

Facilitators of Uncertainty in Decision-Making in Iranian Nurses: A Qualitative Study

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ABSTRACT

Background: Many nurses are uncertain when making clinical decisions, and this can lead to burnout and professional dissatisfaction. However, no study has addressed facilitators of uncertainty in clinical decision-making among Iranian nurses. **Objectives:** This study aimed to explore Iranian nurses' experiences of facilitators of uncertainty in decision-making. **Methods:** This qualitative content analysis study was conducted from June to December 2020. Participants were 17 nurses with bachelor's or higher degrees who were purposively recruited from three hospitals affiliated with Tabriz University of Medical Sciences. Data were collected through semi-structured interviews and analyzed through a content analysis method. **Results:** Participants' experiences were categorized into three main categories, namely, an unconfident nurse, complex situations, and unclear guidelines and policies. Each category included three to four subcategories. **Conclusion:** Nurses may experience uncertainty in clinical decision-making when confronted with ambiguous clinical situations or lack sufficient decision-making skills. Nurse leaders are suggested to develop educational programs and support interventions to promote nurses' decision-making skills and help them manage ambiguous situations.

KEYWORDS: *Clinical decision-making, Nurses, Qualitative research, Uncertainty*

INTRODUCTION

Clinical decision-making has been defined as a contextual, continuous, and evolving process of collecting, interpreting, and evaluating data to select an evidence-based course of action.^[1] It is the result of critical thinking, clinical reasoning, and clinical judgment in the process of patient care.^[2] Nurses make many decisions during their daily work that vary widely in nature. These decisions can be categorized into six main headings: (1) intervention (such as choosing a mattress), (2) targeting (e.g., deciding which patient will benefit most from the intervention),

(3) timing (e.g., choosing the best time to implement the intervention), (4) communication (e.g., deciding how to approach cardiac rehabilitation with an elderly patient who has had an acute myocardial infarction and lives alone with her family nearby), (5) organizing, delivery,


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and managing services (e.g., making decisions about the configuration or processes of service delivery), and (6) experiential understanding (e.g., interpretation of cues in the process of care).^[3] Accurate decision-making by nurses plays a pivotal role in ensuring health-care quality.^[4] Studies from Iran have shown that nurses have inadequate participation in clinical decisions.^[5] In nursing, as in life itself, some decisions have to be made without having all the relevant information or the knowing whether the results of the decisions will improve or worsen the situation.^[3] Penrod defined uncertainty as “a dynamic state, in which there is a perception of being unable to assign probabilities to outcomes, which prompts a discomforting, uneasy sensation that might be affected (reduced or escalated) through cognitive, emotive, or behavioral reactions, or by the passage of time and changes in the perception of circumstances.”^[6]

It is important to understand nurses' uncertainty because it can affect how care is delivered.^[4] Clinical uncertainty can harm patients and, if left unaddressed, waste resources.^[7] The feeling of uncertainty in nurses' practice directly affects patient care,^[8] and if not managed, uncertainty can lead to overreliance on others for decision-making.^[8,9] A model by Shields *et al.* states that the decision-making process involves explanations of what level of certainty nurses have in their actions.^[10] Uncertainty can have some negative effects on the way nurses make decisions. Studies have shown that nurses' uncertainty affects their pain management decisions, leading to unrelieved pain in people with dementia^[11] and in patients in orthopedic units.^[12] Uncertainty can also affect the ethical decision-making process in all wards^[13] and compromise patient safety in emergency departments.^[14]

Despite the negative effects of uncertainty on health-care decisions,^[15] very few studies have been carried out specifically on nurses' uncertainty,^[16] and limited studies are available on nurses' views on facilitators of uncertainty in clinical decision-making. In a study on the effect of uncertainty on nursing practice and leadership, it was found that nurses' linear thinking and the complexity of the health-care system made nurses uncertain in their clinical decisions.^[8] Some other studies have also reported that lack of evidence and information, conflicting evidence and interpretations,^[17] and ambiguity^[18] are associated with uncertainty.

