

# Leadership experiences of postdoctoral nurses working in hospitals: A qualitative study

<i>Name student</i>	L.J.C. van Dongen
<i>Student number</i>	5672023
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<i>Supervisor</i>	Dr. T.B. Hafsteinsdóttir
<i>Institution</i>	Julius Centrum, University Medical Center Utrecht
<i>Lecturer</i>	Dr. J. van Dijk
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## ABSTRACT

**Title:** Leadership experiences of postdoctoral nurses working in hospitals: A qualitative study.

**Background:** Combining clinical and academic work in postdoctoral nurses strengthens the impact of nursing research. This is important because the use of research findings in clinical practice is limited. Cultural barriers, differences in professional identities, the lack of infrastructure and leadership hinder combining academic and clinical work in nursing. Combining both roles demands strong leadership skills. Currently, there is little insight in leadership experiences of postdoctoral nurses working in hospitals.

**Aim:** To describe leadership experiences of postdoctoral nurses working in Dutch hospitals.

**Methods:** A generic qualitative study, using semi-structured interviews and thematic analysis, is performed within seven hospitals. A purposeful sample of 12 postdoctoral nurses was recruited. Participants were eligible if they were employed as researcher or nurse specialist within a clinical department, finished a doctoral or PhD degree at least six months before the start of the study and had a degree in nursing. Leadership experiences, realizing change, leadership barriers and professional development were discussed.

**Results:** Three themes were identified: *professional development*, *being a leader in clinical practice* and *leadership challenges*. Participants described their professional development as a conscious process in which they took initiative and received support. The participants were determined to improve nursing care. However, not all participants felt like leaders, despite the presence of leadership behaviors. Participants experienced a lack of nursing research culture and infrastructure.

**Conclusion:** Postdoctoral nurses showed leadership with the aim of improving nursing care. However, they experienced multiple barriers that hinder them to profile themselves as leaders within their profession, hospitals and healthcare.

**Recommendation:** Further research is needed to explore opinions of hospitals boards, managers and physicians towards nursing research to multidisciplinary identify opportunities to strengthen nursing research and (multidisciplinary) collaborations.

**Keywords:** Leadership[Mesh], Postdoctoral nurse, Hospitals[Mesh], nursing research[Mesh].

## **SAMENVATTING**

**Titel:** Leiderschapservaringen van gepromoveerde verpleegkundigen werkzaam in het ziekenhuis: een kwalitatief onderzoek.

**Achtergrond:** Het combineren van klinische en academische taken door gepromoveerde verpleegkundigen vergroot de impact van verpleegkundig onderzoek. Dit is belangrijk, omdat het gebruik van onderzoekresultaten in de praktijk beperkt is. Culture aspecten, verschillen in professionele identiteiten, het gebrek aan infrastructuur en leiderschap hinderen het combineren van klinische en academische taken. Het combineren van deze taken vraagt leiderschapsvaardigheden. Echter, is er weinig bekend over de leiderschapservaringen van gepromoveerde verpleegkundigen werkzaam in ziekenhuizen.

**Doelstelling:** Het beschrijven van leiderschapservaringen van gepromoveerde verpleegkundigen werkzaam in Nederlandse ziekenhuizen.

**Methode:** Er is een generieke kwalitatieve studie, met semigestructureerde interviews en thematische analyse, uitgevoerd binnen zeven Nederlandse ziekenhuizen. Een doelgerichte steekproef van 12 gepromoveerde verpleegkundige is samengesteld. Participanten werden geïncludeerd indien zij: werkzaam waren als onderzoeker of verpleegkundig specialist binnen een klinische afdeling, minimaal 6 maanden voor de start van de studie het promotietraject hebben afgerond en een opleiding tot verpleegkundige hebben afgrond. Leiderschapservaringen, realiseren van veranderingen, leiderschapsbarrières en professionele ontwikkeling werden besproken.

