

'Entanglement of nursing care': A theoretical proposition to understand the complexity of nursing work and division of labour

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ABSTRACT

Ongoing challenges in the provision of care, driven by growing care complexity and nursing shortages, prompt us to reconsider the basis for efficient division of nursing labour. In organising nursing work, traditionally the focus has been on identifying nursing tasks that can be delegated to other less expensive and less highly educated staff, in order to make best use of scarce resources. We argue that nursing care activities are connected and intertwined. As such 'entanglement' is a hallmark of nursing work, it needs to be understood to identify optimal and sustainable options for division of labour in nursing.

We elaborate the value of entanglement as a theoretical proposition to shift the focus away from old models of task-oriented nursing and put forward a model of labour division that acknowledges the importance of entangled nursing care activities. We build on the work of Jackson, Anderson, and Maben (2021) in which nursing work was conceptualised as a combination of cognitive, emotional, organisational, and physical labour. We assert that just allocating labour based on the type of work will not do the trick. The complexity of nursing work also needs to be considered. This is commonly framed as the combination of care activities required in the interest of patients and the complexity of each of these activities ('task complexity'). Integrating the concept of entanglement brings to light that even 'simple' care activities contribute to the complexity of work, as activities are potentially bound up with other activities ('entangled care activities'). That is to say, nursing work is not simply a function of the tasks undertaken. Based on our conceptualisation, we propose that the existence and nature of entangled care activities ('task entanglement') should be taken into account, to express what is needed in dividing the labour ('labour complexity'). This should in turn underpin future staffing and skill mix decisions.

In the pursuit of guaranteeing high quality of care, further research on 'ideal' mixes of skills and optimal team compositions in various health care contexts is necessary. For nursing practice, our theoretical proposition can be used to explicate the complexity of daily work. Hereby, giving nurses something to demonstrate their added value in providing the best care to patients.

Tweetable abstract: Nursing work is more than the accumulation of care activities; to comprehend its complexity care entanglement (intertwining) should be acknowledged.

What is already known

- Nursing care must be well organised and needs attention to meet the high demands in healthcare.
- Overly simplistic models of workforce planning are being applied, in which nursing work is allocated based on dividing it up into separate

care activities, without insight into the risks of delegating tasks to others.

- For decades, nurses and academics have struggled to explain what it is that makes nursing work complex.

What this paper adds

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- To fully comprehend the complexity of nursing work, it is necessary to elaborate that nursing care activities cannot be described independently of the activities with which they are intertwined ('entangled').
- We propose to shift the focus from dividing labour based on allocating discrete tasks to a model in which the entanglement of care activities plays a crucial role.
- When considering how to organise nursing work, in addition to the complexity of individual care activities ('task complexity'), it is also pivotal to acknowledge that these activities potentially are intertwined ('task entanglement'); together leading to 'labour complexity'.

1. Introduction

In nursing, achieving adequate staffing levels to ensure high quality of care is a worldwide problem. The existing nursing shortages and the continuously increasing demand for highly skilled nurses lead to higher workloads for the already overburdened nursing workforce (Dall'Ora et al., 2022; Haddad et al., 2023). These challenges in the nursing field have driven a call for rigorous rethinking and redesigning of nursing care delivery (Griffiths and Dall'Ora, 2023; Geltmeyer et al., 2024).

In organising nursing care, currently the leading principle is to primarily consider nursing work a job that consists of a multitude of tasks that can be divided between staff (Sasso et al., 2017). However, this way of thinking partly ignores what nursing work entails; it does not fully acknowledge its multi-layered, holistic and therefore complex character.

In this paper, we aim to explore the potential of a new and less simplistic model for dividing nursing labour. We believe that, to capture the comprehensiveness of nursing work and its corresponding complexity, it is necessary to recognise that care delivery is not only about performing a discrete set of tasks. A defining factor in the daily work of nurses is the 'entanglement' of care activities. This refers to the fact that the work does not simply concern a series of tasks occurring in parallel, but that these activities are intertwined and bundled together. These activities are linked and cannot be separated without changing the nature of all activities involved.