Despite knowing that uncertainty has unfavorable effects on health-care decisions,^[15] we do not know much about the factors that facilitate uncertainty. Examining the experiences of nurses who have faced uncertainty in making clinical decisions seems to be the best way to understand the factors that facilitate uncertainty.

Therefore, the question remains unanswered that what are Iranian nurses' experiences of factors that facilitate uncertainty in clinical decision-making? Since the research question is qualitative in nature, qualitative content analysis was used in this study.

Objective

This study aimed to explore Iranian nurses' perceptions of facilitators of uncertainty in clinical decision-making.

METHODS

Study design, setting and participants

This qualitative study was conducted with nurses working in the hospitals of Tabriz University of Medical Sciences, Tabriz, Iran. Semi-structured individual interviews were used to collect data. Participants were nurses with a bachelor's degree or higher who worked in hospitals affiliated with Tabriz University of Medical Sciences. A total of 17 nurses with diverse characteristics, backgrounds, and clinical experiences, and from different general and specialized hospitals, and different departments (e.g., Emergency Department, Orthopedic, Internal Medicine, Oncology, Cardiac, and Intensive Care Units) were purposively recruited. The first participant was a nurse with more than 10 years of work experience whom the interviewer knew and who could express his experiences in detail. The next participants were selected considering the variety of wards and age, and the codes that emerged from the previous interviews. The characteristics of the participants are presented in Table 1.

Data collection

Semi-structured, face-to-face interviews were conducted between June and December 2020. Interviews were conducted in Persian and at the participants' preferred times and places, mostly in a private room at the related hospital, and each lasted between 45 and 60 min. Data collection was performed by the first author through in-depth semi-structured interviews. Each interview commenced with general questions, for example, “In your experience, what causes nurses to be uncertain when making clinical decisions?” Please provide real examples from your experiences. Based on the participants' responses, probing questions were then asked. These questions included “What do you mean by this?” and “Could you explain more about this?” The process of data collection and analysis was contiguous in such a way that the emergent findings were used to develop the subsequent interviews. Then, questions became more detailed as the study progressed. Five participants were interviewed twice to improve the

depth of data collection, clarify issues, and ensure that we had achieved saturation in emergent categories and subcategories. Data were considered saturated when no new conceptual codes emerged from the interviews, and all categories were adequately developed. No new ideas, concepts, or codes emerged from the last three interviews.

Data analysis

Interviews were transcribed verbatim. We followed the process described by Wildemuth^[19] to analyze the data. The first and second authors read the interviews several times. Then, meaning units, which were those parts of the interviews that could express the participants' experiences, were extracted and were transformed into condensed meaning units and codes. Next, we compared the codes for similarities and differences to form subcategories and categories. An example of data analysis is presented in Table 2. The MAXQDA

Analytics Pro version 10 (VERBIGmbH, Berlin, Germany) was used for data management.

Data trustworthiness

Trustworthiness was achieved through the Lincoln and Guba four criteria. Credibility^[20] was achieved through allocating adequate time for data collection and analysis, prolonged engagement with the data, maximum variation sampling, member checking, peer checking, and external debriefing. To ensure the transferability of the data, selected interviews, along with the codes and categories, were shared with two nurses other than the primary participants, and they agreed that these codes represented their actual experiences. To ensure dependability, two experts other than the research team who were familiar with qualitative analysis approved the meaning units, subcategories, and categories. Peer checking by the co-authors also helped establish the dependability of the findings. To ensure confirmability, all steps of the study were clearly described for external auditing.

Ethical considerations

This study was approved by the Ethics Committee of Tabriz University of Medical Science (Ethics code: IR.TBZMED.REC.1399.148) on May 18, 2020. The time and place of each interview were determined through participatory decision-making. The participants were informed about the purpose and methods of the study, and that the interviews would be recorded. They were assured that their data would be kept confidential and that they had the right to withdraw from the study without any penalty. The participants signed an informed consent form to participate in the study.

