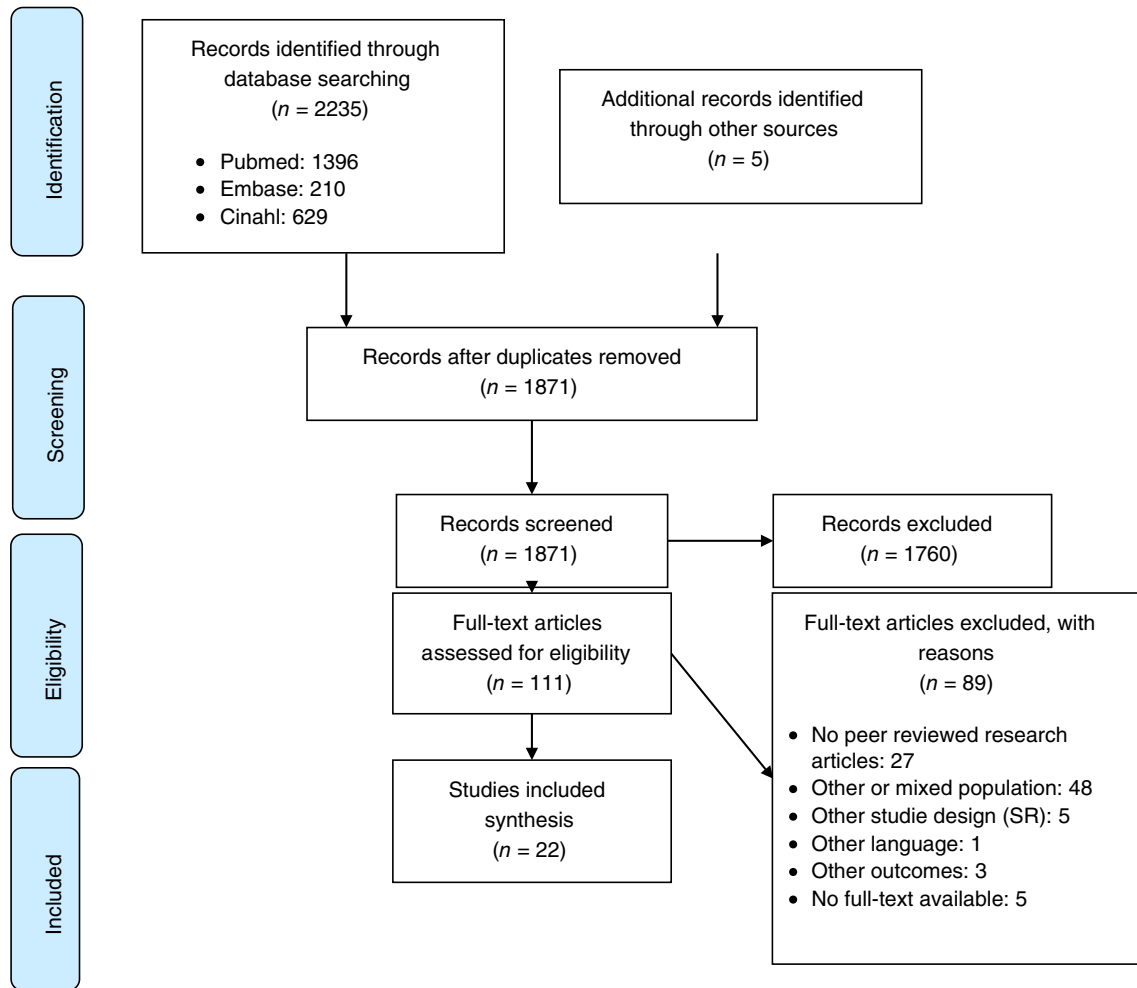


FIGURE 1 PRISMA flowchart.

One study had a mixed-method design combining surveys and semi-structured interviews (van Dongen et al., 2021; Table 2).

### 4.3 | Participant characteristics

In total 1194 doctorally prepared nurses were included in the studies; 1077 (90.2%) of them were from the United States. Although not all studies reported the gender, in the eight studies that did, 91.6% of the sample was female (Bruner et al., 2016; Jacelon et al., 2003; Loerzel et al., 2021; Orton et al., 2019; Reid Ponte et al., 2015; van Dongen et al., 2021; Viveiros et al., 2021; Wilson et al., 2017). Sixteen studies reported the type of doctorate and of the 665 participants in these studies, 84.8% had PhD degrees, 14.7% had DNP degrees and 0.5% included nurses with other types of doctoral degrees such as a doctorate in education (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Aquino et al., 2018; Berman, 2015; Bice et al., 2019; de Lange et al., 2019; Ellenbecker et al., 2017; Hampshire et al., 2022; Jacelon et al., 2003; Loerzel et al., 2021; Orton et al., 2019; Reid Ponte et al., 2015; Sebach & Chunta, 2018; Smeltzer et al., 2014; van Dongen et al., 2021; Viveiros et al., 2021). Seven studies, including 602

participants, reported on academic ranks, of them 23.8% were (full) professors, 35.5% were assistant professors and 40.7% were associate professors (Al-Nawafleh et al., 2013; Bruner et al., 2016; de Lange et al., 2019; Emory et al., 2016; Gormley & Kennerly, 2010; Loerzel et al., 2021; Poronsky et al., 2012).