**Resultaten:** Er zijn drie thema's geïdentificeerd: *professionele ontwikkeling, het zijn van een leider in de praktijk* en *leiderschapsuitdagingen*. De participanten beschrijven hun professionele ontwikkeling als een bewust proces, waarin zij initiatief toonden en steun ontvingen. De participanten streven naar verbeteren van de verpleegkundige beroepspraktijk. Maar niet alle participanten voelen zich een "leider", ondanks de aanwezigheid van leiderschapsgedrag. Binnen de ziekenhuizen ontbreekt een verpleegkundige onderzoekscultuur en infrastructuur.

**Conclusie:** Gepromoveerde verpleegkundigen tonen leiderschap met het verbeteren van de verpleegkundige beroepspraktijk als doelstelling. Maar zij ervaren barrières, die ervoor zorgen dat zij zich niet altijd een leider voelen.

**Aanbevelingen:** Vervolgonderzoek moet zich richten op visies van bestuurders, managers en artsen omtrent verpleegkundig onderzoek. Dit om mogelijkheden te verkennen om verpleegkundige onderzoekscultuur en (multidisciplinaire) samenwerkingen te versterken.

**Trefwoorden:** leiderschap, gepromoveerde verpleegkundigen, ziekenhuis

## INTRODUCTION

Postdoctoral nurses have an important role in nursing, where their role focuses on conducting research, translating evidence into practice and development of the discipline<sup>1,2</sup>. Because of the growing incidence of chronic illnesses, nurses are challenged to deliver more effective<sup>3</sup>, efficient<sup>3</sup> and evidence based<sup>4</sup> care. However, in many clinical settings essential elements to establish a nursing research culture are absent, including: a monodisciplinary professionalism with similar opinions regarding research, academic thinking and socialization by introducing more professionals into research, research as part of daily practice, acceptance by colleagues and management and facilitation of resources<sup>5</sup>. As a result, there is a lack of infrastructure for nursing research<sup>5-8</sup>, career pathways and functions for academic nurses<sup>9-11</sup>.

Various studies have shown that combining clinical and academic work strengthens the impact of nursing research and improves the quality, safety and efficiency of nursing by emphasizing on the use of research<sup>12-14</sup>. Postdoctoral nurses working in clinical practice have an important role in identifying research questions and implementing evidence<sup>13,14</sup>. This is important because the use of research<sup>13,15-18</sup> and translation of evidence into clinical practice are limited<sup>13,19,20</sup>. However, lack of leadership has been identified as an important barrier in combining academic and clinical work along with a lack of infrastructure and cultural barriers<sup>13,14,21</sup>. Cultural barriers include the fact that direct patient care has priority over academic work. Thereby, postdoctoral nurses feel that academic work is underappreciated<sup>13</sup>. Studies have shown that combining academic and clinical work demands strong leadership skills, because of the complexity of both roles, difference in professional identities, logistically demands and organizational context demands<sup>12-14,22,23</sup>.

Leadership is defined in many different ways, but the most common conceptualizations of leadership include four elements in their definition: leadership is a process, entails influence, occurs within a group setting and involves achieving goals that reflect a common vision<sup>23,24</sup>. Kouzes and Posner<sup>25</sup> developed a framework for exemplary leadership based on five leadership practices: model the way, inspire a shared vision, challenge the process, enable others to act and encourage the heart. Diverse systematic reviews show positive associations between leadership in nursing and patient, professional, and organizational outcomes<sup>23,26-28</sup>. Two systematic reviews showed that leadership is associated with lower mortality, higher satisfaction and improved patient safety in clinical practice<sup>26,28</sup>. However, leadership is currently suboptimal in all levels of nursing, including postdoctoral nursing<sup>13</sup>.

The systematic review of Hafsteinsdóttir et al<sup>29</sup> showed a lack of studies investigating leadership of postdoctoral nurses. A recent survey investigated leadership of Dutch

postdoctoral nurses working in research, clinical practice and/or teaching and found moderate leadership skills, with the lowest score on “inspire a shared vision”<sup>30</sup>. Indicating that behaviors of positive communication, interpersonal competence and sharing a common purpose can be improved<sup>25</sup>. At this moment, there is a limited number of studies investigating the work of postdoctoral nurses and studies exploring leadership experiences of postdoctoral nurses working in hospitals are lacking. These insights can contribute in improving the positioning and impact of postdoctoral nurses within hospitals.