RESULTS

A total of 52 codes were extracted from nurses' experiences of factors affecting uncertainty in clinical decision-making. These codes were categorized into three main categories, namely, an unconfident nurse, complex situations, and unclear guidelines and policies. Each category included three to four subcategories [Table 3].

An unconfident nurse

Based on the participants' experiences, an unconfident nurse suffers from lacks and shortcomings that make him/

Table 1: Demographic variables of nurses who participated in the study

Variable	n (%)
Age (years)	
20-25	1 (5.9)
26-31	5 (29.4)
32-37	4 (23.5)
38-45	7 (41.2)
Sex	
Male	3 (17.6)
Female	14 (82.4)
Marital status	
Single	6 (34.3)
Married	11 (64.7)
Education	
Bachelor	5 (29.4)
Masters	12 (70.6)
Work experience	
1-5	6 (35.3)
6-11	3 (17.6)
12-17	7 (41.2)
18-23	1 (5.9)
Number of interviews	
1 time	12 (70.58)
2 times	5 (29.42)

Table 2: An example of data analysis

Category	Subcategory	Codes	Quotes
An unconfident nurse	Nurse's clinical judgment	Facing with multiple options	While you are placing a nasogastric tube for a child, many things cross your mind in a very short time. You have to consider many things quickly and
		Being unable to prioritize the options	make a decision, otherwise, you will be indecisive and you won't know which approach to take
		Challenge of selecting the best choice	I was removing a (surgical) drain from a patient's foot and I was confused and didn't know what to do for my patient, he became pale due to pain and I had no
		Hesitancy in prioritization	idea whether to give him water or remove the drain so his pain reduces quickly

Table 3: Category and subcategories emerged from the data

Category	Sub category
An unconfident nurse	Limited knowledge and skills Limited experience and lack of expertise Lack of critical thinking and clinical judgment skills Lack of self-confidence Fear the legal consequences
Complex situations	Unfamiliar situations Urgency and complexity of the patient's problem Facing multiple options Unpredictable outcomes
Unclear guidelines and policies	Ambiguous guidelines Contradiction between guidelines and routines Conflict between job descriptions and what is expected of nurses

her uncertain when making clinical decisions. Limited knowledge, skills, experience, and lack of expertise, as well as the lack of critical thinking and clinical judgment skills, are among the individual shortcomings that ultimately hinder the timely clinical decision. According to the participants, limited knowledge, skills, experience, and lack of expertise may not only cause nurses to misinterpret the problem but also decrease their self-confidence, risk-taking, and courage to make decisions, and prevent or delay clinical decision-making. One nurse said about lack of professional knowledge and skills: *"You'll be confident in your clinical decisions if you are knowledgeable and skilled. However, some of our colleagues lack adequate professional knowledge and skills."* Another participant emphasized the need to know the patient and suggested that inadequate information about patients can aggravate uncertainty: *"We have patients who come from other cities and we don't have all the necessary information about them. I'm always uncertain and worried about their needs because I don't know them well."* (P17) Another nurse also described an experience that illustrates the effects of professional and patient-related knowledge on uncertainty: *"During the New Year's holidays, I had a patient who was admitted for severe abdominal pain. He had severe pain twice a day, but we didn't have a doctor in the ward, and I didn't know what to do. Should I give painkillers? My lack of knowledge and shortcoming in assessing the drug history prevented me from making a proper decision and intervention"*(P10).

Lack of critical thinking and clinical judgment skills are other factors that make the nurses uncertain in their clinical decisions. According to the participants, the lack of these skills makes the nurse unable to analyze and prioritize the data related to the patient and the clinical situation. A nurse said: *"To make a correct and confident*

decision, we need to be able to properly analyze the patient's condition and needs. A nurse who lacks critical and analytical thinking has problems in this field and is never sure of her decisions."(P1) Another participant also described an incident that illustrates the role of experience and critical thinking in prioritizing patient needs and making confident decisions: *"I had just started working in this department. An elderly patient had frequent vomiting, abdominal distension, and pain, and the doctor had ordered us to insert an IV line, a NGT, a urinary catheter for him and monitor his intake and output. But I had never inserted a NGT and urinary catheter before. I also wondered which care I should do first. I tried to insert the NGT twice, but when it was inserted into the nose, the patient became agitated, and I didn't know what to do. Finally, I shyly asked my colleague to insert the tube because I didn't trust myself."*(P5)

