Characteristics of an Optimal Nursing Work Environment in a Dutch Teaching Hospital in terms of Quality of Labour, Approached from a Socio-Technical Perspective

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Student-number	*6409571*
Course	*Master Thesis*
Version	*Final version*
Date	*25 JUNE 2021*
Number of words summary (English)	*300*
Number of words summary (Dutch)	*300*
Number of words full-text	*3800*
Supervisors	*J van Kraaij MSc.* *Dr. CJ van Oostveen*
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Internship Institution	*IQ Healthcare, Radboudumc Nijmegen* *Spaarne Gasthuis, Haarlem* *RN2Blend*
Journal	*International Journal of Nursing Studies*
Criteria Transparent Reporting	*COREQ*

ABSTRACT

Background: An optimal nursing work environment and adequate quality of labour are complementing to quality of care and patients' satisfaction. Instruments to measure the nursing work environment are based on characteristics which disregard contemporary changes of nurses' profession. Thereby, these instruments are focused on limited areas or do not include all aspects of quality of labour. An up-to-date and complete description of characteristics could be additively in patient, nursing and organisational outcomes. Research following all aspects of quality of labour is desired, where attention is paid to complexity of health care organisations where personal interactions and technology interfere.

Aim: To identify characteristics of an optimal nursing work environment, in terms of quality of labour, for Dutch nurses working in a teaching hospital. Approached from a socio-technical perspective.

Method: A generic qualitative study design is applied. Semi-structured interviews have been carried out between March and May 2021. Nurses and their floor and unit managers, working at nursing departments in teaching hospitals were selected using purposive sampling. Thematic analysis was conducted.

Results: 15 interviews revealed four themes which gave insight in characteristics of an optimal nursing work environment, namely: ability to be meaningful, adequate equipment and supporting systems, recognition of the nursing role and identity and room to power professional development. These themes are linked by one overall theme: the position of nurses in the hospital organisation.

Conclusion and recommendation: Within an optimal nursing work environment, nurses are self-confident and involved in organisational decision-making, the nursing role and identity is recognised and nurses' voice resonates at managing level. Floor and unit managers are recommended to facilitate nursing role models which may contribute to the nursing work environment and position. Further research in academic and general hospitals is needed to complete the characteristics.

Keywords: nurses, work environment, quality of labour, socio-technical perspective

SAMENVATTING

Achtergrond: Een optimale verpleegkundige werkomgeving en adequate kwaliteit van arbeid zijn bevorderend voor kwaliteit van zorg en patiënttevredenheid. Instrumenten om de verpleegkundige werkomgeving te meten zijn gebaseerd op karakteristieken waarin recente ontwikkelingen binnen het verpleegkundig vak niet zijn opgenomen. Daarbij zijn sommige meetinstrumenten ontwikkeld voor het meten van specifieke onderwerpen of bevatten niet alle aspecten van kwaliteit van arbeid. Een hedendaagse en complete beschrijving van de karakteristieken kan van toegevoegde waarde zijn voor het verbeteren van uitkomsten op patiënt, verpleegkundig en ziekenhuisorganisatie niveau. Onderzoek welke de aspecten van kwaliteit van arbeid volgt is gewenst, met aandacht voor complexiteit van ziekenhuisorganisaties door sociale en technische interactie.

Doel: Identificeren van karakteristieken van een optimale verpleegkundige werkomgeving, in termen van kwaliteit van arbeid, voor verpleegkundigen werkend in een Nederlands opleidingsziekenhuis. Benaderd vanuit een socio-technisch perspectief.

Methode: Een generiek kwalitatief studiedesign is toegepast. Semigestructureerde interviews zijn afgenomen tussen maart en mei 2021. Verpleegkundigen, afdelingshoofden en zorgmanagers zijn geselecteerd door middel van een doelgerichte steekproef. Thematische analyse van interviews heeft plaatsgevonden.

Resultaten: 15 interviews hebben inzicht gegeven in karakteristieken van een optimale verpleegkundige werkomgeving: mogelijkheid om van betekenis te zijn, adequate middelen en ondersteunende systemen, erkenning van de verpleegkundige rol en identiteit en ruimte voor professionele ontwikkeling. Deze thema's zijn verbonden door één overkoepelend thema: de positie van verpleegkundigen in het ziekenhuis.

