BMC Nursing

BioMed Central

Research article

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The factors facilitating and inhibiting effective clinical decision-making in nursing: a qualitative study

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Published: 06 April 2004

BMC Nursing 2004, **3**:2

Received: 14 December 2003
Accepted: 06 April 2004

This article is available from: http://www.biomedcentral.com/1472-6955/3/2

Abstract

Background: Nurses' practice takes place in a context of ongoing advances in research and technology. The dynamic and uncertain nature of health care environment requires nurses to be competent decision-makers in order to respond to clients' needs. Recently, the public and the government have criticized Iranian nurses because of poor quality of patient care. However nurses' views and experiences on factors that affect their clinical function and clinical decision-making have rarely been studied.

Methods: Grounded theory methodology was used to analyze the participants' lived experiences and their viewpoints regarding the factors affecting their clinical function and clinical decision-making. Semi-structured interviews and participant observation methods were used to gather the data. Thirty-eight participants were interviewed and twelve sessions of observation were carried out. Constant comparative analysis method was used to analyze the data.

Results: Five main themes emerged from the data. From the participants' points of view, "feeling competent", "being self-confident", "organizational structure", "nursing education", and "being supported" were considered as important factors in effective clinical decision-making.

Conclusion: As participants in this research implied, being competent and self-confident are the most important personal factors influencing nurses clinical decision-making. Also external factors such as organizational structure, access to supportive resources and nursing education have strengthening or inhibiting effects on the nurses' decisions. Individual nurses, professional associations, schools of nursing, nurse educators, organizations that employ nurses and government all have responsibility for developing and finding strategies that facilitate nurses' effective clinical decision-making. They are responsible for identifying barriers and enhancing factors within the organizational structure that facilitate nurses' clinical decision-making.

Background

Almost every country and health care system has witnessed a growing demand for health care services over the last two decades [1]. While health systems are facing an increasing number of challenging factors such as limited financial resources, socio-demographic changes, rising health care cost, increasing health demands and heightened public expectations, the governments are

responsible to meet the public's increasing need for accessible, affordable, quality health care. Therefore they are searching for strategies to more appropriately utilize the workforce and appeal to strategies such as decentralization and privatization [2].

Nurses are the largest group of serving staff in health service organizations [2]. Their practice takes place in a context of ongoing advances in research and technology, which in turn changes the complexity of nursing care requirements [3]. The dynamic and uncertain nature of health care environment requires nurses to be competent decision-makers in order to respond to clients' needs. In other words, they should be able to sift and synthesize information, make decisions and appropriately implement these decisions to solve their clients' problems in the context of a multidisciplinary team.

Clinical decision-making is an essential component of professional nursing care and, nurses' ability to make effective clinical decisions is the most important factor affecting the quality of care [4]. The nursing discipline's pursuit of professional recognition also relies heavily upon the ability of practicing nurses to correctly define and solve problems which are uniquely nursing in origin [5].

In the recent years, the public and the government have criticized Iranian nurses because of poor quality of patient care. Also many research studies have focused on nurses' clinical functioning, most of these studies have linked the problem to the nurses' knowledge and skills [6-8]. However nurses' views and experiences on factors that affect their clinical function and clinical decision-making have rarely been studied. Thus, an important area for research is to obtain nurses' views on the facilitators and barriers for effective nurse decision-making. This is particularly essential for administrators and educators to note when designing strategies to improve the work environment and educational practices. Since recognition of facilitators and barriers is the first step in strengthening and empowering nurses to make better clinical decisions, this study (as part of my Phd thesis) focused on the experiences, views and perceptions of Iranian nurses about factors facilitating and inhibiting effective clinical decision-making in nursing.

Methods

Data were collected and analyzed using a grounded theory approach [9]. The term grounded theory reflects the concept that the theory emerging from this type of work is grounded in the data [10]. The grounded theory approach has been used in nursing research since 1970. The studies have focused especially on nursing practice and nursing education [11]. This approach was selected because nurses' practice takes place in a multidisciplinary team and grounded theory focuses on identification, description, and explanation of interactional process between and among individuals or groups within a given social context [12,9]. Data were collected by individual interviews which were audiotaped and transcribed and by observations that were recorded in field notes.