## **AIM**

The aim of this study is to explore leadership experiences of postdoctoral nurses working in Dutch hospitals.

## **METHOD**

### **Design**

A generic qualitative study design<sup>31</sup> with semi-structured interviews and thematic analysis<sup>32</sup> was used to explore leadership experiences of postdoctoral nurses working in hospitals. This design is suitable to gain in-depth insight in a phenomena where little is known, without assuming specific philosophical assumptions<sup>31,33</sup>. The study was conducted from September 2017 to June 2018 in the Netherlands. Reporting of the study complied with the COnsolidated criteria for REporting Qualitative studies (COREQ)<sup>34</sup>.

### **Population and domain**

The exact size of the population of postdoctoral nurses is unknown due to the lack of central registration<sup>35</sup>. However, a database includes 120 theses from Dutch postdoctoral nurses<sup>36</sup>. In 2017, approximately 41 postdoctoral nurses worked in hospitals<sup>35</sup>. A purposeful sample of postdoctoral nurses working in general or academic hospitals was recruited. This sample provided maximum variation regarding functions, hospitals and work experience, which was used to capture a broad understanding of leadership experiences<sup>37</sup>. Postdoctoral nurses were eligible if they were employed as researcher or nurse specialist within or connected to a clinical department, finished a doctoral or PhD degree at least six months before the start of the study and had a degree in nursing,

### **Data collection**

Semi-structured, face-to-face, interviews were conducted to ensure in-depth insight and coverage of all dimensions of leadership experiences<sup>38,39</sup>. Interviews were conducted from February to May 2018. The interview guide was based on literature<sup>13,21,29,40,41</sup> and the model

of exemplary leadership<sup>25</sup>(Table 1). All interviews started with the question: “What is your definition of leadership in the role of postdoctoral nurse?” This question was used to put individual experiences into context. Besides, leadership experiences, realizing change, leadership barriers and leadership during their professional development were discussed. No rigor changes occurred in the interviewguide. Interviews were performed until meaning saturation was reached, indicating that no new themes emerged<sup>42</sup>.

<Table 1: Interviewguide<

## Procedure

Eligible participants, included in a database from earlier research in postdoctoral nurses<sup>35</sup>, were approached by e-mail. Interviews were planned at a date, time and location preferred by the participants. All interviews were conducted by one researcher(LvD), who followed an interview training to optimize interview skills. The researcher(LvD) was mentored by an experienced (senior)researcher(TBH), who provided feedback and judged the interview skills, who were found appropriate. No pilot interview was conducted due to the small sample of eligible participants.

The interviews were audio-taped and lasted 47 to 75minutes. Field notes were made directly after the interview to capture contextual and nonverbal data<sup>37</sup>. To optimize the credibility, member checks were performed. Therefore, all participants had an opportunity to comment on the interpretations of the researcher<sup>37,43</sup>.

## Data analysis

The steps of thematic analysis according to Braun and Clark were followed, which were applicable in generic qualitative research<sup>32</sup>(Table 2). Data collection and analysis were performed iterative.

Interviews were transcribed verbatim and read by two researchers(LvD, TBH). After familiarizing with the data, interviews were open coded by one researcher(LvD) to identify meaningful paragraphs using Nvivo 11(ORS international, Victoria, Australia)<sup>44,45</sup>. After coding two interviews, agreement was checked by the researchers(LvD, TBH)<sup>37,43</sup>. After coding five interviews, the codes were sorted into potential (sub)themes based on their similarities. Constant comparison was used to review and refine codes and (sub)themes. After analyzing ten interviews, the researcher(LvD) drew a thematic map to refine the overall story and to relate (sub)themes back to the codes and study objective.