Conclusie en aanbeveling: Binnen een optimale verpleegkundige werkomgeving zijn verpleegkundigen zelfverzekerd in- en betrokken bij organisatorische besluitvoering, wordt de verpleegkundige rol en identiteit erkend en klinkt de verpleegkundige stem door op bestuurlijk niveau. Afdelingshoofden en zorgmanagers wordt aanbevolen om de totstandkoming van verpleegkundige rolmodellen te faciliteren, welke van toegevoegde waarde kunnen zijn voor de verpleegkundige werkomgeving en positie. Vervolgonderzoek in academische en algemene ziekenhuizen is nodig om een compleet beeld van karakteristieken te verkrijgen.

Kernwoorden: verpleegkundigen, werkomgeving, kwaliteit van arbeid, socio-technisch perspectief

INTRODUCTION AND RATIONALE

Within hospital organisations, nurses are the caregivers who spend most time at patients side and have a signalling function to the rest of the health care provider team[1]. Thereby they play a main role in patient care[2] and safety[1]. Research has shown that the quality of care provided and level of patient satisfaction is related to the nursing work environment (WE)[2–4]. A nursing WE is defined as the organisational aspects that facilitate professional nursing practice[1]. The presence of an optimal nursing WE is strongly associated to lower mortality rates, less patient falls and less complaints from patients and families[4]. Subsequent, an optimal nursing WE is beneficial to job satisfaction, productivity and retention of nurses[2].

In current literature, an optimal nursing WE is characterised as orientated on providing the highest quality of care, recognises contribution of nurses' skills and knowledge to quality of care, supports nursing leadership at patient and organisational level, encourages professional development, stimulates teamwork and facilitates in technical- and information systems[5]. Various instruments are described to measure the nursing WE in hospital organisations[6–8]. They are often developed years ago based on described characteristics in that time. However, the nursing profession is changing in relation to complexity of care, roles and responsibilities[9]. In addition, some instruments are developed for measuring a certain purpose, for example the attraction and retaining of nurses[6] or do not cover all nursing WE domains defined[7]. Illustratively, characteristics of multidisciplinary teamwork and nursing leadership are regularly mentioned, yet the feeling of appreciation and availability of technical facilities are often omitted[10]. It is thereby uncertain whether current characteristics and instruments are still appropriate to measure the nursing WE.

Comparable with an optimal nursing WE, literature states that adequate presence of aspects of quality of labour, leads to higher patient satisfaction with nursing care[3]. There are four aspects conceptualised within quality of labour namely labour content (i.e. nature of labour, decision-making, autonomy), labour circumstances (i.e. psychological and physical strain, safety), labour relations (i.e. social relationships, involvement) and labour conditions (i.e. working hours, career options)[11]. Through the aspects of quality of labour, the characteristics of the nursing WE can be explored in a comprehensive way. Currently, several aspects are missing in the described characteristics such as 'safety' and 'working hours'. This underlines the suggestion that existing characteristics have not been described in completeness.

Health care organisations are described as dynamic work environments with variety of technologies and many personal interactions between patients, families and health care professionals[12]. The interface of these elements make hospital organisations highly complex[12]. Research from a socio-technical perspective is aimed at identifying multiple

system elements and is therefore appropriate to study health care organisations and there within the nursing WE[12]. However, current literature regarding the socio-technical perspective concentrate on organisational or patient level[12,13] where experiences and opinions of nurses are not emphasised.

In the socio-technical perspective, aspects of both nursing WE and quality of labour are recognised. This perspective assumes that every organisation has a social subsystem focusing on people's competence, beliefs and culture[14]. Secondly, there is a technical subsystem that focuses on structures of and systems within the organisation[14]. These two subsystems interact and influence nursing WE and quality of labour[12]. For example, nurses who are willing to improve nursing care by using evidence based practice and find a different method of care concerning gastric tubes. However, they are no authoriser of the protocol and thus could not make adjustments based on their findings. This reflects an imbalance in the social (willing to improve care) and technical (not the authoriser) subsystems, which compromises the quality of labour content because the nurse is limited in decision-making about the care provided to the patient. Therefore, social and technical subsystems must be in balance to achieve an optimal nursing WE and high quality of labour[14].