Initial sampling and data collection

Participants initially comprised of 26 nurses, head nurses and supervisors working in four large hospitals covered by the 'Ministry of Health and Medical Education' in Tehran, Iran. We used purposeful sampling at first and continued with theoretical sampling according to the codes and categories as they emerged. All nurses with more than five years of nursing experience who were currently working full-time in the mentioned hospitals were considered as potential participants. Sampling started on the surgical ward of the first hospital and then was extended to the other wards and hospitals. Data collection began with staff nurses. After interviewing three nurses and coding the transcripts, the codes and categories related to managerial support led the researchers to interview a few head nurses and supervisors. The total number of 12 nurses, 12 head nurses and two supervisors were interviewed in this phase. All participants had worked for more than five years and overall nursing experience that ranged between 5–30 years.

Interviews

One of the researchers explained the objectives and research questions to each potential participant. If the participant agreed to take part in the research, an appointment was made for the interview. Based on the participants' request, interviews were carried out two to three hours after starting their shifts because the workload was lower and nurses had that time to be interviewed. Individual semi-structured interviews were conducted in a private room at the workplace.

The interview guide was initially developed with the help of two expert supervisors, and consisted of some core open-ended question to allow respondent to explain their own views and experiences as fully as possible.

At the beginning of each interview, the participants were asked to describe one of their own working shifts and then to explain their own experiences and perceptions on 'factors affecting their clinical decisions'. For example, they were asked: "In your opinion, what factors facilitate or inhibit effective clinical decision-making in nursing? Explain some of your experiences in which you have made decisions which you think were effective for your patients or in the practice environment". During the interviews, notes were made about the topics they raised and these

were asked later if participants had not already spontaneously responded. Some of these topics helped the researchers to develop interview guide over time. The interviews carried out by the same interviewer, were tape recorded, transcribed verbatim and analyzed consecutively.

Every interview took one to three sessions depending on the workload in the ward, tolerance and interest of the participant in explaining their own experiences. The duration of each session was between 30–150 minutes, with an average of one hour.

Observation

The main researcher conducted twelve sessions of participant observation in all four hospitals. Observations were conducted during the different shifts in emergency, medical, surgical and intensive care units and involved not only the nurses interviewed but also the other nurses present in the shift. Observations were carried out in two steps: the first five sessions were done on the days appointed for interviewing the participants. The researcher was present in the ward with permission of the head nurse from the beginning of the duty hours, so that in two to three hours before starting the interview he could observe the nurses' dealings and behaviors. Observation involved sitting in a corner of the ward and observing or following individual nurses around. The researcher was requested by the head nurses not to care formally for patients although at times assistance was given to the nurses on their request. The next seven sessions of observation were carried out while the same researcher led a group of four nursing students passing their internship in the ward. The focus of participant observation was on nurses' interactions and dealings with their patients, colleagues, head nurses, supervisors and doctors with particular emphasis on nurses' participation in decisions related to patient care and care setting. The researcher took notes during observations, wrote it on detail later at the same day and used them as data concurrently with the interviews.

Theoretical sampling

The codes and emerging categories, specially the codes related to organizational variables, and nursing education led the researcher toward interviewing several key informants among the higher-level managers, doctors, and nurse educators for the purpose of filling the gaps. Therefore, in this stage, three nursing managers (matrons), three nursing trainers, three senior nursing directors, two doctors (who were the bosses of two hospitals) and a member of newly established "Iranian Nursing Organization" were interviewed. A total of 12 participants were interviewed at this stage. The duration of each interview session varied from 20 minutes to three hours, two hours in average.

The participants were representative of all four hospitals. Because there is a centralized outline in nursing education in the country, all nurses receive the same education. Also there is not a system of recruitment in each hospital. Universities recruit nurses and distribute them randomly to hospitals based on the number of nurses each hospital requires. The administrative levels were also representative because 3 of 4 matrons, 2 of 4 supervisors and 3 of 4 senior nurse managers participated in the research.

Data analysis

The collection and analysis of data were done simultaneously according to the grounded theory approach. Data from the interviews and observations were analyzed concurrently using constant comparative method. Each interview was transcribed verbatim and analyzed before the next interview took place. Therefore each interview provided the direction for the next.

Open, axial and selective coding were applied to data [12]. During open coding, the transcript of each interview was reviewed multiple times and the data reduced to codes and then the codes that were found to be conceptually similar in nature or related in meaning were grouped in categories. Codes and categories from each interview were compared with codes and categories from other interviews for common links. Axial coding was concentrated on the conditions and situations which cause a phenomenon to take place and the strategies applied to control the phenomenon. This process allowed links to be made between categories to their subcategories and then selective coding developed the main categories and their interrelations. The data was used to define the main themes and a model generated to show the relationship among themes.

