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journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

Review

Clinical decision making on the use of physical restraint in intensive care units



Xinqian Li ^{a,*}, Tonks N. Fawcett ^b

^a Department of Nursing, The First Affiliated Hospital of Dalian Medical University, No. 222 Zhongshan Road, Xigang District, Dalian, Liaoning Province 116001, China

^b Student Learning (Nurse Education) Nursing Studies, The School of Health in Social Science, The University of Edinburgh, Edinburgh, United Kingdom

ARTICLE INFO

Article history:

Received 10 June 2014

Received in revised form

30 September 2014

Accepted 30 September 2014

Available online 8 October 2014

Keywords:

Clinical decision-making

Intensive care units

Intuition

Heuristics

Physical restraint

ABSTRACT

Physical restraint is a common nursing intervention in intensive care units and nurses often use it to ensure patients' safety and to prevent unexpected accidents. However, existing literature indicated that the use of physical restraint is a complex one because of inadequate rationales, the negative physical and emotional effects on patients, but the lack of perceived alternatives. This paper is aimed to interpret the clinical decision-making theories related to the use of physical restraint in intensive care units in order to facilitate our understanding on the use of physical restraint and to evaluate the quality of decisions made by nurses. By reviewing the literature, intuition and heuristics are the main decision-making strategies related to the use of physical restraint in intensive care units because the rapid and reflexive nature of intuition and heuristics allow nurses to have a rapid response to urgent and emergent cases. However, it is problematic if nurses simply count their decision-making on experience rather than incorporate research evidence into clinical practice because of inadequate evidence to support the use of physical restraint. Besides that, such a rapid response may lead nurses to make decisions without adequate assessment and thinking and therefore biases and errors may be generated. Therefore, despite the importance of intuition and heuristics in decision-making in acute settings on the use of physical restraint, it is recommended that nurses should incorporate research evidence with their experience to make decisions and adequate assessment before implementing physical restraint is also necessary.

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1. Introduction

Physical restraint is defined as “any manual method or physical or mechanical device, material or equipment

attached or adjacent to the residents body that the individual cannot remove easily which restricts freedom of movement or normal access to one's body” [1]. The use of physical restraint is prevalent in many countries, especially in residential health

* Corresponding author. Tel.: +86 18642635026.

E-mail address: xinqian2012@hotmail.com (X. Li).

Peer review under responsibility of Chinese Nursing Association.
<http://dx.doi.org/10.1016/j.ijnss.2014.09.003>

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settings, acute units and psychiatric units [2,3]. In intensive care units (ICUs), the main reasons of using physical restraint mainly include prevention of falls and patient-initiated disturbance of respiratory support [2]. Currently nurses are the main decision makers on the use of physical restraint in ICUs. According to the research findings, nurses in ICUs usually use physical restraint because they cannot predict the patient's condition or they think there is a potential risk for the patient removing the endotracheal tube. Of greater note is that physical restraint is sometimes applied as an alternative when the manpower is inadequate [4,5]. However, insufficient evidence to support the use of physical restraint [2], the negative influence on patients but the lack of alternatives [6] make the process of decision-making, in this respect, complex.

Existing literature places considerable emphasis on the evaluation of the use of physical restraint from the outcome of this decision. However, the decision-making process, specifically the cognitive strategies that nurses use to make clinical decisions, should be highlighted as well because understanding the process of decision-making from a theoretical prospective has a number of advantages, including optimizing nursing care [7], enhancing nurses' clinical effectiveness, and improving their self-reflection [8,9]. In the meantime, getting a clear insight into the decision-making process is beneficial to working within a multidisciplinary team in that nurses are able to interpret other colleagues' concerns and enhance their professional position [9]. Therefore, it is necessary to examine theories of clinical decision making related to the use of physical restraint in ICUs.

2. Aims

This paper aims to illustrate clinical decision-making theories related to the use of physical restraint in ICUs and to evaluate the quality of decisions made by nurses. By this means the decision-making process of the use of physical restraint in acute settings can be clarified and the potential decision errors and biases can be realised by clinical nurses.

3. Methods

Electronic databases MEDLINE and CINAHL were searched for published literature. The following key words were used: "decision making", "restraint*", "nurs*", "acute" or "intensive" or "emergen*". The period of the literature review was from 1990 to the present. From the search 1208 articles were found. Those aimed to identify decision-making strategies related to the use of physical restraint in ICUs were included. After screening the title and abstract, 39 articles were thought as relevant with decision-making strategies in terms of the use of restraint. Through a process of reading the full text, 15 articles were eventually included in the literature review. The reference lists of the included paper were also searched for additional articles of relevance and three seminal books and articles were found. Thematic synthesis was used to analyse the results to identify and present similar patterns.

