Introduction and Background

Clinical reasoning is a crucial requisite for registered nurses to provide safe and quality patient care (Liou et al., 2015). It is the link between critical thinking and effective application of clinical knowledge and skill (Mok, Fuk & Chung, 2016). Nurses assess and manage patients’ risk; for harm, deterioration and undignified death. To enable accurate and appropriate care, the nurse must be able to reason, decide, implement, evaluate and reflect on patient centred interventions. A clinical reasoning model is appropriate to many patient situations and contexts, for the prevention and management of adverse patient incidents (Levett-Jones, 2013). Nursing students are exposed to critical errors in judgement if they do not possess clinical reasoning skills (Liaw et al., 2018). Opportunities for the development of this tacit cognitive skill needs to be embedded within undergraduate nursing curricula (Hicks Russell, Geist & House Maffett, 2013).

Simulation is a widely recognized pedagogy (Tutticci, Coyer, Lewis & Ryan, 2017) used within undergraduate nursing programs, credited to support the acquisition of clinical reasoning (Liaw et al., 2018; Macauley, Brudvig, Kadakia & Bonneville, 2017). There are however limitations associated with standard simulation practice. The simulation observer role is passive (Hober & Bonnel, 2014), and reduces the student’s full immersion in the learning encounter/experience. Conversely, the observer can examine the simulation as it unfolds, from an objective observer viewpoint. It is imperative that this viewpoint is harnessed using a structured approach to clinical reasoning.

There is little empirical evidence in the literature about the observer role in simulation (Bonnel & Hober, 2016) yet literature suggests a tool is helpful to structure observations (Leigh, Miller & Ardoin, 2017), but there is a lack of clarity on the type of tool. Leigh et al., (2017) posited the use of observer worksheets for and after simulation (debriefing) assisted observers by providing reflective prompts, transforming them to active participants. The absence of clinical reasoning has been implicated in sentinel events where clinicians have not recognized salient changes in patient condition and life threatening, undetected and untreated deterioration has ensued (Levett-Jones, 2013). Obtaining a more accurate understanding of nursing students’ clinical reasoning will inform undergraduate nursing curricula, simulation pedagogy and enable the transitioning student to rapidly respond to their patients’ needs and adapt their practice in a swiftly changing healthcare environment.
Aim To investigate an active learning strategy, use of a Clinical Reasoning Observer Worksheet (CROW) and its impact on clinical reasoning, through minimization of the standard passive observer role in simulation.

Method The research design was cross sectional, consisting of two phases. In Phase one validation of content occurred using an expert panel for the CROW and Clinical Reasoning Facilitator Survey (CRFS). Phase two was a feasibility study using a two group non-equivalent control group, pre-test post-test design, to survey participants about their clinical reasoning. Participants were evaluated before and after the intervention and control experience, using the Nurses Clinical Reasoning Survey (NCRS) (Liou et al., 2015). The NCRS consisted of 15 items, using a five point Likert scale and included an open ended question asking about the simulation experience. Simulation teaching staff (facilitators) were invited to complete a survey containing eight items, using a five point Likert scale and three open ended questions (CRFS) regarding their perspectives of students’ clinical reasoning behaviors displayed in the high fidelity simulation (HFS) debrief.

Results Phase one results demonstrated content validity for the CROW and CRFS. Phase two survey yielded a response rate of 83% (n=192) for the pre-test and 84 % (n = 195) for the post-test. The majority of the sample were female (78.9%, n = 179) with a mean age of 23 years. Within the control group, there was no statistically significant change in total clinical reasoning scores after using the standard observer worksheet (z=1.48, p.140). Within the intervention group, there was no statistically significant change in total clinical reasoning scores after using the CROW (z=1.27, p.205). Simulation was reported to be a constructive learning experience by 97.7% (n=212) of the participants. Qualitative findings generated five analytical interpretations from analysis of students and facilitators simulation experience. Analysis of the student data generated three analytical findings: Anticipatory paradox, discovery and real-world learning (internal process) and being and thinking like a nurse. From the facilitators, Looking from the inside out and looking from the outside in were the two main findings.