A third researcher(HB) reflected on coding process and methodological considerations<sup>46</sup>. All researchers(LvD, TBH, HB) agreed on the final (sub)themes and their interpretations.

<Table 2: Steps of thematic analysis<

## Ethical issues

The research protocol was submitted to the medical research ethics committee of UMC Utrecht, who concluded that the study did not involve the Dutch Medical Research Involving Human Subjects Act(Protocol number: 18-062/C). All participants received an information letter and written informed consent was obtained before the interview. All data were handled anonymous and confidentially. Special attention was paid to anonymity due to the small sample of eligible participants. Because of this, demographic characteristics were not individually disclosed and quotes were not linked to individuals. There were no (in)formal relationships with participants.

## RESULTS

Thirty-three postdoctoral nurses were approached, twelve of them agreed to participate. Meaning saturation was reached after ten interviews, indicating that no new codes emerged. Two additional interviews were conducted to confirm saturation.

The sample included four men and eight women, with a median age of 54 years, ranging from 39 to 61. The participants worked in four academic and three general hospitals. The participants primary worked as researcher(n=7), nurse specialists(n=4) or manager(n=1). However, most participants had combined functions, were they combined research with clinical practice, management and/or teaching. At median, participants finished their promotion 3 years ago, ranging from one to 12 years(Table 3).

Three themes were indentified, including: *“Professional development”*, *“Being a leader in clinical practice”* and *“Leadership challenges”*. In each theme several subthemes were established. Table 4 presents an overview of themes, subthemes and quotes. In general, participants described their professional development as a conscious process in which they took the lead and received support from other professionals. However, not all participants felt like leaders, despite the presence of various important leadership behaviors in their practices. This was explained by struggles with the concept and the presence of multiple organization orientated challenges.

<Table 3: Demographic characteristics<

van Dongen

Leadership experiences of postdoctoral nurses

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## PROFESSIONAL DEVELOPMENT

In this theme participants talked about showing leadership during their professional development and the received support.

### Taking the lead

The professional development of all participants was characterized by taking initiative. All participants were ambitious and saw their carrier as a conscious process. One participant said: *“I am convinced that you have to seize opportunities to realize your ambitions. You have to jump in there. You have to show courage and accept challenges”*. Because of this ambitious attitude, some participants faced challenges because they were the first to achieve something. Therefore, they felt like they were pioneering and had to find out everything by themselves. One participant explained: *“When you are pioneering you are spending a lot of time on arranging a lot of things, not only for yourself but also for others”*.

### Having support

When discussing their professional development most participants stated they had a professional in their surrounding who supported their development. For most participants this was a professor or manager, with a medical background. Professors were seen as motivators as well as discussion partners. Managers were seen as motivators and facilitators. One participants mentioned: *“I received a lot of support from my former manager, a physician. He embraced nursing. He strengthened my development and positioning. I noticed: when you put people in their strength, they can raise above themselves and this is what happened in my case”*.

Concerning their leadership development, most participants described a lack of support for leadership development, which according to some participants could have had a positive influence on their carriers. Although some participants had a mentor, others said they were or are in need of a mentor. One participant said: *“I missed a mentor, someone with the same background, someone you can discuss with. I still miss that and I am looking for that. Currently I am pioneering alone”*.

## BEING A LEADER IN CLINICAL PRACTICE

In this theme participants talked about the importance of developing nursing, their leadership competences and feelings towards “being a leader”.



## Development of nursing

Most participants described a strong responsibility for the development of nursing. Some participants described a lack of attention for nursing as a monodisciplinary profession. One participant noticed: *"Nurses are not always aware of the fact that nursing is an independent profession, with their own responsibilities. They just follow orders of the physicians"*.

All participants described the importance of improving patient care and endorsed the importance of linking their research and clinical practice. One participant stated: *"In my function leadership is about connecting research, clinical practice and education and make sure each one is linked to the other"*. The participants described reasonable satisfaction with the impact of their work because they contribute to improving patient care and educate nursing students. However, some participants wanted to expand their impact.