### 4.4 | Methodological quality

There was agreement among the researchers on 92% of the items in the checklists. In the qualitative studies, seven were of high quality (Ali Zeilani et al., 2011; Bice et al., 2019; de Lange et al., 2019; Heinrich, 2005; Poronsky et al., 2012; Sebach & Chunta, 2018; Smeltzer et al., 2014), six studies were of moderate quality (Al-Nawafleh et al., 2013; Berman, 2015; Orton et al., 2019; Reid Ponte et al., 2015; Viveiros et al., 2021; Wilson et al., 2017) and one study of low methodological quality (Jacelon et al., 2003). Lower quality in the qualitative studies was mainly due to a lack of information on the roles, backgrounds, beliefs, and values of the researchers. Therefore, it often was unknown how the researcher and her/his interpretations influenced the study.

TABLE 2 Data extraction.

| Author (year)/country                      | Aim of the study   | Study method                                  | Population   | Specific degree noted when available   | Outcome  |
|--|--|---|--|--|--|
| Jacelon et al. (2003) /United States       | To evaluate faculty peer mentoring as a method to help each other learn in the role of faculty scholar with the goal of building research careers  | Narratives                                    | Four PhD-prepared tenure-track nursing faculty members who recently graduated from doctoral programs   | Faculty peer mentoring was found to be an innovative and effective strategy for mentoring. The group mentoring strengthened individual and collective scholarship productivity, more intensive research collaborations, improved skills and expertise as well as improved relationships among the peer group | The internalization of a doctoral identity was observed as a pattern in which the participants had to distinguish who they are and where they want to go. They have to familiarize themselves with their new roles and title while setting priorities and committing to their career and research. After some years they matured, valued their accomplishments and internalized their doctoral identity                  |
| Heinrich (2005) /United States             | To explore the first 5 years of 16 midlife women's lives after graduating from a doctoral programme in nursing   | Longitudinal, phenomenological inquiry        | 16 doctorally prepared nurses  |  | Significant differences were found among teaching work role, and role ambiguity, role conflict and organizational climate. Also, significant relationships were observed between subscales of organizational climate and role ambiguity and role conflict. Findings demonstrated that as role ambiguity and role conflict increased, all dimensions of organizational commitment were influenced negatively              |
| Gornley and Kennerly (2010) /United States | To examine how the affective, continuance, and normative dimensions of faculty organizational commitment and faculty perceptions of organizational climate were influenced by work role balance, role ambiguity, and role conflict | Non-experimental descriptive study            | 316 full-time doctorally prepared nurse faculty members working in private and public universities   |  | The participants reported the personal transformation they experienced as a result of obtaining their doctorate in another country. The participants described the difficult task to continue autonomous scholarship and very few succeeded in using their skills to influence their current practice within faculty roles   |
| Ali Zeilani et al. (2011) /Jordan          | To explore how Jordanian PhD graduates from universities in the UK experience the doctorate; what they felt they had learned from it; and which factors influenced the further research activity                                   | Interview study                               | 16 PhD-prepared nurse faculty members who mostly (n=11) had between 2 and 5 years of experience  |  | Participants described the need to balance the demands of work, life and parenting while being on the tenure track. Three main themes were revealed: adapting to the academic role, negotiating work/life demands and benefiting from mentoring  |
| Poronsky et al. (2012) /United States      | To explore the transition experiences of three nurse faculty with young children   | Qualitative case study                        | Three assistant professors of nursing on tenure track  |  | The doctorate supported the confidence and enthusiasm of the participants towards developing a research career. Mentorship, leadership, and peer support were identified as essential to continue research activities. The availability of these essentials was variable as the participants described that many institutional and organizational structures discouraged them from research activities                   |
| Al-Nawafleh et al. (2013) /Jordan          | To explore how doctoral nursing graduates from Jordan, graduated from UK universities, utilize their research skills; and to explore factors that enable them to continue being productive research once they return home          | Explorative qualitative design                | 16 PhD-prepared nurse faculty members who completed their doctorates at UK universities  |  | Participants in this study associated their scholarly productivity with the overall climate of their institution and perceived support, job satisfaction, mentorship, and organizational efforts to facilitate their research  |
| Smeltzer et al. (2014) /United States      | To explore how the demand for increased production of nurses with doctorates affects doctoral faculty's scholarly productivity   | Qualitative study with focus groups interview | 24 doctorally prepared nurses working full-time in faculty positions. 11 held a PhD, 10 held a DNP, 2 held a doctorate in education and 1 had a doctorate in nursing science |  | The programme supported some of the nurse faculty members to move into nursing leadership roles and participants indicated that the programme strengthened their appreciation towards their own leadership capabilities, a demystification of academic leadership through access to university leaders, and identification career paths of (associate) deans. Also, participants valued the development of a peer cohort |
| Berman (2015) /United States               | To describe an easily replicable leadership development program offered by the dean at a single school of nursing and to explore the experience of program participants  | Interview study                               | Seven early- to midcareer nursing faculty of which 5 were PhD prepared and 2 had a doctorate in education  |  |  |