Although a variety of different levels of personnel were interviewed, themes that arose were consistent across interviews. However, they used different words to refer to the same concept, for example while the managers used the word "authority," some nurses used the word "permission" or "right to do" for referring to "authority." Also all participants mentioned the insufficient salary of nurses, but the managers and doctors believed that the governmental rules don't permit them to increase the nurses' salary. Interviewing stopped when data saturation occurred. Data were considered "saturated" when no more codes could be identified and the category was "coherent" or made sense. Credibility was established through participants' revision as member check, prolonged engagement with participants and peer check. Maximum variation of sampling also confirmed the conformability and credibility of data [13,14]. The participants were contacted after the analysis and were given a full transcript of their coded interviews with a summary of the emergent themes to

Table 1: Individual characteristics of the participants

		Years of service	Age	Sex		Level of education		
		$\bar{X} \pm SD$	$\bar{X} \pm SD$	Female	Male	BS	MS	PhD
Staff nurse	12	12/4± 5/7	32/7± 5/3	9	3	9	3	-
Head nurse	12	22/6± 6/2	52/8± 5/2	11	1	10	2	-
Supervisor & matron	5	19± 7/3	42/2± 7/4	3	2	4	1	-
Senior nurse manager	4	24/3± 7/8	47/5± 7/6	2	2	-	3	1
Educator	3	28± 1/5	50± 1	2	1	-	3	-
Physician	2	19± 12/7	48± 11/3	-	2	-	-	2
Total	**38**	**19/3± 8/1**	**40/8± 8/3**	**27**	**11**	**23**	**12**	**3**

determine whether the codes and themes were true to their experience. As a further validity check, two expert supervisors and three other faculty members did peer checking on about 45% of all transcripts. The transcripts of interviews were given to each of the above persons and they followed the same process as above to arrive at core themes. There was 90% or higher agreement between different raters. Results were also checked with some of the nurses who did not participate in the research and they confirmed the fitness of the results as well.

Sampling strategies resulted in maximum variation sampling to occur and a vast range of views and experiences considered. The researcher tried to have precise documentation of the direction of research and the decisions made to save the "auditability" for the other researchers to follow the direction of the research. Prolonged engagement with participants and the research environments helped the researcher to gain the participants' trust and better understanding of the research environments.

Ethical considerations

Ethical issues in this study involved the assurance of confidentiality and autonomy for the participants. All participants were informed of the purpose and design of the study and the voluntary nature of their participation. The ethics committee of Tehran University of Medical Sciences approved the research. A written consent was sought from the participants for the audiotaped interviews and the hospital directors and head nurses had also agreed to their participation and participant observation.

Results

The results presented here include main themes identified through the data analysis. Individual participants' characteristics are presented in table 1.

Five main themes emerged from the data. From the participants' points of view, 'feeling competent', 'being self-confident', 'organizational structure', 'nursing education', and 'being supported' were considered as important factors in effective clinical decision-making. These themes and their subcategories are presented in table 2.

Feeling competent

The importance of feeling competent in the clinical setting was identified by a majority of the participants while they talked about the most important factors influencing their clinical decision-making. We defined competence as having a good level of knowledge, skills and experiences as well as the ability to use them properly. The participants believed that these were the qualities that a nurse required to be a competent clinical decision-maker. The following statement by a nurse clarifies this definition: "A competent and powerful nurse is the one who has rich knowledge and skill, and is expert in his/her own job." One of the supervisors also stated: "It depends on the level of one's professional knowledge and experiences, and the ability to use them well." They frequently emphasized the "proper use" of knowledge. Participants explained that effective clinical decision-making depends on the one's capability to gather, understand, and integrate the data with a focus on the patients' needs and identifying the clinical situation. One nurse described an experience in which she had made a decision which could rescue the patient: "when I was working in the neurological surgery unit, a discopathic patient was brought from the operating room, one of his primary signs was leg pain. When he was brought, I noticed the patient's frequent complaining of leg pain. I went to his bedside and removed the blanket. Previously, he had complained of pain in the right leg but now, he was complaining of the pain in the left leg. I felt the left leg's temperature was lower than the right one. His pulse was slow. I immediately called the concerned doctor

and also called and arranged for the operating room. The patient was taken to the operating room and an embolectomy was done. The doctor said that any delay in the operation would have led to the loss of the intact leg. Anyway, if my knowledge had been poor, something would have happened. It was at that time that I felt my proper knowledge and on time decision could save the patient." Her professional knowledge, past experiences and her close relationship with patient helped her to reach a comprehensive understanding of clinical picture to make an effective decision.