One of the nurses also pointed out that the lack of knowledge, skill, and experience reduces the nurse's self-confidence, and along with the fear of legal consequences, causes uncertainty in clinical decision-making. She said: *"If you don't have experience, you do not have confidence in your abilities and you are always worried that your actions will cause harm to the patient and have bad consequences for you. This makes you anxious and delays decision-making and intervention."* (P12)

An inexperienced nurse also cannot control his/her emotions and fears, which consequently makes him/her more uncertain. One nurse said: *"It is important to manage your fears ... having courage is quite important ... If you do not dare to make a decision, you will always remain doubtful.... I have a colleague who is so afraid of the legal consequences of decisions. He is always skeptical...."* (P6)

Complex situations

Based on the participants' experiences, complex situations make nurses uncertain while making clinical decisions. Unfamiliar situations, urgency, and complexity of the patient's problem, facing multiple options, and unpredictable outcomes are among the factors that make a situation complex. Regarding the effect of unfamiliarity with a problem or disease, and facing multiple options on uncertainty, a nurse commented: *"When you encounter a new and unfamiliar disease, or when you encounter a situation for the first time, you don't know what to do. Uncertainty arises because several options pass from your mind. You are aware of the urgency of the situation, but you are wandering and don't know what action to take. For example, I often wonder if stopping the bleeding takes priority*

over placing a vascular access for the patient.”(P13) Another participant also pointed out the impact of the urgency and complexity of the problem on uncertainty in decision-making: “Carrying out a risky procedure on a critically ill patient causes doubt and uncertainty. You have to choose between several options with unknown outcomes. You should also decide what to do first: should I install the bag-valve-mask or suction first?” (P1).

Unclear guidelines and policies

According to the participants, organizational factors such as ambiguous guidelines, contradictions between guidelines and routines, and conflicts between job descriptions and what is expected of nurses are among the factors that increase uncertainty in nurses' clinical decision-making. Referring to the ambiguity of policies, one nurse said: “It is not really clear whose duty it is mine or the medical student's duty, the medical student performs the procedure, if an infection occurs, I will be responsible. This in itself creates uncertainty”(P 4). Another nurse commented on the discrepancy between routines and guidelines: “We read something in textbooks, but old colleagues do it differently based on their experience, and this has turned into a routine in our ward. Therefore, we are always unsure whether to follow the guidelines in the books or act according to the routine.” (P7) On the other hand, the physician-centered hospital system has postponed any caring or therapeutic decisions to the doctor's order. This has reduced nurses' authority to the lowest possible level and developed a conflict between the expectations and the nurse's job description. A nurse said in this regard: “recently, I had a patient who needed intravenous fluid replacement, a serum electrolyte check, and urinary catheterization. Interns and physicians, however, were not available. I was at a crossroads between performing the necessary intervention and waiting for the doctor's order.”(P8)

DISCUSSION

The current study showed that an unconfident nurse, complex situations, and unclear guidelines and policies were the main three factors contributing to nurses' uncertainty in clinical decision-making. The three factors interact with each other and eventually decrease nurses' self-confidence, induce them a fear of the legal consequences of their own decisions, and in a vicious cycle, exacerbate their uncertainty. In other words, uncertainty is a complex phenomenon^[21] that develops in an unconfident nurse, particularly when the situation is complex and organizational guidelines and policies are not clear and supportive. Such an interpretation is consistent with the naturalistic decision-making (NDM) framework. In the NDM framework,^[22] uncertainty

is characterized by inadequate understanding (i.e., a sense of having insufficient knowledge of the situation), incomplete and ambiguous information, and conflicting alternatives.^[23]