When the characteristics are described in a complete and contemporary way, they could contribute to the enhancement of patient, nursing and organisational outcomes. Thereby, knowledge about quality of labour from a socio-technical perspective is needed. Ultimately, this research could be informative to health care managers and policy makers about characteristics of an optimal nursing WE and may provide them with insights into areas for improvement.

AIM

The aim of this research is to identify nurses' experiences about the characteristics of an optimal nursing WE, in terms of quality of labour, for Dutch nurses working in a teaching hospital. The results could be supportive in the improvement of the nursing WE and thereby patient, nursing and organisational outcomes.

METHOD

Design

The exploratory nature of the rationale to gain insight in nurses' experiences about the characteristics of an optimal nursing WE, demands for a generic qualitative approach through semi-structured interviews[15]. This design provides the opportunity to ask in-depth questions about the nursing WE to uncover opinions and ideas[15].

Abductive reasoning was followed where existing knowledge is questioned and data is collected to supplement the existing knowledge[16]. This method of reasoning was appropriate for this study because it assays the current characteristics of an optimal nursing WE, yet it allows the initiation of new characteristics as well[16].

To enhance the quality of the design and reporting of this study the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was followed[17]. Throughout the research process, trustworthiness was ensured by using the criteria of Lincoln and Guba[18]: credibility, transferability, dependability, reflexivity and confirmability.

Ethical considerations

This study was conducted according to the principles of the Declaration of Helsinki (version October 2013) and accordingly the Dutch Code of Conduct for Research Integrity 2018 and the Medical Research Involving Human Subjects Act (WMO).

Permission has been obtained for this non-WMO study by the local Medical Research Ethics Committee (METC). Participants were informed in writing about the study purpose and procedures involved. They were able to contact the researcher if any questions occurred. Verbal informed consent was obtained regarding voluntary participation and agreement to record the interviews. The researcher named all aspects of the informed consent form to which the participant answered with a clear 'yes' or 'no'. This consent procedure was recorded and stored separately from the subsequent interview. The participants were assured that data would be processed confidentially and that they could withdraw from the study at any time.

Population and procedures

The domain population consisted of nurses working at a nursing department of a Dutch teaching hospital and their floor and unit managers. Characteristics of the study participants are collected and shown (Table 1) to support transferability[17–19]. All participants matched the inclusion criteria of working at a general or acute nursing department and having a minimum of one year post-graduate work experience.

<Table 1. Participant characteristics>

To recruit participants an information letter was distributed by e-mail to all 19 floor and eight unit managers of the designated hospital. In this information letter the potential participants were asked to contact the researcher by email. Floor managers who contacted the researcher were asked to distribute the information letter to their nursing team. The first approach resulted in little response from nurses. Therefore, the recruitment procedure was repeated after two weeks in six nursing teams which led to sufficient participants. To achieve maximum variation, participants from a variety of departments were selected. After data saturation was achieved, two more interviews were conducted for confirmation.

Before data collection, reflexivity was achieved by the researcher writing down personal experiences and views on the subject and the domain population[20]. By doing this, the researcher became conscious of her role in the process and how this could possibly affect the data[20]. These notes were held aside during data collection and analysis.

Data collection

All interviews were conducted online between March and May 2021 via Microsoft Teams. A private room was selected to avoid disturbance during the interview and to enhance credibility[18]. The interviews lasted for 43 to 65 minutes and were audiotaped to ensure that the content was accurately captured[17]. During the interview the main topics labour content, circumstances, relations and conditions[11] were discussed with attention to the socio-technical perspective[12]. The topic list is presented in Table 2.

To improve the interview quality, the principal investigator (PI) attended the first two interviews to support the researcher in asking in-depth questions and discussing all topics. During the data collection period the researcher regularly reflected with the PI about the interview process, to discuss findings and adjust the interview guide.

To gain credibility of the interpretation of the interview, a summary was sent to all participants which gave them the opportunity to correct misconceptions[18,21].