Being self-confident

Thirty-five participants emphasized the role of self-confidence in the effective clinical decision-making. To them, self-confidence was one's belief in him/her and him/her capabilities. They have also pointed out the different factors that affect the self-confidence of nurses. They believed that: "self-confidence provides the nurse with the feeling of control and ability to influence the situations and increases the possibility of making independent decisions". But lacking self-confidence would result in self-doubt causing the nurse to feel weak and powerless, so that he\she avoids participating in the decisions.

There were three main subcategories related to self-confidence. These were "self-reliance", "self-efficacy" and "self-assertiveness." Respondents indicated that these are the consequences of self-confidence. One nurse commented: "a self-confident nurse can assert oneself and this is the way one can show one's capabilities and implement his decisions in patient care."

According to the participants, nurses' self-confidence along with their clinical competence bring them a sense of "efficacy" which in turn makes them become "initiators to help the patients" and accelerates their timeliness in making and implementing the decisions. This is evident in the following quote in which a nurse has described his experience of a case of cardiopulmonary resuscitation (CPR): "I was alone on the medical floor when a case of cardiopulmonary arrest occurred. I called the code, prepared the CPR trolley, began CPR and inserted an endotracheal tube before the doctors arrived. Fortunately the patient rescued. I was certain of my own knowledge and ability, but many nurses wait for doctors, because they lack self-confidence."

According to participants, self-confidence is rooted in one's personal characteristics, but the level of knowledge, social and work-related interactions have effects on it. Sixteen participants complained of the "lack of self-confidence in nurses." They implied that factors such as "inappropriate methods of education," and "social and organizational culture" resulted in "frequent cross-questioning and under-questioning of the scientific and technical competence of nurses which in turn, negatively affected their self-confidence. Finally they believed that they are not competent but they are only the executive agents for doing the doctors' orders" as one nurse said.

Organizational structure

The structure and culture of the health care system was another important factor affecting nurses' participation in clinical decision-making. Structure was defined as the rules and regulations, which determine the limits of authority. Also we defined culture as an environment that emphasizes tasks and physician-centeredness.

Nurses considered "authority" as a pre-requisite in clinical decision-making and also as a critical factor in providing timely and quality care. One nurse said: "I mean that I should have the authority and permission to do my job, to be able to do what I can do in my territory, and I must have the right to do nursing care based on my diagnosis."

Table 2: Emerged themes and their subcategories

Being competent	Knowledge and skills
	Experiences
Being self-confident	Self-reliance
	Self-efficacy
	Self-assertiveness
Organization structure	Having authority
	Organization culture: (task oriented & physician centered)
Being supported	Provision of care facilities
	Provision of financial welfare
	Provision of emotional support
Nursing education	Content of curriculum
	Methods of education
	Role models

The majority of the nurses believed that organizational related variables such as job description and official rules limited them. On the other hand, the condition of the patients and the practice environment affect the ability of nurses to use their authority. Many nurses mentioned that factors such as unbalanced nurse-patient ratios, heavy workloads, and an increase in non-nursing duties have decreased their relationship with the patients and made them adopt a task-oriented working system that spontaneously acted as a barrier to their effective participation in patient related decisions. Also the participants frequently pointed out to a physician-centered atmosphere in the health care system, that doesn't regard nurses' decisions. One of the supervisors stated: "now, it is expected that nurses only obey the orders, give the drugs, do the injections, monitor the blood pressures and write the nursing notes, but not to intervene independently. She/he is expected to obey as a lamb."

Being supported

For the participants, support was mainly characterized as supportive management. Their experiences on support were categorized under the three subheadings of: "provision of financial welfare," "provision of care facilities," and "provision of emotional support." "Being supported" was considered as a necessity for the development of clinical decision-making skills. However a feeling of "being unsupported" was ruling over the nurses. Thirty-five nurses pointed out the lack of support to nurses. Although colleagues are a useful source of support in the clinical environment, participants in this research considered unsupportive managers as barriers to effective clinical decision-making. One of the supervisors said: "I have felt frustrated many times, when I have made decisions and have needed to be supported by the higher managers, but they didn't support me." The participants mentioned the "insufficient salary of nurses" frequently. They believed that "the managers are responsible for provision of financial welfare for the nurses" and referred to the nurses' "unfulfilled financial needs" as an evident symbol of lacking support. This caused the nurses not to be able to concentrate on their patients' problems and make effective decisions, as one of the nurse educators said.