## Leadership competencies

Participants described various aspects important to being a leader in their work practices, including: expert knowledge, passion for nursing and the courage to stand out. Also, importance of good collaboration skills and use of networks to connect professionals were mentioned. Important personal characteristics described by participants were, being: enthusiastic, communicative, persevering, motivating, decisive and visionary. One participant said: *"For me leadership is associated with taking the lead. It is important to have a vision and being able to realize changes in collaboration with others"*. Also, being organization-sensitive was mentioned, which was defined as having insight in organizational processes, having influence within the organization and insight in healthcare systems.

## Being a leader?

Most participants identify themselves with the leadership competences above. However, some participants described having difficulties with the concept of leadership. Only few participants described feeling like a leader based on their expert knowledge, their collaborations and/or being internationally active. One participant said: *"When you are asked to submit a research proposal for a closed call and mine gets granted, then you probably can say that you are important within your specialism"*.

Many participants did not feel like leaders in nursing or their specialism, but felt more like a leader on their own department. Also, participants stated they did not feel like leaders because the term "leader" is associated with having followers. One participant said: *"In my current function I work quite solo. I am collaborating mostly with physicians, so I do not feel like a leader in nursing"*. Another participant said: *"A leader is listened to and followed and that is not my experience"*. Besides, some participants associated leadership with

hierarchical power. One participant explained: *"I do not have a leadership role, because I am not the manager who is responsible for making decisions, however I do give my opinion, but I am not the one making decisions"*. Besides, the term "leader" does not reflect on how they see themselves, as partners in collaboration or initiators for change. One participant stated: *"Historically, for me the term leader is associated with for example a communistic leader, who delegates and has power over others"*.

## **LEADERSHIP CHALLENGES**

The participants experienced multiple challenges when showing leadership.

### **Struggling nursing research culture and infrastructure**

Many participants within different hospitals described that the nursing research culture struggles. These participants described hospitals as medically orientated organizations, with little support for nursing research. One nurse specialist said: *"They[management] said: you cannot spend time on research, you are hired to perform patient care. You are not a researcher. They don't want me to do research"*. However, some participants noticed that the importance of nursing science is increasingly being recognized and becoming more visible. However, ongoing progress is needed to strengthen the nursing research culture. The lack of a strong culture in nursing science is reflected in the lack of organizational infrastructure in nursing science. One participant described: *"When I started my first studies there was nothing. I had to find everything out for myself. Now, almost 20 years later some progress has been made but I am feeling like we are still in the beginning of creating an infrastructure"*. Nonetheless, some hospitals made progress regarding their nursing research infrastructure by appointing professors in nursing, developing career pathways and providing internal grants.

### **Lack of suitable positions**

Some participants stated that there was a lack of adequate positions to realize a nursing research infrastructure. Most participants created their function in collaboration with their manager, with varying success. Most participants had combined functions, which is described as valuable but demands strong planning skills due to the pressure on patient care. One nurse specialist said: *"If you do not watch out, you will be swallowed by patient care, you have to come up for yourself and detach yourself from patient care otherwise you will be interrupted constantly. Sometimes I hide myself outside the department"*. Most participants experienced no major changes in their function and responsibilities after their promotion. In some cases, less time was spend on research after promotion.

### **Lack of managerial support**

Many participants described that the ability to conduct research was highly influenced by the manager, who had huge influence on their work. One participant said: *"A colleague on a different department gets a lot more time for research. There is no organization-wide policy. The manager decides how I spend my time"*. Few participants described positive experiences with their managers, by stimulating research and adequate facilitation. However, some talked about feeling tolerated instead of feeling appreciated. Some participants described that managers had different priorities, as they manage daily affairs and have different visions regarding nursing. One participant stated: *"Improving nursing care is difficult to express in money, but this [finances] is what makes managers enthusiastic"*. Another participants talked about the managers' lack of knowledge regarding research. She said: *"Many managers have no academic background. So, for them it is difficult to stimulate nursing research, because they lack knowledge and are not familiar with it"*.