TABLE 2 (Continued)

| Author (year)/country                   | Aim of the study  | Study method                                      | Population   | Specific degree noted when available | Outcome   |
|---|---|---|--|--------------------------------------|---|
| Reid Ponte et al. (2015)/United States  | To describe the programme structure, strategies used to recruit candidates, and data describing programme outcomes, and share lessons learned and recommendations for organizations   | Programme evaluation with interviews              | Four PhD-prepared nurses   |                                      | The programme evaluations highlighted the following outcomes: the depth and diversity of the research topics of the participants, number of accepted manuscripts and presentations, success in securing funding for research, and favourable experiences with being a fellow in the programme. The outcomes suggest that the programme was effective in acquiring skills needed for an independent research career                              |
| Bruner et al. (2016)/United States      | To develop a survey tool to benchmark school of nursing (SON) faculty mentorship priorities and conduct a gap analysis of how well they were being addressed                          | Descriptive survey                                | 38 school of nursing faculty on tenure, research or clinical track   |                                      | The majority of the faculty members desired formal mentorship. Guidance on the following topics were priorities for the participants: guidance on producing timely publications (70.4%), mentorship on work-life balance (68%), mentorship on putting together a promotion package (61.5%), guidance on test writing (60%), and use of technology in the classroom (60%)  |
| Ellenbecker et al. (2017)/United States | A national survey was conducted to examine the relationship between students' experiences and nursing PhD programme characteristics and programme outcomes                            | National survey                                   | 204 PhD-prepared nurses who were alumni of the PhD AACN member schools and colleges of nursing                               |                                      | Experience as a research assistant while a student, attending classes in person, working none or a minimal number of hours in nursing during their program, experience with conference presentations, graduating at younger ages, and having postdoctoral training were associated with successful research careers for postdoctoral nurses   |
| Wilson et al. (2017)/United States      | To present four case scenarios reflecting the process of research career development using career cartography   | Descriptive case scenarios                        | Four early-career postdoctoral nurse researchers   |                                      | The nurse researchers used career cartography to develop their career paths. Using the visual career map allowed articulation of the scholarship trajectory with peers, mentors, head of departments. Also, the career cartography process strengthens the researchers' confidence and to assert themselves as nurse scientists with important research trajectories  |
| Emory et al. (2016)/United States       | To explore the workplace satisfaction and intent to stay of academic nursing administrators by considering their relation to a variety of demographic and work-related variables      | Secondary data analysis                           | 158 assistant, associate and full professors appointed as nurse administrators   |                                      | Various demographic (age, race and tenure status) as well as organizational factors (personal and family policies, collaboration, tenure clarity, institutional leadership, shared governance and departmental engagement) were found to influence the participants' job satisfaction and intent to stay were found. Many of the workplace variables found to have a relationship with job satisfaction and intent to stay off the participants |
| Aquino et al. (2018)/United States      | To address the national nursing faculty shortage by examining demographics, teaching preparation in the doctoral programme, and burnout to determine intent to leave nursing academia | A descriptive correlational survey                | 146 early career nursing faculty with four or less years of experience. 71 nurses were PhD prepared and 75 were DNP prepared |                                      | Outcomes highlight that doctorally prepared nursing faculty experience higher levels of emotional exhaustion compared to the DNP-prepared faculty. Also, results indicated that older faculty, PhD-prepared faculty, and higher reported levels of emotional exhaustion significantly determined intent to leave their positions, indicating significant factors influencing decisions to leave in nursing academia                             |
| Sebach and Chunta (2018)/United States  | To explore the experiences of students completing a DNP-to-PhD pathway programme  | Descriptive study                                 | 6 DNP-prepared nurses who follow a DNP to PhD pathway programme  |                                      | The DNP nurses in the DNP to PhD programme search for acceptance in academia as they wanted positions in academia. Also, they identified a need to be more prepared for research activities and the teaching role   |
| Orton et al. (2019)/Sweden              | To investigate what registered nurses (RNs) with a PhD working in clinical practice experience in terms of their role, function and work context                                      | Qualitative study with semi-structured interviews | 13 PhD-prepared nurses working in clinical practice  |                                      | In their work participants experienced barriers to the full use of their competences. Also, the expectations and prerequisites of the organization were not clearly defined, and they often lacked a mandate to create conditions for quality improvement of nursing care   |

(Continues)

TABLE 2 (Continued)