2. Background

In the research fields of psychology and human resources, the division of labour is a topic of interest (e.g., Haerem et al., 2015; Danner-Schröder and Ostermann, 2020). Most of the theories explicate dividing labour based on the concepts of task allocation and task complexity. The latter is defined as "the aggregation of any intrinsic task characteristic that influences the performance of a task" and is determined through task analysis (Liu and Li, 2012, p. 559). Based on their specific complexity, tasks are designated to different professionals (i.e., task allocation). Since we consider tasks and activities synonyms, hereafter these words will be used interchangeably. In nursing, care activities are defined as: "tasks performed by registered nurses (RNs) that require their professional knowledge and skills" (Glazer, 2000). In the interest of dividing the labour, explicit indicators mentioned in job descriptions are used to set out the tasks, responsibilities and lines of accountability. Specifically, what are the work-specific goals, who is applicable to do the work, and what is the frequency of the work (WHO, 2006).

In healthcare, this task-focused approach is widely applied to nursing work. In daily practice this means that nursing work is primarily considered an accumulation of separate tasks, with staff undertaking tasks matching their skill level (Elkhuizen et al., 2007; Sasso et al., 2017). The work is allocated by clinical ward managers. The distribution is based on the professional judgement of these managers, but also depends on available resources and demands that need to be met. Underlying such division of labour is a principle that identifies economic efficiency with allocating a task to the cheapest worker who has the skill

and capacity to perform it. By contrast, in their review on the cost-effectiveness of nurse staffing and skill mix in hospitals, Griffiths et al. (2023) concluded that reduced skill mix in nursing teams was associated with increased costs and worse outcomes, suggesting that this splitting up and continuous redistributing of individual tasks may not be economically efficient. The COVID-19 pandemic has shown that this way of organising nursing care, i.e. dividing 'the tasks' between several (non)professionals, was not that straightforward. In dealing with the previously mentioned challenges and driven by growing care complexity, hospitals were pushed to extremes in the optimal deployment of personnel and resources (Buchan, Catton, and Shaffer, 2022). Nursing teams were supplemented more than usual by other healthcare professionals and non-professional supportive staff (Stalpers et al., 2021b). This way of organising nursing care was necessary to keep healthcare running and to continue delivering the best possible quality of care. Yet, working with these different kinds of professionals and non-professionals also led to new challenges, especially in the division of labour. For example, collaborating and working together did not always work out well, due to ambiguity of tasks and responsibilities (Stalpers et al., 2021a).

Labour market shortages require reflection on optimal division of labour within nursing teams. Nurses themselves recognise the complexity of their work, but at the same time it is hard to articulate what it is that makes nursing work complex (Mishra, 2015) and why solely focusing on substituting tasks is not the answer to get the job done. Our theoretical proposition of the concept of entanglement can be understood as a different way of looking at nursing work and how this affects the organisation of work. To give context, first we set out the results of a quick screening of previous literature on nursing work and how nursing labour is divided. Then, considering these results and in line with Roberts et al. (2012): (i) we conceptualise the problem and form an idea about entanglement in nursing care, followed by (ii) the conceptualisation of the model itself, framing what is needed regarding the division of nursing work relative to the old model(s).

3. Conceptualisations related to nursing work

The value of conceptualising nursing work is evident, as it is necessary to understand what is needed of nurses in the daily working place. This paragraph addresses two types of models related to nursing work: (1) nursing care models, to conceptualise what nursing work actually is, and (2) nursing labour models, to conceptualise how nursing work is distributed.

3.1. Conceptualisation of nursing care

A widely acknowledged conceptualisation in nursing is holism. Holistic nursing care involves: "all nursing practice that has healing the whole person as its goal" (Mariano, 2016, p. 58) and covers necessary aspects in caring for patients, including physiological, psychological, sociological, emotional, relational and spiritual aspects. The focus is on health promotion of the individual patient (Povlsen and Borup, 2011; Thornton, 2019).

The sociological approach of Allen (2014) conceptualises nursing work as 'care-focused', in which all necessities in caring for patients, as with holism, are incorporated. This includes both directly patient-related care as well as all the other work that needs to be done. Furthermore, Allen (2014) emphasises that a lot of the work that nurses are doing is in fact invisible. In other words, essential components of nurses' work referred to as the 'soft' elements (e.g., comforting and holding patients' hand, coordinating care) are hidden and undervalued compared to the more straightforward 'formal' elements, such as the administration of medication or measurements of vital signs (Needleman, 2017).