<Table 2. Topic list of the interview[11]>

Data analysis

To enhance confirmability and dependability[19], the thematic analysing process was followed[22]. Transcribed interviews were fully read several times by the researcher to immerse in the data[15,22]. Memos were made during reading to record thoughts and ideas and to support confirmability of the process[18].

Thereafter, initial codes were formulated using descriptive coding, without preconceived notions of what codes should become[22,23]. The qualitative analysis program ATLAS.ti was used to support the researcher in gaining overview[15].

After collating all initial codes, they were merged into potential themes[22]. Hereby, codes were analysed at a broader level and codes were combined to form an overarching theme[22]. In this phase, themes derived from the subsystems of the socio-technical perspective[14]. A return was made regularly during analysis to decide whether a code was found suitable in the developing themes[22]. Candidate themes were analysed on completeness to develop themes of which the substantive codes cohere meaningfully, yet differ clearly from each other[22].

In the penultimate phase, the essence of and data captured by the theme was considered[22]. This was done by returning to the data and verify whether the coded elements were appropriate for the theme[22].

In the final phase the text was written and attention was paid to the message which was meant to convey and the argumentation in relation to the research aim[22].

During coding and establishing themes, investigator triangulation was used to enhance the credibility of the research[17,18]. This implied that the researcher submitted the codes and themes to peers, the PI and coordinating investigator for discussion and to achieve consensus.

RESULTS

The study population consisted of 15 participants, including seven frontline nurses, one senior nurse, five floor managers and two unit managers. Four themes emerged from studying participants' experiences which give insight in the characteristics of an optimal nursing WE, based on the social and technical subsystems[14]: *ability to be meaningful* (social subsystem - people), *adequate equipment and supporting systems* (technical subsystem - systems), *recognition of the nursing role and identity* (social subsystem - culture) and *room to power professional development* (technical subsystem - structure). These themes are linked by one central theme: the position of nurses in the hospital organisation.

Ability to be meaningful

Participants mentioned the ability of nurses to be meaningful in patient care as well as at organisational level is important. Floor- and unit managers along with nurses themselves described the nursing profession as being highly valued in delivering high quality of care. They have a prominent role in monitoring the physical, mental and social health of the patient, identify patient's needs and making effort to meet them. The following example was given by a nurse on caring for a patient with metastatic cancer:

> *"Although the family had COVID-19, I arranged for them to come to the hospital for a family meeting. Do we continue treatment and conduct further examinations or will we focus on comfort? […] I was very pleased that I was able to arrange that for this lady."* (Nurse 1)

The ability of nurses to be meaningful in care for patients was apparent to all participants. However, nurses' meaningfulness at organisational level appeared less obvious. Nurses themselves underestimated their contribution, while floor and unit managers do see their ability to add value. Managers believe that nurses' knowledge and experiences from daily practice help to deliver high quality of care within the hospital organisation. Therefore, the nursing point of view should not be overlooked in organisational decision-making. This difference in estimating the value of nurses could reflect the lack of confidence by some nurses in their knowledge and skills at organisational level. Concerning this topic, a nurse said:

> *"I'm afraid I'll say something stupid soon. While that is not true of course. They do want one of us."* (Nurse 5). By contrast, a floor manager stated:
> *"I think their voice is really very important in that."* (Floor manager 2)

Adequate equipment and supportive systems

For nurses to be meaningful and cope with high workload, it is essential that adequate equipment (i.e. information and communication technology [ICT] and medical devices) and supportive systems (i.e. work agreements and procedures) are present.

Adequate equipment make nurses' work more efficient and pleasant. Nurses indicated that ICT systems are increasingly part of the nursing WE and advantages are being seen. Nonetheless, they also run into problems such as ICT systems making a task more complex rather than easier. A nurse said:

> *"So they have medication carts with a computer on it, and then you have to scan a patient, scan medicine. […] It is of course for safety […] but those are actions again, yet another thing that actually keeps you off the bed."* (Nurse 5)

Having adequate medical devices which are readily available also improves the ease of nurses' work and quality of care. However, unit managers make an effort to control costs and develop a system wherein devices are shared between multiple nursing departments, resulting in reduction of the accessibility of the devices for nurses. Nurses mentioned that they were not sufficiently involved in the development of this or similar systems which they found disappointing. When nurses are involved in such organisational issues, they could optimise their work environment which promotes their job satisfaction and quality of care provided.