Discussion Findings arising from this study resonate with the literature on nurse education and its goal of teaching students to think and act like a nurse (Tanner, 2006). The central role of clinical reasoning in this movement towards a critically thinking and reflective practitioner, was valued by facilitators and students as they were observed to engage, if not tentatively, with the clinical reasoning cycle. Clinical reasoning expressed as a cyclical framework worked as both external prompt (for teacher/facilitator) as well as internal prompt (for student) for clinical decision making. This study was unable to demonstrate an increase in participant’s clinical reasoning, regardless of the simulation experience or the observer worksheets used to prompt the observers’ active peer and internal review. The researchers speculate that simulation design may limit learning opportunities when in the observer role (Bethards, 2014), in particular, the quality and nature of debrief (instructional, rather than reflective) (Tutticci, Ryan, Coyer, & Lewis, 2018) and facilitator competence (Forneris, et al., 2015). A premise for successful simulation is that observers practice the reflective clinician role in relation to self-assessment, peer review and team quality (Bonnel & Hober, 2016), however, these important learning opportunities are only evident with they are engaged. The passive observer is at risk of being disengaged from a reflective mode and more receptive to
facilitator instruction (Theobald, Windsor & Forster, 2018). Qualitative findings suggested that participants’ stopped short of evaluation and reflection, thereby not truly thinking like a nurse. Simulation was described to both hinder and help learning, due to the high fidelity, yet anxiety inducing experience. Further study will investigate whether the facilitator can drive the student to complete the clinical reasoning cycle. The importance of the student looking inside via reflection and then applying their conclusions to outward practice, cannot be underestimated. The facilitator is a key component in deconstructing and reconstructing clinical decision making (Tutticci et al., 2018), providing an ‘outside, looking in view’. Thinking forward, like a nurse, to future practice is an expected outcome of simulation (Johnston, Coyer & Nash, 2017). Application of knowledge and skill acquired requires external prompting by the facilitator or peers, to close the cycle and prepare for the next clinical encounter.

**Conclusion**

Elements of clinical reasoning should be embedded at every opportunity throughout the nursing curricula. Explicit use of clinical reasoning cycle can facilitate the nursing process and with the assistance of facilitators can prompt for the final and challenging steps of evaluation and reflection. This is the critical stage for preparing the student to think forward and apply knowledge and insights gained from the simulation to their next clinical encounters.

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**Title:**

CRiticAL-Clinical Reasoning and Simulation: The Passive Observer Becomes Active Learner

**Keywords:**

Clinical reasoning, Nursing and Simulation

**References:**


**Abstract Summary:**

This study investigated the efficacy of a clinical reasoning cycle to actively engage passive simulation observers. There is no significant difference between a standard observer and Clinical Reasoning Observer tool and its impact on clinical reasoning. Students and facilitators benefited from explicit linking of a clinical reasoning cycle to simulation.
Content Outline:

Introduction/Background

Clinical reasoning is a crucial requisite for registered nurses to provide safe and quality patient care. Simulation is a widely recognized pedagogy used within undergraduate nursing programs, credited to support the acquisition of clinical reasoning. The use of observer worksheets explicitly linking observations to a clinical reasoning cycle assist observers by providing reflective prompts, transforming them to active participants.

Research Aim & Design

To investigate an active learning strategy, use of a Clinical Reasoning Observer Worksheet (CROW) and its impact on clinical reasoning, through minimization of the standard passive observer role in simulation. The research design was cross sectional, consisting of two phases. In Phase one validation of content occurred using an expert panel for the CROW and Clinical Reasoning Facilitator Survey (CRFS). Phase two was a feasibility study using a two group non-equivalent control group, pre-test post-test design, to survey students about their clinical reasoning. Simulation facilitators were surveyed (CRFS) and asked three open ended questions regarding their perspectives of students’ clinical reasoning behaviors displayed in the high fidelity simulation debrief.

Results & Discussion

No significant difference was found between the control and intervention group and their scores for pre and post simulation clinical reasoning. Qualitative findings generated five analytical interpretations from analysis of students and facilitators simulation experience. Analysis of the student data generated three analytical findings: Anticipatory paradox, discovery and real-world learning (internal process) and being and thinking like a nurse. From the facilitators, Looking from the inside out and looking from the outside in were the two main findings. The passive observer is at risk of being disengaged from the reflective mode and more receptive to facilitator instruction. Qualitative findings suggested that participants’ stopped short of evaluation and reflection, thereby not truly thinking like a nurse.

Conclusion

Explicit use of a clinical reasoning cycle can facilitate the nursing process and with the assistance of facilitators can prompt for the final and challenging steps of evaluation and reflection.

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