| Author (year)/country                    | Aim of the study  | Study method   | Population  | Specific degree noted when available  | Outcome |
|--|---|--|---|---|---------|
| de Lange et al. (2019)/The Netherlands   | To explore the experiences and perceptions of Dutch postdoctoral nurses working in research with leadership and career development  | A generic explorative qualitative design with interviews               | 13 PhD-prepared nurses working in nursing faculty   | The postdoctoral nurses experienced two simultaneous developmental trajectories in which they developed their own identity and leadership in which they became experienced and skilled researchers. They experienced challenges related to the work environment including the high workloads, balancing part-time functions, combining private and work life and they had to deal with the pressure of the scientific world |         |
| Bice et al. (2019)/United States         | To explore the experiences of DNP- and PhD-prepared faculty on tenure-track in academia through narrative stories   | A qualitative narrative pilot study with open-ended narrative surveys  | 19 doctorally prepared nurses on a tenure track of which 7 held a DNP and 12 a PhD degree | Experiences of the tenure-track faculty varied across the degrees. All participants discussed the need to develop meaningful partnerships, balance responsibilities, deal with destructive criticism is real, be aware of their value in academia, and the need to receive multifaceted coaching to produce achievement   |         |
| Loerzel et al. (2021)/United States      | To describe areas of satisfaction and challenges to success in the faculty role for mid-career nurse scientists in academia   | A cross-sectional, descriptive, exploratory study using online surveys | 128 PhD-prepared mid-career nurse scientists  | Heavy teaching workloads and lack of funding or may further hinder mid-career nurse scientists to continue their programmes of research. Finally, the lack of mentoring and support for mid-career nurse scientists may result in the departure of these individuals from academia altogether   |         |
| van Dongen et al. (2021)/The Netherlands | To evaluate expectations, experiences, and perceived influence of the leadership mentoring programme on leadership and professional development, professional identity, and research productivity | A longitudinal mixed-method study with interviews and surveys          | 12 PhD prepared nurses with 5 or less years of experience as postdoctoral nurse           | The leadership mentoring programme was found to be valuable by the participants who described strengthened leadership and professional development and development of professional identities. Participants showed increased research productivity and many moved to new/higher positions   |         |
| Viveiros et al. (2021)/United States     | To explore the lived experiences of a cohort of faculty during their transition into a tenure-track role  | This study used self-reflection journals and discussion meetings       | A cohort of four PhD-prepared nurse educators in tenure-track roles                       | The results demonstrate that the cohort mentoring model created a supportive culture that facilitated a sense of community for new nurse educators on a tenure track. Belonging to a team sharing the same journey fostered the growth of individual faculty. Eliminating barriers to effective transitions is essential for retaining and recruiting nurse faculty   |         |
| Hampshaw et al. (2022)/United Kingdom    | To explore the perceived value of a PhD to doctoral and postdoctoral nurses in the UK   | A cross-sectional study with an online survey                          | 47 PhD-prepared nurses working in academic and clinical academic positions                | While the majority of participants could and did utilize doctoral competences, the opportunity to maximize the value of this was seen as more limited for those who remained in clinical settings. Other career opportunities, particularly in clinical settings, were seen as limited  |         |

All seven studies with a cross-sectional design had a high methodological quality (Aquino et al., 2018; Bruner et al., 2016; Ellenbecker et al., 2017; Emory et al., 2016; Gormley & Kennerly, 2010; Hampshire et al., 2022; Loerzel et al., 2021). Lower quality across the quantitative studies was due to the lack of descriptions of confounding factors and/or strategies to deal with confounders. The mixed-method study scored high in methodology quality in both checklists for qualitative and cross-sectional studies; however, only scored three of six items positively in the GRAMMS checklist (van Dongen et al., 2021; Table 3).

## 4.5 | Themes

The analysis resulted in nine themes within the three categories: career, career development and factors influencing career development. One theme focused on the careers of doctorally prepared nurses: 'Balancing role demands'; two themes focused on career development: 'The crossroad after the doctorate' and 'Maturing into a confident doctorally prepared nurse'. Six themes described factors influencing career development including 'Intrinsic motivation to improve health care and nursing education', 'Support sources', 'Professional development programmes', 'Difficulties with maintaining work-life balance', 'The lack of organizational infrastructures for career advancement' and 'Competition and hostile treatment'. If possible, the type of doctorate was reported in the findings (Figure 2).

### 4.5.1 | Category 1: Careers of doctorally prepared nurses

In general, the studies highlighted a dearth of data on the careers of doctorally prepared nurses. In many studies, only limited information about participants' current jobs of participants was provided. One theme was identified to describe careers of doctorally prepared nurses: 'Balancing role demands'. This theme describes participants having various combinations of positions as well as the need to prioritize and balance their commitment to deal with the demands of their work.

#### *Balancing role demands*

Balancing role demands was mentioned as many doctorally prepared nurses had to balance their work between different part-time positions. Most studies focused on nurses in faculty roles (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Aquino et al., 2018; Berman, 2015; Bruner et al., 2016; de Lange et al., 2019; Loerzel et al., 2021; Poronsky et al., 2012; Smeltzer et al., 2014; Wilson et al., 2017); however, various combinations of positions were found and included teaching, research, administrative and clinical commitments (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; de Lange et al., 2019; Heinrich, 2005; Loerzel et al., 2021; Orton et al., 2019). Difficulties with prioritizing work were described.

Although doctorally prepared nurses valued combining part-time positions (Berman, 2015; de Lange et al., 2019; Heinrich, 2005), studies reported high workloads and limited time for research due to heavy teaching and/or administrative demands (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Aquino et al., 2018; Berman, 2015; Bice et al., 2019; de Lange et al., 2019; Loerzel et al., 2021; Poronsky et al., 2012; Smeltzer et al., 2014). The teaching demands were referred to as invisible work because the amount of work was often not captured in the documented workload (Smeltzer et al., 2014). Doctorally prepared nurses working at the bedside reported challenges with balancing roles because of the priority on patient care (de Lange et al., 2019; Orton et al., 2019).

### 4.5.2 | Category 2: Career development of doctorally prepared nurses

The decision to pursue a doctoral degree could be part of a career plan while it also could be seen as a requirement for career progression (Hampshire et al., 2022). Two themes were found illustrating the career development of doctorally prepared nurses: 'The crossroad after the doctorate' and 'Maturing into a confident doctorally prepared nurse'.

#### *The crossroad after the doctorate*

Feelings of being at a crossroads were described by PhD prepared nurses who recently completed their doctoral studies. According to Heinrich (2005), the period after obtaining the doctorate was divided among reflecting on doctoral experiences, facing current life issues and imagining future opportunities. While being at a crossroads, participants voiced a sense of urgency to find a renewed balance in their personal and professional commitments. They spoke about the need to give back to family and significant others after their doctoral studies (Heinrich, 2005). Family and friends were seen as important support persons as participants relied on their help with their personal lives and career decisions (de Lange et al., 2019; Poronsky et al., 2012).