### **Feeling isolated**

Although some participants experienced adequate collaboration with other nurse researchers, some participants felt isolated. One participant said: *"I am the only nurse researcher at the department. I have no colleagues with the same background. This would be nice, because I am the only one standing up for nursing research"*. Participants working in general hospitals talked about a lack of collaboration with academic hospitals. One participant noticed: *"I miss a connection with other nurse scientists. It is difficult to establish contact with nurse scientist in academic hospitals. However, it would be beneficial. This would help in my positioning"*.

The participants had various experiences collaborating with physicians. Nurse specialists describe more intensive and adequate collaborations. However, many researchers felt like they have to compete with other medical researchers due to limited resources. However, some participants pointed out the need for collaboration. One participant explained: *"Within department physicians conduct large clinical studies. I think there are easy ways to include nursing components. What would be more beautiful? However, at the moment it is strictly separated"*.

The collaboration with nurses is described as valuable. Despite this, some participants describe a distance between them and the nurses on the ward. According to them, caused by differences in roles and responsibilities. One participant explained: *"You are not one of them [the nurses] anymore. I did not become nurse scientist because I did not want to be a nurse anymore. I have different interests. You grow apart, you do not have same frame of reference anymore"*.

## DISCUSSION

The aim of this study was to explore leadership experiences of postdoctoral nurses working in hospitals. Three themes were identified. In the theme *“professional development”* participants expressed their professional development as a conscious process with goals and ambitions. Most participants described having support, but there was no or little attention for leadership development. In *“being a leader in clinical practice”* postdoctoral nurses described showing leadership, aiming to improve nursing care and strengthening the nursing discipline as well as their feeling towards the concept of leadership. The theme *“leadership challenges”* provided insight into barriers when showing leadership, including: lack of a nursing research culture, infrastructure, suitable positions and managerial support. Also, feeling isolated and difficulties in collaborations were addressed.

Postdoctoral nurses in hospitals can be seen as clinical-scientists, with an unique role in addressing research questions and translating evidence into clinical practice<sup>13,14,47</sup>. The clinical-scientists in our study described the importance of advancing nursing care. However, most participants described a lack of a nursing research culture. This is in line with previous research, which found that nursing has not yet moved along to a profession with a strong research culture<sup>10,13</sup>. These studies showed that the development of a strong nursing research culture is under pressure due to a lack of academic tradition among nursing. The nursing research culture is described as an “academic misfit” due to the focus on patient care and lack of appreciation for academic work<sup>13,21</sup>. The lack of appreciation exist because nurses are more satisfied with directly visible results, not with long-term projects<sup>48</sup>. Also, the majority of nurses are not involved in research due to the lack of knowledge, time and/or interest<sup>48–51</sup>. The participants in our study confirmed this and described little involvement of nurses in research.

Besides, participants described being highly dependent on their manager. Managers show huge differences in stimulating and facilitating research<sup>5</sup> and therefore have a substantial influence on organizational cultures<sup>52</sup>. Grifford et al.<sup>53</sup> found a relation between use of research and interpersonal and instrumental facilitation by managers. In our study, most participants experienced a lack of instrumental facilitation. Participants needed to negotiate with their managers and other disciples to facilitate their research. Also, the participants experienced little collaborations with physicians in research. However, recognition of physicians is a topic of great importance to clinical-scientist<sup>21</sup>. A previous study described that physicians were willing to collaborate with academic nurses with strong track records. On the other hand, physicians and managers were not convinced by the legitimacy of nursing research<sup>13</sup>. Interestingly, many participants in our study experienced support of medics during their professional development. Indicating that physicians possibly do

recognize the importance of academic nursing. However, when competing for resources the medical domain has greater interest.