4. Results

4.1. Descriptions of reviewed studies

After reviewing included literature, decision-making models in clinical practice particularly in ICUs were identified. In most cases, clinical decisions are made by both doctors and nurses. Nurses in clinical settings make specific types of decisions, which can be classified into six types, including intervention/effectiveness, targeting, timing, communication, service organisation and management, and experimental and hermeneutic [10]. The largest proportion is decisions related to interventions and effectiveness. Even so, nurses are always faced with a huge number of decisions in clinical settings [11], which means that nurses, especially in units with high workload, may have little time to deliberate on each decision.

4.2. Theories of decision-making related to the use of physical restraint in ICUs

Bucknall [11] conducted a study to observe nurses' decision-making process in critical care units and found that nurses in ICUs made a decision approximately every thirty seconds. The high frequency of decisions requires nurses to have a rapid response to any changes. Patients in ICUs are always seriously ill, unstable and unpredicted and thereby nurses have to make decisions based on sudden and ill structured tasks, unexpected outcomes and complicated goals [12]. Consequently, nurses in ICUs would not have adequate time to choose analytical reasoning to make decisions step by step but to choose a faster means of making decisions.

4.2.1. Intuition

Intuition is defined as "understanding without a rationale" [13]. Dreyfus & Dreyfus [14] identified six key elements of intuitive judgement: pattern cognition, similarity recognition, common-sense understanding, skilled know-how, sense of salience, and deliberative rationality. In practice, nurses are always faced with sudden cases that need to be dealt with rapidly. In such situations, the expert nurse uses an intuitive approach to both their judgements and decisions [15] and without an overt reasoning process [16]. Rew [17] pointed out that intuitive awareness is generated suddenly and associated with previous knowledge and experience in order to react to complex and uncertain situations. Intuition, according to the literature review of Rew & Barrow [18], is widely believed to have two types: cognitive inference and gestalt intuition. The former type refers to the decision that initiates with very rapid collection of cues and the contribution of such a short process to the final outcome is seemingly subconsciously achieved. Riley [7] argued that the decision is not made by pure intuition. Instead, the final step may be intuitive, but preceded by a series of selected cues and generation of hypothesis. The latter type describes the intuitive judgement that takes a holistic and perceptual awareness on the situation. In this case, the situation is considered as a whole and to be more than the sum of each part. No matter which type of intuition, the knowledge is formed through the combination of deeply established systematic study and clinical practice [16].

Clinical experience is the key for intuitive judgement and clinical decision-making [19]. Thompson [20] proposes that intuition is an approach that can distinguish the expert nurse from the novice. King & Clark [21] argued that both the novice and expert nurses had intuitive awareness but the difference between their clinical decision-making exists in the ability to use intuition accurately and effectively. The use of intuition in clinical decision-making by those with recognised expertise has been accepted as legitimate knowledge in clinical practice [22]. This level of expertise is enhanced by the accumulation of working hours in clinical practice. Experts themselves may not be aware of the process of clinical decision-making because it has fused a part of their being [23]. In contrast, the novice partly anticipates the clinical events by recalling the knowledge they had learnt from textbooks and nursing schools whilst the expert's knowledge are much more tacit and multi-dimensional as they are not only involved in the patient-centred decisions but also involved in routine events in their wards [15]. Croskerry & Nimmo [24] argue that novices tend to use an analytical mode of decision-making while experienced practitioners are normally involved in intuitive mode. That is because cues, with the accumulation of experience, may automatically connected with patients' potential outcomes and clinicians are able to get confidence during this process [25]. Therefore, experienced nurses are able to capture subtle changes and identify or rapidly response to patients' problems in acute settings. In the meantime, when novices are repeated exposure to analytical decision-making model, they may be led to recognise the pattern and be gradually inclined to use intuition, which can also be seen as the process of developing expertise [24].

4.2.2. Heuristics

Heuristics are another rapid means of coming to a decision often used in complex situations requiring prompt actions. The use of heuristics in nursing reflects assessments of subjective possibility that are dependent on nurses' memory and past experience [16]. Gioffi [16] suggested that heuristics enable nurses to develop short cuts to reduce the complexity of real practice. The main principles of heuristics consist of representativeness, availability, and anchoring and adjustment [26]. Representativeness can be viewed as estimating the possibility of diseases by judging how similar a case is to a diagnostic prototype [26]. Representativeness is the most typical type among three types of heuristics and it is more likely to take place in high-complexity cases than low ones [27]. Another type of heuristics is availability that refers to the estimation of probability of clinical events by the ease with which previously experienced relevant instances come to mind [28]. Nurses always estimate the likelihood of the outcome based on similar events that they can recall [9]. However, nurses in real practice may place overemphasis on rare and salient conditions because unusual cases can be memorised more profoundly and easily than regular ones [26]. The third form of heuristics is anchoring, which involves the decision-making strategy that seeking for an anchor as a standard when nurses make decisions. In some cases, anchoring is valuable and even desirable in profession practice [16]. Thompson [29] implied that experts are commonly experts because they are proficient in employing these

anchors that are led by accumulation of experience. However, he also argues that not all anchoring is desirable because anchoring sometimes may distort reasoning and it is a challenge to accumulate enough experience to establish anchors in every situation.