3.2. Conceptualisation of nursing labour

A common conceptualisation is the so-called ‘task-focused’ conceptualisation which is also known as functional nursing. This follows the traditional (managerial) approach with the idea that the delivery of care is organised around executing certain tasks and activities. These activities can be divided in direct care activities, which are care-related activities performed at the patient’s bedside (e.g., assisting with personal hygiene, wound care, repositioning), indirect care activities, which are activities that contribute to the patient’s care, but not directly at the bedside (e.g., coordinating care, documentation) and non-nursing activities, which are all other activities that are not a part of nurses’ job description and are below their scope of practice (e.g., cleaning rooms, restocking) (DeLucia et al., 2009; Lavander et al., 2016). As mentioned before, this conceptualisation downgrades nursing work to a set of distinct tasks that could (in theory) be allocated to those with the requisite skills. An important aspect of complexity is therefore neglected, because tasks are not undertaken in isolation and are interrelated.

An alternative to this task-focused conceptualisation is the ‘patient-focused’ conceptualisation of which individual nursing, team nursing, primary nursing and fundamental care are the most well-known (Kitson et al., 2010; Parreira, 2021). These theories assume a patient-centred point of view. For example, a patient needs to be washed, needs to get attention, needs to be prevented from developing hospital-acquired complications etc. The underlying idea is based on determining what patients’ needs are prior to defining nurses’ role in meeting those needs. The limiting part of this conceptualisation is that it is considered a working method involving fragmented care activities, rather than that it assumes that different layers of complexity exist in performance of nursing work.

In their narrative review on what nursing work is, Jackson et al. (2021) introduced a ‘labour-focused’ conceptualisation. They explicate the importance of nurses as key players in day-to-day care by operationalising nursing work as a combination of cognitive, emotional, organisational, and physical labour. The proposed framework gives insight into the multitude of activities, and as a result the multifaceted character of nursing work is partly revealed. Partly, because the types of labour are presented as separate types, which masks the tasks interdependencies and interconnectedness (i.e. care activities that take place at the same time).

3.3. A new proposition

Nursing work involves a *process* of *caring*, including recognising *patients’ needs* and acting on these needs by performing *nursing care activities*. Hence, it is not limited to direct patient-related care, but covers all work required in the interest of the patient. For example, as suggested by both Allen (2014) as well as Jackson et al. (2021) keeping the system running is an important part of nursing work. While these accounts point to hidden complexity, all however considered care as a set of separate activities which can, at the most, be classified into categories. So, complexity is, implicitly or explicitly, still intrinsically linked to and bounded within specific activities. We argue that there is more to it in terms of what it is that makes nursing work complex. We believe that it is necessary to acknowledge that care activities are connected and intertwined, in other words, *entangled*.

4. Entanglement: a different way of looking at nursing

In quantum physics entanglement occurs “...when a group of particles are generated, interact, or share spatial proximity in a way such that the quantum state of each particle of the group cannot be described independently of the state of the others...” (Blomberg, 2007). In other words, it concerns the interdependency of things; those activities that are intertwined, wrapped, or twisted together, without hierarchal order. The term ‘entanglement’ has been applied in nursing and other

industries previously, but to a limited extent and with a focus on interactions between individuals and technology or to describe complex systems that are hard to characterise as a whole (Clancy, 2018). When we apply this as a metaphor to understand nursing work, entanglement is present during the enactment of the multitude of care activities that are performed by nurses. Providing care to patients is not a conglomeration of separate activities nor does it consist of fragmented parts that, in theory, could be simply disaggregated but otherwise remain unchanged (also known as ‘multitasking’). Multitasking is defined as: “*trying to perform two or more tasks concurrently, which typically leads to repeatedly switching between tasks or leaving one task unfinished in order to do another*” (Madore and Wagner, 2019). Entanglement goes beyond this; care activities cannot be fully understood and described independently of the activities with which they are entangled.

Both the *degree* as well as the *nature* of (entangled) care activities vary between patients. The degree of activities relates to the volume of care – which is in turn influenced by the needs of the patient. Complexity arises from the diversity of needs (e.g., support required for hygiene, mobility, risk of fall, risk of infection, risk of deterioration, anxiety, information needs), which might be termed ‘need complexity’. The nature of entanglement refers to the specific activities undertaken to meet the need, which can be diverse for ostensibly similar needs. Complexity is associated with each specific task (‘task complexity’), but also arises if multiple tasks are undertaken simultaneously (multi-tasking) and when needs are unpredictable and subject to change. Entanglement occurs because all these elements interact and become intrinsic to the true nature of any given interaction between nurse and patient.

