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Does good critical thinking equal effective decision-making among critical care nurses? A cross-sectional survey

Salizar Mohamed Ludin

Critical Care Nursing Department, Kulliyyah of Nursing, International Islamic University Malaysia, Malaysia

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ABSTRACT

Background: A critical thinker may not necessarily be a good decision-maker, but critical care nurses are expected to utilise outstanding critical thinking skills in making complex clinical judgements. Studies have shown that critical care nurses' decisions focus mainly on doing rather than reflecting. To date, the link between critical care nurses' critical thinking and decision-making has not been examined closely in Malaysia.

Aim: To understand whether critical care nurses' critical thinking disposition affects their clinical decision-making skills.

Method: This was a cross-sectional study in which Malay and English translations of the Short Form-Critical Thinking Disposition Inventory-Chinese Version (SF-CTDI-CV) and the Clinical Decision-making Nursing Scale (CDMNS) were used to collect data from 113 nurses working in seven critical care units of a tertiary hospital on the east coast of Malaysia. Participants were recruited through purposive sampling in October 2015.

Results: Critical care nurses perceived both their critical thinking disposition and decision-making skills to be high, with a total score of 71.5 and a mean of 48.55 for the SF-CTDI-CV, and a total score of 161 and a mean of 119.77 for the CDMNS. One-way ANOVA test results showed that while age, gender, ethnicity, education level and working experience factors significantly impacted critical thinking ($p < 0.05$), only age and working experience significantly impacted clinical decision-making ($p < 0.05$). Pearson's correlation analysis showed a strong and positive relationship between critical care nurses' critical thinking and clinical decision-making ($r = 0.637$, $p = 0.001$).

Conclusion: While this small-scale study has shown a relationship exists between critical care nurses' critical thinking disposition and clinical decision-making in one hospital, further investigation using the same measurement tools is needed into this relationship in diverse clinical contexts and with greater numbers of participants. Critical care nurses' perceived high level of critical thinking and decision-making also needs further investigation.

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Introduction

Critical thinking has been defined as "reasonable reflective thinking that is focused on deciding what to believe or do" (Ennis, 1987; p. 10). The American Philosophical Association (1990, p. 315) defined critical thinking as "purposeful, self-regulatory judgment that uses cognitive tools such as interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which judgment is based". Critical thinking refers to the careful and precise thinking used to resolve a problem (McPeck, 2016). Kataoka-Yahiro and Saylor (1994) defined critical thinking in nursing as "reflective and reasonable thinking about nursing problems without a single solution ... focused on deciding what to believe and do".

Nurses face increasingly complex challenges in health care settings that require them to improve their critical thinking, problem-solving and decision-making skills. These skills are key nursing assets in health care delivery and enhance nurses' proficiency (Hoffman et al., 2004). Rapid developments in nursing practice place greater emphasis on nurses' autonomy in delivering health services, giving them more responsibility in determining the outcome of their nursing interventions (Martin, 2002). This responsibility increases with the level of care required. Thus, in critical care units, nurses undertaking intensive care and monitoring of

E-mail address: msalizar@iium.edu.my

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Implications for clinical practice

- Critical care nurses especially the junior nurses need to improve continuously their decision-making in clinical practice by developing higher order thinking abilities. This would assist them to become autonomous decision-makers in the workforce after to solve critical problems.
- ICU nurses especially the newly employed critical care nurses should be familiarised with the critical patients' condition frequently with seniors' supervision and provide more chances for the newbies to think critically and voice out their opinions regarding the patients' management.
- The on-going in-service nurses' education is required to place greater emphasis on upgrading clinical knowledge that will empower and development of critical thinking skills and decision-making among nurses of all ages and working experience levels, rather than relying on nurses simply picking up the skills as they go along.
- Further clinical research in different clinical contexts and other parts of Malaysia and globally is needed to provide a comparative evidence base of the association between critical thinking and decision-making among critical care nurses, and the factors contributing to this, using the SF-CCTDI and its subscales. Adaptation of current measurement tools (like those used in this study) to other contexts or the creation of new tools to provide better research options is also needed.

patients with life-threatening health conditions face higher levels of responsibility. Critical care nurses in these units must be prepared for, and capable of dealing with, unpredictable changes in patients' conditions or outcomes (Atkinson, 2013).