On the other hand, the opportunity to be involved in developing systems is not always seized by nurses. This highlights an inconsistency between nurses' desires and how they express these in practice. A nurse stated:

> *"We have been offered that opportunity and none (nurse) of our department has seized it. […] So that really was a missed opportunity." (*Nurse 5)

Participants mentioned that due to the high workload, such a demand for involvement quickly fades into the background.

Recognition of the nursing role and identity

In contrast to decision-making around organisational issues, most nurses are satisfied with the role they have in decision-making at patient level. They experienced overall good collaboration with physicians which was reflected for them in the collegial contact they have. However, nurses also stated that when a difference in vision for the way in which the

patient should be treated arises between them and the physician, the nurses sensed that their vision is not readily accepted. At such moments, nurses' role as valuable discission partner may not be seen which reduces their feeling of being recognised as a professional. A nurse with this experience indicated the following:

> *"Sometimes the physician doesn't dare to follow (vision of nurse). And so you have to enter discussions again and again and that consumes real energy […] and then (the doctor) comes back later, with 'oh, yes' (agreement nurses' vision)."* (Nurse 1)

A reason given by participants for this insufficiency was the lower extent to which nurses substantiate their views with literature compared with physicians. One way in which nurses could improve the substantiation of their vision on patient care is through expert roles such as evidence based practice. Participants expressed to regret that time spent in expert roles is quickly exchanged for care at the bedside. The high burden of care and staff shortages were mentioned as possible causes of this. However, the traditional ingrained pattern that quality of care is only provided at bedside may also be an underlying factor. A number of nurses who enjoy investing in expert roles reported unpleasant reactions from their nurse colleagues due to disagreement over the time spent on expert roles, which takes effort away from bedside care. This shows that within a nursing team, time spent on expert roles is not always recognised as providing care. Yet, expert roles can be beneficial for the patient as well as for the nursing profession, as explained by a nurse:

> *"Yes it is a way of taking care for the patients. Because you want to keep the quality high with this and be aware of the latest guidelines and protocols, and discuss improvement plans. […] You do it mainly for the patients, but also for your team, to increase job satisfaction, to think along with each other about what could be done differently."* (Nurse 8)

Room to power professional development

To allow the nursing profession to develop, nurses need to be placed in decision-making positions. Not only at the patient or organisational level, yet also at executive management level for the hospital. Participants state that the Nursing Advisory Committee (NAC) is increasingly involved in hospital-wide decisions. However, under the current structure of the hospital organisation, nurses remain in an advisory role and do not participate in the boardroom where managing decisions are made. A nurse stated:

> *“Nurses simply have to join the board (of directors) in order to make changes. […] You do need those experiences from practice to keep all of this (health care) feasible.”* (Nurse 8)

Participants in all functions desired a position for the NAC on the board of directors. Such a role would allow nurses to participate in managerial decision-making to support professionalisation and stay up to date with developments in healthcare.

DISCUSSION

Discussion of findings

This study explored the experiences of nurses and their floor and unit managers and provided insight into characteristics of an optimal nursing WE. The results revealed that nurses' self-confidence plays a role in decision making at organisational level and their involvement at this level is not outright. Furthermore, different views on professional identity occur within the nursing team and current organisational structures hinder nurses' managerial decision-making. These findings all connect to one central theme: the position of nurses in the hospital organisation. To enhance the position of nurses, an optimal nursing WE should reflect these characteristics, which will lead to increased job satisfaction, development of the nursing profession and high-quality of nursing care[2,4,5].

Nurses in this study consider their meaningfulness at organisational level low while for managers this was evident. Interestingly, previous research found the opposite where nurses were convinced of their own meaningfulness, while they experienced managers who did not value the nurses' perspective on decision-making in organisational issues[24]. An explanation for the nurses' low self-confidence in this study could be the lack of nurse role models. Earlier research mentioned that role models inspire and motivate the rest of the nursing team[25,26]. Nurses who currently do not have self-confidence in organisational decision-making can hang on to these role models, gain confidence by developing knowledge and skills and ultimately become more involved.