After the doctorate, they needed to establish new career goals and a long-term career vision (Berman, 2015; de Lange et al., 2019; Poronsky et al., 2012). Wilson et al. (2017) used career cartography in four PhD-prepared nurses and found that this enabled the development of long-term career visions and strategies to work towards desired career goals. These goals were broader than the purposes of research programmes and included statements on contributions to the health of communities, patients and families (Wilson et al., 2017).

#### *Maturing into a confident doctorally prepared nurse*

The process of maturing included accepting increased responsibilities in new positions (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; de Lange et al., 2019; Heinrich, 2005). It took several years before these PhD-prepared nurses felt confident with their new positions

TABLE 3 Quality appraisal.

| Qualitative studies  | All Zeilani et al. (2011) | Al-Nawafleh et al. (2013) | Berman (2015) | Bice et al. (2019) | de Lange et al. (2019) | Heinrich (2005) | Jacelon et al. (2003) | Orton et al. (2019) | Reid Ponte et al. (2015) | Poronsky et al. (2012) | Sebach and Chunta (2018) | Smeltzer et al. (2014) | van Dongen et al. (2021) | Viveiros et al. (2021) | Wilson et al. (2017) |  |
|--|---------------------------|---------------------------|---------------|--------------------|------------------------|-----------------|-----------------------|---------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|----------------------|--|
| 1. Is there congruity between the stated philosophical perspective and the research methodology?   | +                         | ?                         | +             | +                  | +                      | +               | ?                     | +                   | ?                        | +                      | ?                        | +                      | +                        | +                      | ?                    |  |
| 2. Is there congruity between the research methodology and the research question or objectives?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 3. Is there congruity between the research methodology and the methods used to collect data?   | +                         | +                         | +             | +                  | +                      | +               | ?                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | ?                    |  |
| 4. Is there congruity between the research methodology and the representation and analysis of data?  | +                         | +                         | +             | +                  | +                      | +               | ?                     | +                   | ?                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 5. Is there congruity between the research methodology and the interpretation of results?  | +                         | +                         | +             | +                  | +                      | +               | ?                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 6. Is there a statement locating the researcher culturally or theoretically?   | +                         | -                         | -             | +                  | -                      | +               | -                     | -                   | -                        | +                      | +                        | -                      | -                        | -                      | -                    |  |
| 7. Is the influence of the researcher on the research, and vice-versa, addressed?  | -                         | -                         | -             | +                  | -                      | +               | -                     | -                   | -                        | -                      | +                        | -                      | +                        | -                      | -                    |  |
| 8. Are participants, and their voices, adequately represented?   | +                         | +                         | +             | +                  | +                      | +               | ?                     | +                   | +                        | +                      | +                        | +                      | +                        | ?                      | ?                    |  |
| 9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? | +                         | +                         | ?             | +                  | +                      | ?               | ?                     | ?                   | ?                        | ?                      | +                        | +                      | +                        | -                      | ?                    |  |
| 10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| Total  | 9/10                      | 7/10                      | 6/10          | 10/10              | 8/10                   | 9/10            | 2/10                  | 7/10                | 5/10                     | 8/10                   | 9/10                     | 8/10                   | 9/10                     | 6/10                   | 4/10                 |  |
| <b>Analytical cross-sectional studies</b>  |                           |                           |               |                    |                        |                 |                       |                     |                          |                        |                          |                        |                          |                        |                      |  |
| 1. Were the criteria for inclusion in the sample clearly defined?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 2. Were the study subjects and the setting described in detail?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 3. Was the exposure measured in a valid and reliable way?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 4. Were objective, standard criteria used for measurement of the condition?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 5. Were confounding factors identified?  | -                         | NA                        | -             | -                  | -                      | -               | -                     | -                   | -                        | -                      | -                        | NA                     | NA                       | -                      | -                    |  |
| 6. Were strategies to deal with confounding factors stated?  | -                         | NA                        | -             | -                  | -                      | -               | -                     | -                   | -                        | -                      | -                        | NA                     | NA                       | -                      | -                    |  |
| 7. Were the outcomes measured in a valid and reliable way?   | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| 8. Was appropriate statistical analysis used?  | +                         | +                         | +             | +                  | +                      | +               | +                     | +                   | +                        | +                      | +                        | +                      | +                        | +                      | +                    |  |
| Total  | 6/8                       | 6/6                       | 6/8           | 6/8                | 6/8                    | 6/8             | 6/6                   | 6/8                 | 6/8                      | 6/8                    | 6/8                      | 6/6                    | 6/6                      | 6/6                    | 6/8                  |  |

TABLE 3 (Continued)

| Mixed method study   | van Dongen et al. (2021) |
|--|--------------------------|
| 1. Description of the justification for using a mixed methods approach to the research question      | +                        |
| 2. Description of the design in terms of the purpose, priority and sequence of methods               | +                        |
| 3. Description of each method in terms of sampling, data collection and analysis                     | +                        |
| 4. Description of where integration has occurred, how it has occurred and who has participated in it | ?                        |
| 5. Description of any limitation of one method associated with the presence of the other method      | -                        |
| 6. Description of any insights gained from mixing or integrating methods                             | ?                        |
| Total  | 3/6                      |

The colors to indicate the score of each item; green is +, orange is ? and red is -.

and postdoctoral identity (Heinrich, 2005). Internalizing this new postdoctoral identity was experienced as a gradual process starting during doctoral education (Heinrich, 2005).