According to the participants, managers have responsibility for the "provision of care facilities," (such as sheets, injection and dressing equipments, wheelchairs) but they don't do it properly. Shortage in nursing workforce and lack of care facilities were emphasized as the barriers to clinical decision-making. These caused nurses to feel unable to meet their clients' needs, and giving them the feeling of inability to have control over their work. As three nurses said: "when we have only two nurses for 37 patients, certainly they cannot provide a good care. They can only monitor the blood pressure and give the drugs," "there is so much work, sometimes the patient is discharging and I don't know his\her name and history. I only have done routine for him\her." "We are running throughout the shift, but always something sounds me that things are left undone."

Twenty-five participants mentioned that inter-personal conflicts and lack of emotional and legal supports (such as malpractice coverage) also act as barriers to clinical decision-making in nursing. They mentioned frequently that the doctors don't value nurses' decisions and the managers also don't support them when a conflict occurs. The following statements contain clues to the unsupportive behavior of some of the nurse managers: "There is no one listening to our tale of sufferings; those who are in charge of us never support us." "If something goes wrong in the hospital, the senior nurse manager supports others rather than the nurses." These experiences taught nurses that any disagreement must be avoided. Therefore they are reluctant to assume responsibility and this reluctance creates a barrier to effective clinical decision-making.

Nursing education

Twenty-five participants emphasized the critical role of nursing education in the development of decision-making skills of the nurses. They believed that the mode, type and levels of participation of nurses in the clinical decisions "depend on their education." Also one of the participants stated "their educators have an important role in their modes of decision making". The majority of participants implied that the nursing educational system didn't do its work well. One senior nurse manager commented: "our academic education doesn't prepare its students to be effective clinical decision-makers." One nurse with seven years of clinical experience said: "I don't remember anybody teaching me that I have the authority to make an independent decision and implement it based on my own judgment."

The content of the curriculum was mentioned as a barrier for nurses in the way of clinical decision-making, as one head nurse stated: "apparently the nurse educators think the best nurses are the nurses who have more medical information. They give them an extensive range of disease-related, pharmacological and physiological information, but don't spend even 10 minutes on the nursing care in a class of two hours, so, if you ask one of our nurses to write a standard nursing diagnosis, she/he cannot. They cannot differentiate between medical and nursing diagnosis. Therefore, they don't know their domain of activity." Another head nurse also considered the methods of education as barrier and said: "The students have learned the text books in their classes but they had little or no opportunity to apply them in practice."

In addition to the fact that the curriculum is mostly theoretical and inapplicable, role models also played a significant role in the weakness and reluctance of nurses to assume responsibility and making independent clinical decisions. One of the experienced nurse educators believed that due to inexperience and freshness of most of the nurse educators, they lacked self confidence and could not educate a good new nursing generation."

Staff nurses and their routine-oriented actions also act as role models for nursing students. One senior nurse manager who also was an educator in a nursing school perceived them as barriers in the way of clinical education and the development of students' decision-making skills. He said: "our academic education is held well but when the students enter the practice environment, they are faced with some particular organizational behaviors that are task oriented and inhibit independent decision-making." In-fact they have considerable amount of knowledge but cannot apply them to practice, therefore "they are limited to giving the drugs and doing the doctors' orders" as a nurse manager said.

Discussion

The findings of current study indicate that two groups of internal and external variables can facilitate or inhibit the nurses' clinical decision making. According to the participants, "competence" and "self confidence" of a nurse were the internal factors and "being supported," "process of nursing education," and "structure of the health care institute" were the external factors that can enhance or inhibit the nurses' clinical decision-making. It is not uncommon for models of decision-making to focus on one or the other. Perhaps the most effective decision-making requires a model that integrates both dimensions.