Currently, nobody at the strategic level feels responsible for strengthening nursing research<sup>13</sup> and creating suitable career pathways for academic nurses in clinical research<sup>54,55</sup>. Besides, the lack of attention for leadership development and lack of collaborations with other (like-minded) researchers explain the current state of nursing research. Therefore, it is not surprising that not all participants in our study felt like leaders.

This study included a diverse sample of postdoctoral nurses and therefore provided broad insights in leadership experiences. The robust method increased the trustworthiness of the study by writing memo's, performing member checks and researcher triangulation during the analysis. However, some limitations need to be considered. At first, participants were required to perform research, because research is an important aspect of academic nursing. This criteria excluded participants who did not formally have research in their function, but did some research activities. When excluding them important insights would be lost. Therefore, this criteria was eliminated during the study. Also, it is possible that selection bias has occurred as postdoctoral nurses with more knowledge and enthusiasm towards leadership responded more frequent. Besides, most Dutch postdoctoral nurses works in academic hospitals<sup>35</sup>. This study included four out of the eight academic centers in the Netherlands and therefore the results should be generalized carefully.

This study addresses leadership experiences of postdoctoral nurses working in Dutch hospitals. The main finding is that postdoctoral nurses in our study were ambitious and showed leadership with the aim of improving nursing care and strengthening the profession. However, most participants experienced barriers, which hindered them from feeling and profiling themselves as leaders. It is important to change this, because currently the competencies and skills of these highly-educated nurses are not used optimally, indicating that patients and nursing profession do not take optimal advantage of them. To empower postdoctoral nurses, establishing a nursing research culture with a solid infrastructure and adequate positions, facilitation and collaborations is essential. Therefore, further research should focus on exploring opinions of hospital boards, managers and physicians towards nursing research, to multidisciplinary identify opportunities to strengthen nursing research cultures and infrastructures. Involving these parties is expected to create a sense of urgency and shared responsibilities regarding the establishment a nursing research culture within hospitals. Also, research is needed to strengthen collaborations with the aim of improving quality of care in hospitals. Multidisciplinary collaborations in research would have positive impact on patient care and the effective use of resources. Also, these collaborations will help

postdoctoral nurses to profile themselves as leaders within their profession as well as strengthening the impact of research on various patient and healthcare outcomes.

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## TABLES

*Table 1: Interviewguide*

Interview questions
1. What is your definition of leadership in the role of postdoctoral nurse?
2. Can you tell me more about your leadership experiences in your function as postdoctoral nurse?
3. What are your experiences with initiating change in practice in the role of postdoctoral nurse?
4. Do you experience barriers to leadership?
5. How would you describe the influence of leadership on your professional development as postdoctoral nurse?

*Table 2: Steps of thematic analysis*

Phase	Description
1. Familiarizing yourself with your data	Transcribing data, reading and re- reading the data, noting down initial ideas
2. Generating initial codes	Coding interesting features of the data in systematic fashion across the entire data set, collating data relevant to each code
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme
4. Reviewing themes	Checking in the themes work in relation to the coded extracts (level 1) and the entire data set (level 2), generating a thematic 'map' of the analysis
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract example, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

Table 3: Demographic characteristics

Item	Response	Frequency
Age	30 – 40 years	2
	41- 50 years	2
	51 – 60 years	6
	61 – 70 years	2
Gender	Male	4
	Female	8
Nationality	Dutch	11
	Other	1
Primary function*	Researcher	6
	Nurse specialist and researcher	5
	Manager	1
Combination of functions	Research and clinical practice	3
	Research and education	4
	Research, clinical practice and education	3
	Research and management	1
	Research, education and management	1
Type of hospital	Academic	9
	General	3
Years of experience postdoctoral nursing	0-5 years	7
	5- 10 years	2
	10-15 years	3
Time investment research	0 – 8 hours	5
	9 – 16 hours	0
	17 – 24 hours	3
	25 – 32 hours	2
	33 – 40 hours	2
Time investment clinical practice**	0 – 8 hours	0
	9 – 16 hours	1
	17 – 24 hours	3
	25 – 32 hours	2
Time investment management***	0 – 8 hours	1
	9 – 16 hours	0

	17 – 24 hours	0
	25 – 32 hours	1
Time investment education* *	0 – 8 hours	5

\* Function in which most time is spend.