5. Discussion

Nurses, especially those in ICUs, mainly use intuition and heuristics to make decisions that tend to be overly dependent on their experience instead of searching for research evidence. It can be understandable that using such decision-making strategies allows nurses to make a rapid and relatively correct decision to deal with sudden and uncertain situations. However, merely counting on one's experience is not enough for high-quality clinical decisions especially for non-expert nurses. Nurses, as the direct care provider, should not only pay attention to the quantity of nursing tasks they complete, but should highlight the quality of judgements and decisions that significantly affects patients' outcome and experience. Therefore, there are two points that need nurses to take into consideration when making decisions on the use of physical restraint in ICUs

5.1. The need for incorporating research evidence

When nurses use intuition and heuristics model to make decisions on the use of physical restraints, quality of the decision may be problematic. For experts, heuristics are informal decision-making strategies can be used reasonably because they have adequate experience and have seen a large number of similar clinical cases and therefore heuristics become a valuable and useful tool to educe subsequent rational or intuitive decision-making process. However, non-expert nurses are inexperienced to precisely estimate the probability and thus the subsequent analytical or intuitive reasoning may be misled. Thompson [29] proposed that heuristics are the main method to reduce the uncertainty and allow nurses to response rapidly to emergent conditions in clinical settings, but also the main reason contributing to bias and poor decisions.

The overwhelming majority of nurses base decision-making to use physical restraint on experience of themselves and their colleagues. They believe that the use of physical restraint is able to prevent unplanned extubation and interruption of nursing interventions. However, increasing evidence indicated that it had a significantly detrimental effect on patients' physical and psychological soundness [30,31]. Moreover, whether physical restraint is indeed effective on the prevention of patients' unplanned extubation is still not clear. Thus, experiential knowledge is necessary but insufficient for decision-making and nurses should be guided to incorporate research evidence with the decision-making process in order to minimize decision errors and optimize nursing care. But one thing should be noted that although a large amount of evidence has illustrated that physical restraint may lead to more negative impacts than the positive ones, critical care nurses may still hold to this intervention for their specific known patient in order to keep patient safe

[32,33]. The possible explanation is inadequate definitive evidence that can demonstrate the effectiveness of one alternative intervention to prevent treatment interruption. Therefore, not only should nurses receive more knowledge and skills preparation on the use of physical restraint, but also feasible alternatives or solutions need to be explored in order to help nurses make appropriate and truly ethical decisions.

5.2. The need for enough assessment

Intuition is often used when nurse-patient communications are difficult or equivocal. A precise understanding of patients' behaviour is a basic and necessary element that influences nurses' assessment, judgement and decision-making. However, nurses, in reality, do not always know the meaning of patients' behaviour and thereby the decisions to use physical restraint may be partly dependent on nurses' subjective estimation and interpretation. For non-expert nurses, they have less ability to use appropriately heuristics and intuitive awareness to inform decision-making than experts because of inadequate knowledge and clinical experience and biases would be inevitable. More seriously, the research showed that a large number of nurses used physical restraint without adequate assessment [4]. The purpose of using physical restraint is problematic if the nurses could not ascertain whether the use of physical restraint is the real need of the patient. Limited time and the lack of manpower may be factors leading to the lack of assessment on the use of physical restraint. Nevertheless, maintaining patients' technological devices such as mechanical ventilation is the responsibility of nurses who account for monitoring and defending the use of such devices in order to prevent life-threatening accidents such as unplanned extubation. Thus, the use of physical restraint is determined by nurses without inaccurate and inadequate assessment is arguably of a poor-quality one and may contribute to serious outcomes.

6. Conclusion

Nurses in ICUs may expect to use physical restraint to ensure patients' safety and deliver optimal nursing care. When nurses decide to use physical restraint in acute settings, it is often in a complex, uncertain and unstable environment leading to both rapid intuitive and heuristic decision-making. However, it is problematic if nurses simply count their decision-making on experience rather than incorporate research evidence into clinical practice because of inadequate evidence to support the use of physical restraint and the negative physical and psychological effects on patients. Such a rapid response may lead nurses to make decisions without adequate assessment and thinking and therefore biases and errors may be generated. Therefore, it would seem that the decisions of the use of physical restraint in ICUs in some contexts are not made in an ideal manner. It is suggested that if nurses are able to understand the theoretical framework of the decision-making process and realize the decision errors and biases so that they can make an improvement in the future.

Conflict of interest

None.

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