Effective clinical decision-making is one of the most important components of professional nursing practice. It consists of gathering, processing and prioritizing critical patient information to choose and implement nursing actions and evaluate the results. As White (2003) mentioned, decision-making is the clinical function that differentiates nursing professional staff from technical ancillary staff [4]. Our results suggested that there are some barriers to effective clinical decision-making. According to participants, nurses' competence is a key factor in clinical decision-making, and it comes from their professional knowledge, skills and experiences. In a study of nurses' perception of clinical decision-making to patients in pain, Baker (2001) concluded that knowledge and experience place an important role in effective clinical decision-making [15]. Also Orielly (1993) confirmed, experience and knowledge are two major factors affecting decision-making [5]. But Louri and Salanteral (1998) reported that the model each nurse uses for decision-making depends mainly on his\her task and context of the situation but not to the level of his\her knowledge and experiences [16]. However the participants in our research emphasized that it is "proper use" of knowledge and skills that makes the decisions effective. In the other words, competent decision-making is more than the simple application of theoretical knowledge or performing technical skills, but it requires integrating knowledge, skills and experiences and also a close relationship to the patients to make a deep "understanding of the clinical picture" [4] or "seeing the big picture" [17]. According to the participants in this research, self-confidence is considered a vital factor in effective clinical decision-making. Those nurses having more confidence have better control over their work, make more efficient decisions and intervene more independently [4]. Self-confidence has a close relationship with self-efficacy. Roberts et al. (1981) considered the terms self-efficacy and self-confidence interchangeable. Self-efficacy defined by Bandura as a situation specific self-confidence that indicates the level at which one believes one can successfully perform a task [18]. Bandura's research (1997) has also shown that the individual's self-efficacy may be more significant to task performance than his actual skills [19]. Self-confident persons have an internal locus of control, and believe in their ability to influence results [20]. A meta-analysis of more than 80 studies also revealed that employees with high levels of perceived control at work were more satisfied, committed, involved and motivated [21]. Therefore it appears that self-confidence may be an important factor in effective decision-making [22].

Although self-confidence results in better decision-making, about 40% of participants in this research complained of the lack of self-confidence among nurses and nurse managers and considered it as one of the major inhibitors to effective independent decision-making by nurses. The lack of self-confidence in nurses was also confirmed in the studies carried out by Madjar (1997), Fulton's (1997) and Baker (2001) [23,24,15].

Also environmental factors, amount of relevant professional knowledge and clinical experience, collegial relationship and staffs' interactions with their managers play an important role in nurses' self-confidence and effective clinical decision-making [15]. It seems that nurses have internalized beliefs about their own inferiority [25]. Also, their doubt in their own knowledge, ability [24], and competency have decreased their self-confidence and made them relinquish the authority to those perceived as being better. The findings indicate that variables related to organizational structure and its culture have influenced the nurses' decisions. Although the organizational variables could both enhance or inhibit the effectiveness of staff decisions, participants in this research implied that

these variables were among the major inhibiting factors having decreased nurses' perceived control over their work. These variables also have decreased their self-confidence, which in turn, has decreased their participation in clinical decision-making. Findings indicate that the levels of authority, organizational climate and the nursing system used on the units affect the participation of nurses in decision-making. However, the cultural context of the organization seems to have the most inhibitory effect in this regard. Nurses wanted to have authority to make decision related to duties within the nursing domain. Although they implied that job description and official rules were the sources of their diminished authority, the culture of nursing was highly task-oriented and physician controlled. Factors such as unbalanced nurse-patient ratios, heavy workloads, and expectation from nurses to only execute the doctors' orders resulted in a diminished relationship with patients and had them choose a functional and task-oriented nursing system. These results confirmed the findings of Baker (2001) who reported that lack of time and heavy workload negatively affected decision-making, because nurses cannot comprehend patients' requirements [15].

Although Krairikish and Anthony (2001) implied that structure and setting process have little influence in decision making related to nursing practice [26], it seems that lack of time for completion the routine tasks has resulted in little time for nurses to participate in decision-making and independent nursing interventions, as confirmed by Fulton (1997). Perhaps it is for this reason that Anthony (1999) has suggested that authority has a weak relationship with the nurses' actual decision making [27]. In this research it was discovered that "being supported is an important predictor of nurses' effective participation in clinical decisions. In a study on benefits and outcomes of staff nurses' participation in decision-making, Krairikish and Anthony (2001) reported that nurse managers' leadership had little effects on staff nurses' participation in decisions [26]. However, nurses in our study implied that unsupportive management was a barrier to effective clinical decision-making. Of course the leadership in the Krairikish and Anthony study was conceptualized as the presence and competence of the manager, while present study emphasizes on the support of the manager. Nonetheless the role of the manager appears to be central to nurses' decision-making. However, heavy workload, poor staffing, low income, not having power for decision-making and partiality of managers with doctors in their conflicts with nurses, were the most causative factors in feeling of being unsupported. These findings have also been confirmed by other researchers [28-30,5].