An unconfident nurse seems to be the pillar of uncertainty. An earlier study has shown that nurses with low competence and self-confidence feel unauthorized and powerless, and avoid independent clinical decisions.^[24,25] According to our participants, an unconfident nurse is characterized by low professional knowledge and skills, limited clinical experience and expertise, poor critical thinking and clinical judgment skills, low self-confidence, and limited control over his/her emotions. Some earlier studies have also confirmed that nurses with higher knowledge and experience, and higher critical thinking skills^[26] feel more certain in their clinical decisions. Benner stated in the “novice to expert” theory that more experienced nurses are more confident in their clinical decisions.^[27] However, one of the findings of this study, less addressed in former studies, was that nurses who have better clinical judgment can better analyze and prioritize, patient needs and care options, and therefore experience less uncertainty. This finding is consistent with the rationalist perspective model of human behavior. According to this model, decision-making and clinical judgment are processes that occur through a hypothetico-deductive approach, to recognize and interpret evidence, and generate and evaluate hypotheses.^[28,29] Nurses with accurate clinical judgment are committed to evidence-based practice, try to identify reliable evidence, provide appropriate care, and then frequently evaluate patient outcomes to justify their care plan.^[30,31]

This study showed that complex situations can also develop uncertainty in nurses. This seems to be especially the case in critical situations and when the outcome is unpredictable. Some previous studies also came to the same conclusions.^[4,32] However, the complexity of the situation may mainly affect unconfident nurses who lack knowledge and experience.^[21,33] A review paper also reported that nurses, especially novice nurses, usually follow the recommendations or expertise of colleagues as a source of information to reduce their uncertainty in clinical decisions.^[16] In addition, complex situations and unconfident nurses would lead to more uncertainty in an organization with ambiguous guidelines and policies. The latter point, although important, has received less attention in previous studies. Clear guidelines, clear and explicit job descriptions, and perceived authority are among the variables that empower employees to do their best to meet what the organization and costumes expect of them. Katz specified three types of uncertainty, one

of which pertains to the lack of empirical knowledge. Guidelines effectively reduce uncertainty by providing empirical knowledge.^[34] Although uncertainty can occur even when clinical guidelines are available, in most cases, guidelines play a pivotal role in reducing uncertainty.^[7,35] Furthermore, clear job descriptions elucidate professional responsibilities and reduce inter-professional conflict in health-care systems.^[36] Conversely, unclear professional domain and lack of authority can intensify uncertainty in nursing practice, although this issue might be covert and not articulated by conservative nurses.^[21]

Our findings show that nurses suffer from emotional pressure, particularly due to fear of the legal consequences of their interventions, which increases their uncertainty while making clinical decisions. It is well established that clinicians' emotions can influence their clinical decisions as much as their cognition.^[37,38] Therefore, those who can perfectly control their fears can make better choices, make more efficient clinical decisions, and experience less uncertainty.^[39] The results of qualitative studies are highly dependent on temporal, contextual, and cultural factors. Data collection by a researcher and the use of in-depth interviews were the strengths of this study. However, the study was limited by the fact that nurses were not observed during their caring practice, when they make clinical decisions. Nevertheless, it is suggested that similar studies be conducted in other populations and under different organizational and cultural contexts.

CONCLUSION

Lack of confidence, complex situations, and unclear guidelines and policies are the main factors that increase nurses' uncertainty in clinical decision-making. Educational programs and support interventions are suggested to improve self-confidence and decision-making skills. In addition, actions should be taken to make nurses' job descriptions more explicit and to create better organizational settings to help them meet what the organization and the clients expect of them. More detailed guidelines are also needed to empower nurses to make good clinical decisions. Programs should also be developed and implemented to train young nurses in critical thinking, emotion control, and stress management. These skills may help reduce nurses' uncertainty when making clinical decisions. The findings can serve as a basis for researchers to develop instruments for assessing the factors associated with uncertainty among Iranian nurses.

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Conflicts of interest

There are no conflicts of interest.

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