In the next section, we will illustrate the concept of entanglement by two typical nursing examples, namely assisting patients with personal hygiene and mobility. We choose these examples, because it shows that our theory of entanglement applies to all of nursing work, where even the ‘simplest’, most basic care is potentially more complex than generally assumed.

5. Case description

Taking care of personal hygiene is a need that appears to be addressed by executing nursing care activities that are generally considered of low complexity (Cremer et al., 2023). Initially, care activities such as assisting with washing (activities of daily living) and toothbrushing (oral care) come to mind; activities that could possibly be delegated to assisting staff. However, these activities do not stand alone; at the same time other care activities, often occurring in clusters, take place (e.g., talking, observing vital signs). A cluster of care activities means that activities are grouped together and have a certain togetherness. We use the labour types mentioned by Jackson et al. (2021) to label the clusters. For example, the activities of talking and comforting belong to the same cluster referring to emotional labour. Both within clusters as well as between clusters, nursing care activities are (or should be) coherent and interact with each other. In other words, the care activities are ‘entangled’, which is the base for our theory on the complexity of nursing work. For patient A who is very sick, sedated and bedridden this means something different than for patient B who is about to be discharged from the hospital. If we look at the organisational cluster, this would mean, for example, different emphases in consulting other professionals and coordination of care around patient A and patient B.

Maintaining mobility applies to both patients and needs to take place. For patient A this means alternating lying and turning in the bed and for patient B this consists of assisting to walk to the bathroom (physical labour). At the same time, the safety in mobility needs to be assessed and the risk of adverse events and complications needs to be estimated (cognitive labour). To assess this properly, it is necessary to keep checking vital signs. The relatively simple ‘task’ of taking vital signs measurements (physical labour) can be, and often is, delegated to non-professionals or lesser trained staff members. Indeed, remote and

continuous monitoring technologies mean that it can be entirely automated. However, because of the entanglement with other activities, the nature of this activity is constantly subject to change and adaptation. The vital signs observations must be interpreted, and this interpretation (cognitive labour) is enhanced by contextual cues that cannot be ‘automated’, moving beyond a warning score that might be computed (Douw et al., 2016; Dall’Ora et al., 2021). The complex entanglement is far deeper. Observing vital signs presents a point of contact between nurse and patient that is used by patients for both casual conversations, as well as for asking questions and seeking reassurance (emotional labour).

Thus, what can be seen from these examples is that for RNs various other assessments are taken alongside while assisting with personal hygiene and mobility (e.g., assess safety, estimate healthcare risks), taking advantage of contextual cues. The nurse is more able to establish a relationship and get a clearer baseline of the patient. In other words, the RN has to seek to create opportunities to observe that may not otherwise occur naturally. They must rely on indirect information about for example, safety in mobility – often mediated through checklists and second hand accounts, if not a participant alongside the patient. For some patients the significance of these changes is low, for others not so, but in all cases the ‘work’ is inextricably changed if it is disaggregated. It is not that these tasks cannot be separated, but we argue that in separating them their nature is changed and vital elements are easily lost or are not easily replicated if the bundling is changed. The seemingly isolated tasks and their effects can only be properly understood in the context of their interactions with other tasks.

In the end, entangled activities affect each other in one way or another. A diversity of tasks can be undertaken separately, but the nature of the activities is fundamentally changed, making an ‘easy’ task, such as assisting with personal hygiene, a complex interrelationship of care activities.

6. Division of labour; given entanglement

Applying the concept of entanglement to frame nursing work in daily practice is challenging, but highly relevant. Considering the entanglement of care activities implicates that different choices must be made regarding the composition of the skill mix in a team, and in organising

nursing care. Below, we elaborate on the new model based on the concept of entanglement; including all essential necessities for care delivery and exploring what should be considered when dividing the labour.

Since all tasks and activities are more or less complex in themselves it remains important to assess their individual complexity. Under a traditional approach to the division of labour it is this ‘task complexity’ that determines which activities can be performed by various staffing groups (e.g., lower versus higher skilled). Throughout this paper we have claimed that the traditional task analysis and related task allocation are difficult because of missing out on an important factor; namely ‘task entanglement’. It is necessary to acknowledge that coexisting, intertwined (clusters of) care activities – entangled activities play a pivotal role in explaining nursing work complexity. Our theory on entanglement provides a rationale that assessing the suitability of tasks for substitution (i.e. passing it to another person with a lower or narrower skill set) is therefore not that obvious.