Nurses perceived their managers as being unsupportive. Those nurses who directly care for patients chose patient care as their highest value, but they saw the employing institutions and the managers ignoring their welfare. They expect their managers to provide them with 'facilities for care,' financial and emotional support' so that they can participate in patient-related decisions and provide quality care for their patients. According to Macphee and Scott (2002), although all factors and working conditions are not under the control of managers, emotional supporting of nurses can decrease the pressure on them [31], increase feelings of self-confidence and enhance their effective participation in decision-making.

The participants emphasized the critical role of nursing education in preparing nurses to make effective clinical decisions. As White (2003) argues, the mission of undergraduate nursing education is to prepare nurse generalists who will be able to provide care in a variety of clinical environments [4], but depending on the educational related variables such as educators and role models, content of the curriculum, methods of education and evaluation, this quality may be enhanced or inhibited. Many authors have emphasized the importance of nursing educators and educational institutions in development of nurses' clinical decision-making skills [15,32-34]. However approaches to the preparation of nursing students for a successful transition into the workplace have been found to be ineffective. According to the participants "Role models," "Content of curriculum," and "Methods of education" all played an inhibiting role in effective clinical decision-making. The curriculum seems to contain a vast range of theoretical content, mostly based on medical model, and faculty members feel pressure to find a way to present a massive amount of content necessary to facilitate passing of the final examination (which is equivalent to licensing examination). They spend more time on theoretical education; so, there will be less time for practical and student-centered learning and developing students' clinical decision making skills. Their educational methods are teacher-centered. They use lectures as the most important method of education. Therefore the manner in which nurses are trained is rigid, controlling and encouraging conformity, passivity, dependency and subordination. In a study of difference between enabling and empowering, Espland and Shanta (2001), argue that empowering is an interpersonal process which increases students' control on their practice, while enabling encourages dependent behavior in students. They believed that, faculty members who enable students do not encourage their development of problem-solving [and decision-making] skills. Such educators decrease students' self-esteem, and negatively affect their self-concept and self-confidence [33]. Therefore nurses do not try to make independent decisions and rely mostly to executing the doctors' orders.

