Nursing Clinical Decision-Making: A Literature Review

William J. Muntean

Abstract—Clinical judgment and decision-making is a required component of professional nursing. Expert nurses are known for their efficient and intuitive decision-making processes, while novice nurses are known for more effortful and deliberate decision-making processes. Despite taking longer to make decisions, novices still have trouble with effective decision-making. The aim of this paper is to review the factors that contribute to clinical judgment and decision-making of novice nurses. This was achieved by reviewing over two hundred articles produced by searches through PsycINFO. These articles used various methods of data collection, ranging from observation to well-controlled experimentation, although the majority of the studies were exploratory in nature. Factors that influenced decision-making were categorized as either individual or environmental factors. Individual factors captured elements unique to the decision-maker and included factors such as experience, cue recognition, and hypothesis updating. By contrast, environmental factors captured elements surrounding the decision-task. Among these factors were task complexity, time pressure, and interruptions. The reliability and robustness of these factors are discussed.

Keywords: novice nurses, clinical decision-making, clinical reasoning, clinical judgment

I. EXECUTIVE SUMMARY

Newly registered nurses have limited experience with health care practice and yet are required to make clinical decisions after only a brief orientation period. While many novices can adapt to the demanding environment involved with clinical practice, employers reported that a large portion of novices are inadequately prepared; nearly one out of two novices were involved in errors of nursing care (see Saintsing, Gibson, & Pennington, 2011). Furthermore, only 20% were satisfied with the novices’ clinical-decision-making abilities.

Clinical decision-making plays an intimate role in the quality of care that nurses provide to patients. Poor decision-making can lead to adverse events and have negative consequences for patients. It is estimated that up to 65% of adverse events could have been prevent had nurses made better decisions (Brennan et al., 2004; Leape, 2000; Hodgetts et al., 2002). Given that the decisions nurses make have such high consequences, it would be prudent to understand what factors contribute to clinical decision-making (Dowding & Thompson, 2003). A literature review was conducted to address this issue.

II. LITERATURE REVIEW PROCESS

An evaluation of the peer-reviewed literature generated from PsycINFO with various combinations of the terms “decision-making”, “judgment”, “clinical”, “novice”, and “nursing” was carried out. The following limits were placed on the search: (1) articles must come from peer-reviewed journals; (2) only English language publications were reviewed; and (3) full text of the article must be available. Using these criteria, the search produced an overly generous amount of articles—roughly 1500 studies. Many of the articles only briefly mentioned the search terms and were not relevant to the topic of the review. After sifting though the results, roughly 200 had strong relevance to clinical decision-making and were subjected to a more detailed and thorough review.

III. APPLIED DECISION-MAKING RESEARCH: METHODOLOGICAL DIFFICULTIES

Researching clinical decision-making in an applied setting requires elaborative methodology so the underlying cognitive processes are pure and unaltered by the means of data collection. These methodologies are difficult to implement and are not always pragmatic. Most applied studies use observational or think-aloud paradigms—each having advantages and disadvantages (Aitken, Marshall, Elliott, & Mckinley, 2011). On the one had, observations have the benefit of not altering the decision process by asking nurses to explicate their decisions. On the other hand, observers are not made aware of the information considered when nurses reach a decision.

However, regardless of the mode of data collection, a general methodological theme emerged—studies were exploratory in nature. Researches analyzed their field notes and interview transcripts searching for common themes. Once they were generated, the themes were never tested explicitly through confirmatory experiments. This runs the risk of capitalizing on chance and discovering spurious effects. Despite this weakness, there are “clusters of recurring findings” (Thompson, 1999 pg. 816) that suggest these factors should be given some a priori theoretical consideration.

In contrast to applied settings, laboratory experiments use vignettes and written patient scenarios to study clinical decision-making. These studies can place more control on
confounding elements that freely vary in realistic environments. In addition, specific variables can be manipulated (e.g., task-complexity, difficulty, time pressure) to show their impact on the decision-making process. Accuracy of decisions can be studied and measured, whereas in applied settings immediate decision feedback is almost never possible. While laboratory experimentation has greater control than observational paradigms, it risks external validity and generalizability (Gould, 1996).