Fig. 1 shows the traditional conceptualisation of nursing work, i.e. old model (Fig. 1a) versus our proposed, i.e. new model (Fig. 1b). On what to consider when it comes to an optimal division of labour, we refer to ‘labour complexity’. In the old model it is assumed that the sum of all nursing tasks required for patients’ care delivery (‘care activities’) plus the complexity of each of these tasks (‘task complexity’) would suffice. The most important addition to this body of thought is the existence of clustered, entangled care activities. Thus, to fully understand and clarify the complexity of nursing work (‘labour complexity’), complementary to the aspects from the old model (‘care activities’ + ‘task complexity’), the degree and nature of entangled care activities (‘task entanglement’) should be added to the model. Awareness of the importance of entanglement of care activities and determination of labour complexity in a certain context is needed, before decisions can be made about optimally organising nursing work.

7. Conclusion and recommendations for further work

Workforce challenges in nursing make it necessary to rethink skill mix and use of personnel. In this theoretical paper, we propose an accompanying principle to the older conceptualisations of nursing work and how this work should be distributed. Although nurses generally

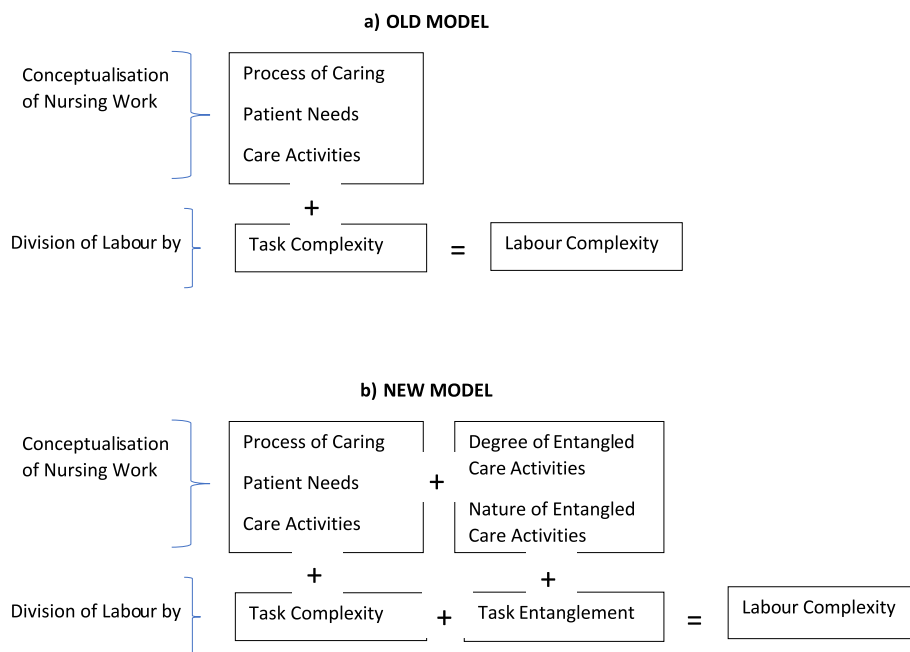


Fig. 1. Model of entanglement and labour complexity.

perceive their work to be more complex than the common view on nursing, this complexity has not always been articulated (Mishra, 2015). We theorised that considering nursing work as a bundle of clustered and entangled activities might help to understand how task interdependencies create challenges in work execution. Consideration of entanglement (i.e. intertwining of tasks) shows that splitting up tasks and activities and allocating them between RNs and others is no guarantee for successful outcomes. In the case description we used throughout this paper, it became clear that the adequate recognition of patient's needs and the related tasks to be performed go hand in hand. Clarity in roles and responsibilities is of the essence, as mentioned by Buchan and Dal Poz (2002, p. 575): "an effective skill mix can be achieved through clarity of roles and a better balance between different occupational groups". However, the degree and nature of entanglement of tasks make things complicated.