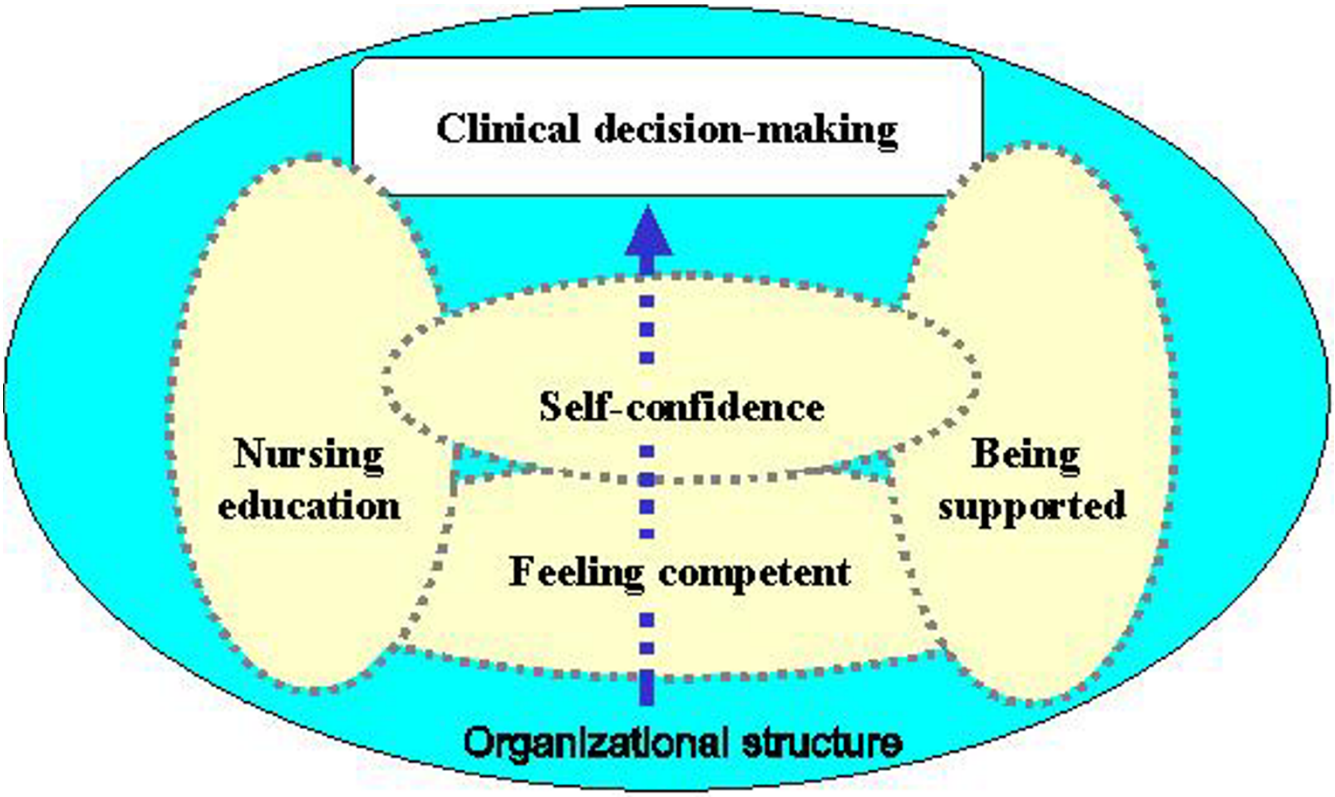

Figure 1
Interactive relationships between variables affecting effective clinical decision-making

The findings of the current study indicate that clinical decision-making is a basic social process involving some individual and environmental variables. Precise review of these variables as well as findings and data obtained during the analysis stages of this study suggest the existence of interactive relations among the variables. These interactions are presented in Figure 1. As this model has shown, although feeling competent is important, self-confidence is a basic requisite for making effective clinical decisions. Organizational structure, supportive or unsupportive management and nursing education also have facilitating or inhibiting effects in this process.

Conclusions

The findings of this qualitative study helped us to reach a better understanding of the factors influencing clinical decision-making in nursing. It confirmed some previous studies and added to our body of knowledge relevant the factors affecting clinical decision-making. Nurses' contribution to patient outcomes hinges on being able to make effective decisions. As participants in this research implied, being competent and self-confident are the most important personal factors influencing nurses clinical decision-making. Also external factors such as organizational structure, access to supportive resources and nursing education have strengthening or inhibiting effects on the nurses' decisions. It seems that nursing education along with organizational structure have decreased nurses' self-confidence in applying their professional knowledge and skills. Individual nurses, professional associations, schools of nursing, nurse educators, organizations that employ nurses and government all have responsibility for developing and finding strategies facilitating nurses' effective clinical decision making. They are responsible for identifying barriers and enhancing the factors within the organizational structure that facilitate nurses' clinical decision-making.

Although an extensive range of participants' views and experiences were studied in this research, the small number of participants may limit the generalizability of the findings. Also this study was conducted when nurses' morale was perhaps low because the government has started privatization of nursing and Iranian nurses were not pleased with the privatization project. This study was done in some of the biggest hospitals and only in Tehran

(the capital of Iran). Additional research conducted with other populations of nurses will help us to document nursing practice patterns and eventually to provide a pool of accumulated data related to factors affecting their participation in clinical decisions. Also further research is necessary to test hypotheses suggested by the model such as the effect of nursing education on self-confidence, as well as the interaction of the organizational structure, management style and nurses' self-confidence in clinical decision-making. Other research questions that might be helpful include the followings:

- What types of strategies could enhance nurses' self-confidence in making clinical decisions?

- What type of changes in our educational system might be helpful in enhancing nurses' self-confidence in making clinical decisions?

Answering these research questions would help us to design strategies for empowering nurses to make more effective clinical decisions and will enhance nursing practice.

Competing interests

None declared.

Authors' contributions

MAH: Initiation and design of the research, collection and analysis of the data and writing the paper. MS: Main Supervisor of the project and co-analysis of the data and editorial revision of draft papers. FA: Supervision of the project and editorial revision of draft papers.

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Pre-publication history

The pre-publication history for this paper can be accessed here:

http://www.biomedcentral.com/1472-6955/3/2/prepub