The doctorally prepared nurses felt the need to further develop competencies in order to mature within their postdoctoral positions. Across the studies, the doctorally prepared nurses reported a lack of competencies and confidence to apply for research funding (Al-Nawafleh et al., 2013; de Lange et al., 2019; Heinrich, 2005). In addition, some wanted to strengthen their competencies in academic writing and journal selection (Bice et al., 2019; Loerzel et al., 2021), conflict resolution (Berman, 2015), team management (de Lange et al., 2019) and quantitative research methods (Heinrich, 2005). For PhD-prepared nurses in clinical practice, this seemed to be more difficult to develop doctoral competencies (Hampshaw et al., 2022).

### 4.5.3 | Category 3: Factors influencing career development

Six themes describing factors associated with career development were identified.

#### *Intrinsic motivation to improve health care and nursing education*

The doctorally prepared nurses were strongly motivated to improve health care and clinical practice by generating and disseminating research findings, leading innovative projects, developing policies and contributing to education for (under)graduate nurses and professionals (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Bice et al., 2019; de Lange et al., 2019; Heinrich, 2005; Orton et al., 2019; Poronsky et al., 2012; Wilson et al., 2017). Some PhD-prepared nurses reported strong self-driven motivation based on belief in their academic capabilities and enthusiasm for research (Al-Nawafleh et al., 2013).

#### *Support sources*

There are different support sources for career development. Collegial support was important as these relationships provided opportunities to collaborate and share work challenges (Al-Nawafleh et al., 2013; Bice et al., 2019; de Lange et al., 2019; Heinrich, 2005; Loerzel et al., 2021; Viveiros et al., 2021; Wilson et al., 2017). Although positive experiences regarding collegial support were found, there were also reports from doctorally prepared nurses working in isolation due to a lack of colleagues or doctorally prepared nurses receiving limited support from colleagues or managers (Al-Nawafleh et al., 2013; Bice et al., 2019; Loerzel et al., 2021).

Peer support was highly valued as it provided opportunities to learn from each other. Peers adjusted to the postdoctoral roles together and helped each other with determining the direction for their research programmes as well as establishing networks and collaborations (Berman, 2015; Heinrich, 2005; Jacelon et al., 2003).

Mentoring was found to contribute to career development as it supported doctorally prepared nurses to remain active in

| Category 1: Careers             | Category 2: Career development   | Category 3: Factors influencing career development  |
|---------------------------------|--|---|
| Theme 1: Balancing role demands | Theme 1: The crossroad after the doctorate<br>Theme 2: Maturing into a confident doctorally prepared nurse | Theme 1: Intrinsic motivation to improve health care and nursing education<br>Theme 2: Available support sources<br>Theme 3: Professional development programmes<br>Theme 4: Work-life balance<br>Theme 5: Organizational infrastructures for career advancement<br>Theme 6: Competition and hostile treatment among colleagues |

FIGURE 2 Overview of the themes.

research (Al-Nawafleh et al., 2013; van Dongen et al., 2021; Viveiros et al., 2021), supported smooth transition into postdoctoral careers (Heinrich, 2005; Poronsky et al., 2012; Viveiros et al., 2021) and increased understanding of postdoctoral work (Heinrich, 2005). Mentoring was also found to support career decisions (de Lange et al., 2019; Poronsky et al., 2012; van Dongen et al., 2021), create supportive cultures at work places (Bice et al., 2019) and increase research collaborations (Jacelon et al., 2003; van Dongen et al., 2021). Mentoring supported the development of professional competencies such as writing grant applications (Poronsky et al., 2012) and handling politics of the scientific world (de Lange et al., 2019). A desire for more mentoring was reported since mentoring was not available to all doctorally prepared nurses (Al-Nawafleh et al., 2013; Bice et al., 2019; de Lange et al., 2019; Heinrich, 2005; Loerzel et al., 2021).

Support of managers was only mentioned in one study (Orton et al., 2019) and the participants, working in clinical settings, considered support of the manager to be important for their professional and career development. Participants in general felt valued by their manager, while a lack of recognition and support was also reported.

#### Professional development programmes

Postdoctoral programmes were perceived to support career development (Al-Nawafleh et al., 2013; Berman, 2015; Ellenbecker et al., 2017; Heinrich, 2005; Jacelon et al., 2003; Reid Ponte et al., 2015). Five educational programmes for PhD prepared nurses were identified focusing on leadership development (Berman, 2015), leadership and mentoring (van Dongen et al., 2021), peer mentoring (Jacelon et al., 2003), cohort mentoring programme (Viveiros et al., 2021) and research education, career planning and mentoring (Reid Ponte et al., 2015). All these programmes were positively evaluated and contributed to professional growth.