Regarding the complexity of nursing work, clearly the emerging evidence on the important role of highly skilled RNs (Needleman, 2017; Griffiths et al., 2023) is supported by our conceptual proposition. Previous studies emphasised the multi-faceted character of nursing work and that it can be understood as a composite of cognitive, emotional, organisational and physical labour (e.g., Jackson et al., 2021; Öhlén et al., 2021). The concept of entanglement highlights that RNs must perform well on all different kinds of aspects on the broad spectrum of nursing work. Nurses are expected to be able to: (i) determine the care demand (patient needs and care activities), (ii) estimate the complexity of the required professional effort (labour complexity), (iii) outsource care to others and scale up when needed (divide labour). It assumed that RNs possess the right skills to do so. However, differences between RNs may occur as their knowledge, skills, and competencies are learned through general education, training, and experience in practice. Previous research (DeLucia et al., 2009) has shown that variation exists in the ability to anticipate various situations, based on critical thinking abilities and decision-making skills (i.e. the thinking process). Furthermore, the personality of a RN plays a role in explaining how the work is done (Dubois et al., 2013; Torabizadeh et al., 2019). It is essential to value the contribution of each of these factors on the execution of nursing work. Therefore, in future studies both the relation between nurses' conscious learning processes (education) and intellectual processes (intuition) as well as the effects on performance and quality of care should be examined.

Regarding the organisation of labour, a practical thought that could be further challenged based on our proposed model, is the implication that it would be the responsibility of a RN to oversee all necessary (entangled) nursing activities (labour complexity) in the caring process of the patient. This can be contrasted with the role of the nurse assistant whose responsibility relates to single tasks and so work is constrained and allocated solely by task complexity. Although this kind of thinking seems to provide valuable insights regarding role clarity, economic efficiencies assumed to come from the accompanying task shifting, from RNs to support staff, do not appear to be realised. Such a conclusion is consistent with studies of reductions in skill mix in acute care where, in some cases, net costs are increased while outcomes are worse (Griffiths et al., 2023). The continuous redistribution of tasks requires more co-ordination than simply doing it yourself. Allocating tasks to support staff who are competent in their execution has unanticipated consequences as the nature of the task is changed and new tasks are created for the RN. Using our case description as an example, the old theories presumed that care activities related to assisting the patient with personal hygiene (e.g., assist with bathing, assess the skin, and provide emotional support) could be substituted to others than RNs. If we consider the impact of entanglement of these tasks, dividing the labour solely based on splitting and delegating these tasks is not that straightforward. It is revealed that the act of delegation separates the technical performance of the task from the interpretation and decision making, including the gathering of 'soft' data that may inform judgements (Dall'Ora et al., 2021). To achieve the same outcomes, a series of additional tasks including handovers

and checking are now required. Preferably, both the RN's role as well as other's role within teams can be strengthened by acknowledging that entanglement is of the essence in dividing labour. To further explore what can be expected in the collaboration between nurses and other staffing groups, research should focus on the possibilities to effectively substitute labour.

A more generic factor that should not be underestimated in this debate, is the contextual factor. Nursing work is subject to a constantly changing work environment, due to variance in place (e.g., department or ward, geographical status) and work circumstances (e.g., frequency of events, unexpected events) (Battisto et al., 2009; Liu and Li, 2012). Taking the impact of context into account means that decisions on the division of labour need to be tailored. The trade-off regarding necessary staffing should be handled with care since safe care can not necessarily be delivered in all circumstances. Internal and external factors (e.g., policies, available resources) may be of the influence. This also makes it more difficult to directly compare health economies, organisations, and teams. Therefore, promoting context-specific research regarding labour complexity can yield tangible benefits for healthcare professionals, managers, and policy makers.

The revelation of the importance of entanglement does not necessarily provide a direct solution for the major challenges regarding the nursing workforce. Yet, in line with the stated need for theoretical models on which to build further (Geltmeyer et al., 2024) it offers a new direction of reconsidering current ways of organising care. With this paper, we aimed to put the concept of entanglement out there and to stimulate debate rather than to produce guidelines for labour division ready to be implemented in practice. Decisions regarding the division of labour could be guided by this principle; with the overarching goal of continuing to provide good quality nursing care, now and in the future.

CRedit authorship contribution statement

Dewi Stalpers: Writing – review & editing, Writing – original draft, Visualization, Conceptualization. **Lisette Schoonhoven:** Writing – review & editing, Conceptualization. **Chiara Dall'Ora:** Writing – review & editing, Conceptualization. **Jane Ball:** Writing – review & editing, Conceptualization. **Peter Griffiths:** Writing – review & editing, Conceptualization.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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