IV. CLINICAL DECISION-MAKING MODELS AND FRAMEWORKS

Clinical decision-making models are templates that describe the process nurses use to reach decisions. They provide a theoretical framework that breaks down the complex decision process into smaller subcomponents, each of which can be subjected to experimentation and validated. Three major models are put forth in the literature, the humanistic-intuitive model, the information-processing model, and the cognitive continuum theory (for a review, see Banning, 2007; Cader, Campbell, & Watson, 2005).

The humanistic-intuitive approach emphasizes personal, emotional, and contextual elements in decision-making. The main focus of this model is to describe the changes in decision processes between novice and expert nurses. As a novice, a nurse will use a more systematic and analytical (e.g., rule-based) method to make decisions, neglecting contextual elements of the decision task. By contrast, an expert will make fluid intuitive decisions accounting for decision task idiosyncrasies. There are various definitions of intuition in the literature, but most theorists agree that intuition is phenomenological in spirit and described as a feeling of knowing something without conscious use of reason (Banning, 2007).

In the information-processing model, decisions are reached in a systematic and analytical manner. They follow a set of procedures that describe cue acquisition, hypothesis generation, cue interpretation, and hypothesis evaluation. In contrast to intuitive approaches, the information-processing model is context-invariable and is said to apply in all decision-making environments. Communication and clarity in decisions are the key strengths of this model. Because it is systematic nurses are able to explicate how they arrived to a decision and what factors they considered in the process (Banning, 2007).

The cognitive continuum theory severs to reconcile the stark differences between systematic-analytical and intuitive approaches by assuming that both are needed to achieve optimal decisions. According to the theory, a decision is defined by how well-structured or ill-structured the task is. If a decision task is well-structured then systematic reasoning will lead to the best decisions, whereas ill-structured tasks are best suited for intuition. The mode of decision-making is assumed to vary across a continuum (as does the structure of a task) and therefore brings resolution to the opposing theories of decision-making (Cader et al., 2005).

V. FACTORS IMPACTING NURSING CLINICAL DECISION-MAKING

Individual Factors

Age and Educational Level. Some of the most researched factors of clinical decision-making are age and educational level, presumably because the data are easy to collect and easy to use as statistical covariates. However, the research is at best inconclusive (see, e.g., Thompson, 1999). One potential reason for this is that studies use a coarse measure of education (e.g., comparing nurses with only high school diplomas to all other levels of education) and therefore have a difficult time detecting differences. Another reason might be because many studies use ad-hoc dependent variables, such as themes that emerge from interview transcriptions. Regardless, there is not enough consistent evidence to assume that educational level or age has an impact on clinical decision-making.

Experience, Knowledge, and Cue Recognition. Accurate decisions cannot be reached without some level of knowledge—it is the foundation of decision-making. Knowledge gives nurses the ability to identify information cues relating to the decision problem. If a nurse’s knowledge base is limited or impaired, fewer decision cues will be recognized and decisions will be based on partial information—leading to poorer decisions. Clinical experience adds to the practical and functional knowledge that nurses need to make complex decisions. However, novice nurses have little or no experience in clinical settings. This poses some limitations on their general ability to recognize relevant information cues relating to the decision-problem at hand, hence there is more potential for erroneous decision-making (Thiele, Holloway, Murphy, & Pendarvis, 1991).

Hypothesis updating. Expert nurses have been shown to use a broad approach to decision-making (Corcoran, 1986). They form general hypotheses and then update and refine them when receiving new information cues. By contrast, novices use a more focused approach and immediately form specific hypotheses. They then have trouble updating their original hypothesis when receiving new information, which can lead to decision errors (Hammond, Kelly, Schneider, & Vancini, 1967).