Despite the fact that managers value the nurses' meaningfulness at organisational level, this study also revealed that the nurses' involvement is not yet fully embedded, which is also seen in other studies[24,27]. This limited involvement results in decisions made only by managers and resistance from nurses. Subsequently leading to unsupportive systems for nurses, which inhibits job satisfaction and high quality of care[12,14].

This study also highlighted the exchange of time for expert roles in time spent at the patient's bedside, where an inconsistency was seen among nurses who consider this as providing care. The traditional ingrained pattern within nursing practice that care is provided only at bedside has also been described in previous studies[28–30]. It seems there is a development in this matter, since some nurses in the current study mentioned expert roles to be a part of the nursing identity. However, it is important that this development continues because as long as nurses do not recognise their professional identity, they may not be able to distribute their identity to other work relations within the hospital organisation, such as managers and physicians. Consequently, their involvement in developing supportive systems and their role as discussion partner may stay the same.

This vicious circle can be broken by structural changes, for example by promoting the NAC to a managing position. However, there is also a demand for nurses to make their professional identity known to others, search for a role model or become one themselves. These aspects will contribute to the development of an optimal nursing WE and the position of the nurse in the hospital organisation[25,26,29].

Strengths and limitations

Some limitations warrant consideration. Suspectedly, participants in this study were in highly motivated people who are willing to improve the nursing WE. Hence, participants who were less driven or who were satisfied with their current WE remained out of scope of this research. By involving floor and unit managers, an attempt was made to include their views as well. In addition, the transcripts were coded by only one researcher which could have led to missing meaningful elements. Although, to overcome any oversight, the researcher submitted the codes and themes for discussion to the PI. The results will not be generalisable to other Dutch hospital organisations or abroad because the study was conducted in one teaching hospital. However, the results do provide an insight into the characteristics of an optimal nursing WE that may be recognisable worldwide.

In general, the participants agreed with the submitted summaries, which underpins the correct understanding of the researcher and is seen as a strength. Six participants made nuancing or emphasising adjustments.

Practical implications and further research

In order to allow nurses to fulfil a prominent role within the hospital organisation, both on patient and organisational levels, it is important that floor and unit managers create training opportunities for nurses to enhance their skills in expert roles and organisational decision-making, which help them to serve as role models who lead by example[26]. The presence of these role models will contribute to an optimal nursing WE[31] and thereby improve patient safety and satisfaction[4,32,33] as well as nurse and organisational outcomes[2,4,34]. The Dutch professional nurses organisation also has a role in this as an advocate for professional development and positioning. They could power the development of the nursing identity by emphasising the importance of nurses' roles such as research and leadership within an optimal nursing WE[31,35].

Further research in academic and general hospital organisations is needed to complete the characteristics of an optimal nursing WE. Researchers could contribute to involvement of nurses by conducting research with them, instead of for them. Involving

nurses as co-researchers could enhance their research skills and leadership to strengthen their position within the hospital organisation.

Conclusion

Within an optimal nursing WE, nurses have the self-confidence in, and are involved with organisational decision-making. The role and identity of the nursing profession is recognised and the nurses' voice resonates at managing level of the hospital organisation.

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TABLES

Table 1. Participant characteristics

Total (N=15)	n
Age	
<25	1
25-35	4
36-45	3
46-56	5
>56	2
Gender	
Male	2
Female	13
Years of work experience in current function	
1-5	4
5-10	4
11-15	3
16-20	1
>20	3
Highest education level obtained	
Secondary vocational education	3
Higher professional education	9
University education	3
Hospital unit	
Medical	6
Surgical	3
Acute	5
Other*	1

*Involved in the whole nursing domain of the hospital

Table 1. Topic list of the interview[11]

Topics	Operationalisation
Labour content	- Nature of labour - Level of responsibility - Decision-making - Autonomy
Labour circumstances	- Psychological and physical strain - Work safety - Technical facilities
Labour relations	- Social relationships - Organisational involvements
Labour conditions	- Salary - Working hours - Secondary working conditions - Career options