\* \*The frequencies do not add up to the sample size because not all roles were applicable to all participants.

Table 4: Quotes

Theme	Subtheme	Quote	Participant
Professional development	Taking the lead	<i>"I am convinced that you have to seize opportunities to realize your ambitions. You have to jump in there. You have to show courage and accept challenges".</i>	9
		<i>"When you are pioneering you are spending a lot of time on arranging a lot of things not only for yourself but also for others"</i>	4
	Having support	<i>"I received a lot of support from my former manager, a physician. He embraced nursing. He strengthened my development and positioning. I noticed: when you put people in their strength, they can raise above themselves and this is what happened in my case".</i>	7
		<i>"I missed a mentor, someone with the same background, someone you can discuss with. I still miss that and I am looking for that. Currently I am pioneering alone".</i>	7
Being a leader in clinical practice	Development of nursing	<i>"Nurses are not always aware of the fact that nursing is an independent profession, with their own responsibilities. They just follow orders of the physicians".</i>	4
		<i>"In my function leadership is about connecting research, clinical practice and education and make sure each one is linked to the other"</i>	8
	Leadership competencies	<i>"For me leadership is associated with taking the lead. It is important to have a vision and being able to realize changes in collaboration with others"</i>	12

van Dongen

Leadership experiences of postdoctoral nurses

Definitive, 29-06-2018

Leadership challenges	Being a leader?	<i>"When you are asked to submit a research proposal for a closed call and mine gets granted. Then you probably can say that you are important within your specialism".</i>	3
		<i>"In my current function I work quite solo. I am collaborating mostly with physicians, so I do not feel like a leader in nursing".</i>	1
		<i>"A leader is listened to and followed and that is not my experience".</i>	4
		<i>"Historically, for me the term leader is associated with for example a communistic leader, who delegates and has power over others".</i>	10
	Struggling nursing research culture and infrastructure	<i>"They (management) said: you can spend time on research, you are hired to perform patient care. You are not a researcher".</i>	1
		<i>"When I started my first projects there was nothing. I had to find out everything for myself. Now, almost 20 years later some progress has made but I am feeling like we are still in the beginning of creating an infrastructure".</i>	7
	Lack of suitable functions	<i>"If you do not watch out, you will be swallowed by patient care, you have to come up for yourself and detach yourself from patient care otherwise you will be interrupted constantly. Sometimes I hide myself outside the department".</i>	10
	Lack of managerial support	<i>"A colleague on a different department gets a lot more time for research. There is no organization-wide policy. The manager decides how I spend my time".</i>	6
		<i>"A lot of managers are not bachelor or academically educated. So, for them</i>	2

van Dongen

Leadership experiences of postdoctoral nurses

Definitive, 29-06-2018

	<i>it is hard to stimulate nursing research, because lack the knowledge and they are not familiar with it".</i>	
	<i>"Improving nursing care is difficult to express in money, but this [finances] is what makes managers enthusiastic"</i>	3
	<i>"I do not have a leadership role, because I am not the manager who is responsible for making decisions, however I can give my opinion and advise, but I am not the one making decisions".</i>	2
Feeling isolated	<i>"I am the only researcher in nursing at the department. I have no colleagues with the same background. Sometimes this would be nice, because I am the only standing up for nursing research".</i>	8
	<i>"I miss a connection with other nurse scientists. It is difficult to establish contact with nurse scientist in academic hospitals. However, it would be beneficial. This would help in my positioning".</i>	4
	<i>"Within the department physicians conduct large clinical studies. I think there are easy ways to include a nursing components. What would be more beautiful? However, at the moment it is strictly separated".</i>	7
	<i>"You are not one of them anymore. I did not become nurse scientist because I did not want to be a nurse anymore. I have different interests. You grow apart, you do not have same frame of reference anymore".</i>	5