Communication. One method to gather additional information cues is to consult with the peer nursing staff (Hedberg & Larsson, 2003). This is especially important for complex decisions where a new perspective might offer some insight. Communication facilitates cue acquisition and is a necessity for gathering information from patients. However, novices are unconfident in their communication abilities and struggle to communicate in the essential areas of nursing (Casey, Fink, Krugman, & Propst, 2004). This increase the
risk of making decision errors.

Emotions and Perceptions. A nurse’s current state of emotion will affect their decision-making abilities. A confident nurse will be more assertive in their decision-making and this allows them to take control of situations. By contrast, a nurse who is not confident will have self-doubt in their decisions, feel powerless, and be unsure of their choices. Proactive decision-making is also associated with confidence. Confident nurses were initiators and made preventative decisions rather than merely responding to problems (Hagbaghery, Salsali, & Ahmadi, 2004).

Environmental Factors

Task Complexity. The most robust environmental factor of clinical decision-making is the complexity of the decision-task (see, e.g., Lewis, 1997). Complexity can involve any number of factors that increase the cognitive load on the decision-maker. The most common manipulations are the number of redundant cues, contradicting cues, cues that indicate either positive or negative changes, or increasing the number of irrelevant cues. Empirically, decision quality is shown to suffer when complexity is increased (Corcoran, 1986; Hughes & Young, 1990).

Time Pressure. Another robust environmental factor that impairs clinical decision-making is time pressure. Thompson et al. (2008) had nurses make decisions about interventions either under no time constraints or under time pressure. Nurses with more experience made better decisions when they were self-paced, but introducing time pressure eliminated this advantage and all nurses performed poorly. In the nursing practice, time pressures can be found in many forms. For example, novices feel pressure to complete their rounds and leave a clean sheet for the incoming nurses. This presents a self-imposed time pressure, which can compromise their decision-making.

Interruptions. Interrupting the decision-making process places additional cognitive strain on the decision-maker by forcing them to processes information that is usually irrelevant to the current task. The competing information displaces memory contents, some of which is important and relevant to the decision. However, this does not necessarily lead to poorer decisions, per se. Only when cognitive demands surpass the decision-maker’s cognitive capacity will decision accuracy suffer. Hence, this factor interacts with task complexity (Speier, Valacich, & Vessey, 1999).

Area of Specialty and Professional Autonomy. Decision tasks are not similar in all nursing departments and units. They differ on many dimensions such as average task complexity, time pressure, or the number of supporting nurses. This results in unequal decision-error base rates across the areas of nursing specialties. Additionally, professional autonomy—the freedom to make decision—can differ across departments. Autonomous nurses have been shown to make better quality decisions than nurses who are less autonomous (Bakalis, Bowman, & Porock, 2003). Autonomy allows nurses to place greater focus on patients, which facilitates decision-making.

VI. CONCLUSION

Factors identified in this literature review either affect the decision-maker or the decision-task—perhaps even an interaction of both. Some of these factors can be taught or tested to improve decision-making (e.g., cue recognition, hypothesis updating, task complexity). Cue recognition is the foundation of all decision-making and is built through knowledge that is gained in nursing school. While this can be supplemented with clinical experience, novice nurses must enter the profession with an acceptable level knowledge. This can be easily tested to ensure that novices do not lack the fundamentals.

But not all factors in this review can be tested (e.g., education, clinical experience, or propensity to communicate). These factors are a byproduct of exploratory studies—ones that rely on observational and survey studies. These studies are insightful and provide the motive for future confirmatory studies, but the method of data collection places a limit on the type of factors that can be researched (Aitken et al., 2011). Methodological innovations are underway and recent studies show promise that more testable factors will be discovered (Thompson et al., 2008).

Overall, nursing research on clinical decision-making is very challenging because of the dynamic environment in the applied setting. The research reviewed in this paper clearly demonstrates this. While no single experiment or study can account for all the variables affecting clinical decision-making, researchers have made good attempts to isolate factors and investigate them to the extent possible.

REFERENCES