#### Difficulties with maintaining work-life balance

Challenges with the work-life balance were frequently reported, indicating challenges in balancing various professional and personal commitments (Al-Nawafleh et al., 2013; Bice et al., 2019; Bruner et al., 2016; de Lange et al., 2019; Hampshaw et al., 2022; Heinrich, 2005; Poronsky et al., 2012; Viveiros et al., 2021). These challenges were caused by heavy work commitments (Ali Zeilani et al., 2011; Al-Nawafleh et al., 2013; Aquino et al., 2018; Berman, 2015; Bice et al., 2019; de Lange et al., 2019; Poronsky et al., 2012). Aquino et al. (2018) described high mean scores in

emotional exhaustion and depersonalization in doctorally prepared nurses. Difficulties with keeping the work-life balance were reflected in the need to work on research in private time and limiting family time in evenings and weekends (Al-Nawafleh et al., 2013; de Lange et al., 2019; Poronsky et al., 2012; Smeltzer et al., 2014; Viveiros et al., 2021). Also, ways to cope were described, including setting boundaries and compartmentalizing work and family time (Poronsky et al., 2012; Smeltzer et al., 2014).

#### The lack of organizational infrastructure for career advancement

The lack of organizational infrastructure was reflected by the lack of clear support structures for career development such as career paths, suitable positions or a lack of clarity in promotion criteria. This lack made it difficult for doctorally prepared nurses to find meaningful positions and obtain promotion (Al-Nawafleh et al., 2013; Berman, 2015; de Lange et al., 2019; Heinrich, 2005; Loerzel et al., 2021). As a result, participants in the study of Hampshaw et al. (2022) felt that completion of the PhD was a step backwards in career progression and/or salary. Also, PhD-prepared nurses reported a lack of clear policies about their roles and research duties, resulting in sub-optimal use of competencies and/or a lack of protected time for research (Al-Nawafleh et al., 2013; Orton et al., 2019). DNP-prepared nurses reported difficulties with maintaining their clinical certification as work in clinical practice was not considered an integral part of their faculty role (Smeltzer et al., 2014).

#### Competition and hostile treatment

Competitive academic working environments were reported, which influenced the collaboration among doctorally prepared nurses (Al-Nawafleh et al., 2013). Hostile treatment among colleagues was experienced by both PhD- and DN-prepared nurses (Bice et al., 2019). Inappropriate workplace behaviours were reported by DNP-prepared nurses working at universities including belittlements, speaking down to faculty and inappropriate behaviour by co-workers. Also, DNP-prepared nurses received negative comments due to having a clinical doctorate instead of a research-orientated degree (Bice et al., 2019).

## 5 | DISCUSSION

This review integrated the findings of 22 empirical studies investigating careers, career development and/or factors associated with

career development of doctorally prepared nurses. Overall, the studies reviewed showed a dearth of data regarding the careers and career development of doctorally prepared nurses. This review found that most doctorally prepared nurses establish careers in research and teaching. This has been reported by Broome and Fairman (2018), however, career opportunities for doctorally prepared nurses are arising in other areas as well, such as clinical practice, policy and industry (Broome & Fairman, 2018; Chavez et al., 2021). Studies on careers in settings other than research and teaching are underrepresented in the current literature, limiting our ability to draw comprehensive conclusions regarding careers of doctorally prepared nurses.

Currently, it is unknown how well the current (part-time) positions support the work of doctorally prepared nurses. Earlier studies described that academic nurses valued combining part-time positions as this provided the opportunity to connect clinical work, teaching and research (Berman, 2015; de Lange et al., 2019; Heinrich, 2005; Orton et al., 2019; Smeltzer et al., 2014; van Dongen & Hafsteinsdóttir, 2022). Balancing the work of various positions is challenging (Al-Nawafleh et al., 2013; de Lange et al., 2019; Poronsky et al., 2012; Smeltzer et al., 2014; Viveiros et al., 2021). However, doctorally prepared nurses in both academic and non-academic settings should be able and encouraged to integrate all components of scholarship into their work, including research, teaching, mentoring, and service to support the profession (AACN, 2022). Therefore, there is a strong need for the development of clear policies regarding the work of doctorally prepared nurses, in which research and other commitments are considered integral parts of the overall role of the doctorally prepared nurse.

Doctorally prepared nurses need a wide range of professional competencies to develop successful careers (Broome & Fairman, 2018; Numminen et al., 2019). Similar to earlier studies, in this review, it was found that doctorally prepared nurses need to further develop competencies after the doctorate. In the 2022 AACN *Pathways to Excellence position statement*, the importance of postdoctoral programmes was highlighted. Postdoctoral programmes and fellowships support the doctorally prepared nurses in finding new ways to employ their research and further develop their skills (AACN, 2022). The postdoctoral training or fellowships should be tailored to the needs of the individual; however, core elements often include the development of vision towards one's own research, knowledge of research methodology, multidisciplinary research opportunities, establishment of research collaboration including collaboration within policy, industry, government and health systems (AACN, 2022). Despite the benefits of postdoctoral training opportunities for doctorally prepared nurses (Hafsteinsdóttir et al., 2017, 2020; Jacelon et al., 2003; McKenna, 2021; Reid Ponte et al., 2015), until today the opportunities to engage in these programmes seem to be limited in many countries (Hafsteinsdóttir et al., 2017). Therefore, it is important to invest in postdoctoral training. Universities and nursing (science) organizations may use existing networks or establish new networks to effectively develop and provide postdoctoral training

opportunities to a larger group of doctorally prepared nurses across all parts of the world.