Critical care nurses need the capacity to implement their critical thinking skills while providing care to their patients and have good clinical judgement to enable them to not only make decisions quickly, but to act on them. Critical thinking skills can be developed within individuals; however, factors that trigger critical thinking in some people more than others may affect the development of higher order thinking (Purvis, 2009). For example, social pressures and life habits may affect critical care nurses' judgement, and good judgement is essential for safe, efficient and skilful nursing practice (Papathanasiou et al., 2014).

While critical thinking and decision-making are generally accepted as two of the main and most emphasised components of nursing practice, the commonly accepted relationship between them identified by Shoulders et al. (2014) has not been researched in depth in critical care settings in some countries, including Malaysia. This paper reports a study that sought to address this shortfall in research by answering the question: "Does critical care nurses' critical thinking reflect good decision-making?"

Aim

This research aimed to determine whether critical care nurses' critical thinking is related to their decision- making skills.

Methods

Objectives

The objectives were to:

- Identify the level of critical thinking skills and clinical decision-making in nursing care among critical care nurses, and the factors associated with these skills.
- Discover the significance of the association between critical thinking skills and decision-making in nursing care.
- Provide a benchmark for assessing critical thinking skills and decision-making in nursing care among nurses in Malaysia.

Ethical considerations

Permission to conduct the study was obtained from the Research and Ethics Committee of the International Islamic University Malaysia (IREC 355), the Director of the participating hospital and the National Medical Research Ethics Committee of Malaysia (NMRR ID: 15-702-24472). Participant anonymity and confidentiality were guaranteed. Participants received information about the study and what would be required of them if they chose to take part. Information included participants' right to withdraw from the study at any time.

Design and setting

A cross-sectional survey design was used. This consisted of self-administered questionnaires distributed to a purposive sample of critical care nurses working in one tertiary hospital on the East coast of Malaysia in late 2015. The nurses worked in the following seven critical care environments in the participating hospital: the Intensive Care Unit (ICU), the High Dependency Unit (HDU), the Paediatric Intensive Care Unit (PICU), the Neonatal Intensive Care Unit (NICU), the Cardiac Care Unit (CCU), the Cardiac Intensive Care Unit (CICU), and the Accident and Emergency Department (A & E). Questionnaires consisted of a demographic data sheet, the Malay/English translation of the Short Form-Critical Thinking Disposition Inventory-Chinese Version (SF-CTDI-CV) and the Clinical Decision-making Nursing Scale (CDMNS).

Participants and sampling

The Raosoft Sample Size Calculator (Raosoft, 2004) was used to gain an appropriate sample size based on the study setting's total critical care nurse population (n = 170). This process resulted in an estimated sample size of 119, which gave a confidence level of 95% with a 5% error margin. Participant inclusion criteria were as follows: participants must be critical care registered nurses who had worked full time for a minimum of six months, understood either English or Malay, had a minimum of diploma level education (basic qualification), and may or may not have attended advanced diploma courses. Nurses who met these inclusion criteria were recruited purposively to ensure effective retrieval of relevant information from experts within the area under investigation (Tongco Ma, 2007).

Survey tools

Short Form Malay and English version of the Critical Thinking Disposition Inventory (SF-CTDI-CV)

Yeh (2002) translated the California Critical Thinking Disposition Inventory (CCTDI) into Chinese, then tested and validated the Chinese version, which many researchers have used (Du et al., 2013; Liu et al., 2016; Tai, 2007). The Chinese version of the CCTDI has a content validity index (CVI) ranging from 0.50 to 0.80, with an over-

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