Mentoring was also found to support the professional and career progress of doctorally prepared nurses (Hafsteinsdóttir et al., 2017), and it has been recommended in many recent reports and studies that mentoring should become widely available to doctorally prepared nurses in all career stages (AACN, 2022; Broome et al., 2023; Rollins Gantz & Hafsteinsdóttir, 2023). In addition, due to the ageing doctorally prepared workforce, doctorally prepared nurses need to become mentors early in their careers (Broome et al., 2023). This will allow them to develop mentoring competencies themselves and become well-equipped mentors to support each other as well as the next generation of nurse scientists (Broome et al., 2023; Numminen et al., 2019). To facilitate mentoring to a larger group of doctorally prepared nurses, mentoring should be considered as a part of the work of doctorally prepared nurses and should therefore be facilitated by the organizations.

In organizations with limited organizational infrastructures for career advancement and suitable positions, doctorally prepared nurses may experience uncertainty regarding their roles, positions and opportunities for career advancement (Al-Nawafleh et al., 2013; Aquino et al., 2018; McKenna, 2021; Singh et al., 2020, 2021). Development of organizational structures for career advancement is expected to support the optimal use of the doctorally prepared nurses' competencies. These structures seem to be more often available in the university setting in countries with further developed nursing research cultures such as the United States or the United Kingdom (AACN, 2022; NHS, 2021). Career pathways for careers in other fields and settings do not seem to be present in many cases. Investment in diverse and advanced career pathways in (academic) nursing is important as this may increase the number of nurses who are interested in doctoral education. Attractive career pathways and opportunities for career advancement may have a positive influence on the retention of doctorally prepared nurses.

In recent years, various reports and studies have been published on the recruitment, retention and development of doctorally prepared nurses (AACN, 2022; Broome et al., 2023; Kim et al., 2022; NAM, 2021; NHS, 2021; Weaver et al., 2023). Besides the need to increase the numbers of doctorally prepared nurses in all fields, these documents report strategies to strengthen the doctorally prepared workforce. Many of the recommendations are in line with the recommendations based on this review and include investing in mentorship, structures for collegial support, and support and facilitation of research resources (AACN, 2022). In addition, the importance of academic-practice partnerships has been acknowledged. These partnerships are needed to ensure that individuals are positioned to effectively address the health needs of the population and health system (AACN, 2022; NHS, 2021). Clinical-academic careers provide opportunities to participate in research in various types of careers and career phases. These careers require a structure with clear roles and responsibilities. To effectively support this development, the United Kingdom is developing a cohesive system across the country with a research agenda that includes all important stakeholders

such as health and social care organizations, universities, research funders, professional organizations, researchers, regulators and industry (NHS, 2021).

Recommendations for future research on this topic are to conduct robust and longitudinal international research to gain insight into the careers and career outcomes of both PhD and DNP-prepared nurses. In addition, it is important to know what meaningful career prospects and advanced (integrated) positions would look like from the perspective of doctorally prepared nurses, and in line with this, it would be important to gain insight into the competencies needed to build successful careers in various settings. At last, it is recommended to explore preferred strategies to support the professional and career development from the perspective of doctorally prepared nurses.

The limitations of the present study are that the literature searches are limited to three databases, publications in English and the lack of inclusion of grey literature. Studies with samples including not only doctorally prepared nurses were excluded. Therefore, it might be possible that not all relevant work has been included in this review. Also, studies with lower methodological quality were not excluded, which may influence the trustworthiness of our findings. Due to limited information in the studies, we were not able to differentiate the experiences among different types of doctoral degrees or career stages. Also, it was not possible to provide a comprehensive overview of all careers of doctorally prepared nurses due to the lack of studies in certain areas of nursing as well as areas outside of nursing. It was also not possible to provide information on the potential differences in expectations and requirements for the different academic ranks across countries. The perspectives from many geographical areas, such as Europe, Asia and Africa, may be underrepresented in this study as the majority of studies were conducted in the United States. This is important since there are differences between global regions. For example, 14.7% of participants had a DNP degree, which is widely recognized in the United States (Kesten et al., 2021), whereas this is not the case in other regions, such as Europe (Baltruks et al., 2020; Watson et al., 2021).

## 6 | CONCLUSION

This review revealed that there is limited knowledge about the careers and career development of doctorally prepared nurses. Many doctorally prepared nurses combine part-time positions in different fields, resulting in the need to balance their work. After the doctorate, the doctorally prepared nurses need to consider new career goals and take time to adjust to their postdoctoral roles. Career development was found to be hampered or facilitated by many different factors, which focused on the individuals as well as the working environment.

### AUTHOR CONTRIBUTIONS

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: Lisa van Dongen,

Thóra B. Hafsteinsdottir, Marion E. Broome, Riitta Suhonen and Helena Leino-Kilpi. Involved in drafting the manuscript or revising it critically for important intellectual content: Lisa van Dongen, Thóra B. Hafsteinsdottir, Marion E. Broome, Riitta Suhonen and Helena Leino-Kilpi. Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content: Lisa van Dongen, Thóra B. Hafsteinsdottir, Marion E. Broome, Riitta Suhonen and Helena Leino-Kilpi. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: Lisa van Dongen, Thóra B. Hafsteinsdottir, Marion E. Broome, Riitta Suhonen and Helena Leino-Kilpi.

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### CONFLICT OF INTEREST STATEMENT

The authors declare that they have conflicts of interest.

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### PEER REVIEW

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### DATA AVAILABILITY STATEMENT

Materials and data used for all analyses are available from the corresponding author on reasonable request.

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