Check for updates

Explaining Metacognition in Moral Reasoning: A Qualitative Study

Farahnaz Kamali[1], Alireza Yousefy[2] and Nikoo Yamani[2]*

1. Bushehr University of Medical Sciences, Bushehr, Iran

2. Department of Medical Education, Medical Education Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

* Corresponding author

Nikoo Yamani, PhD

Department of Medical Education, Medical Education Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
Email: kjahan2938@hotmail.com

Abstract

Background: Considerable advances in medical science and modern biotechnology have caused an increasing need for discussing the ethical issues and decision making in the patients. Thus, this is considered as an essential element in medical education. In order to fill this scientific gap, the teachers should be able to investigate the thinking of learners in moral reasoning prior to graduation, thus they can develop the necessary skills in the analysis of clinical situations. This study was designed with an aim to explain the metacognition in moral reasoning in medical departments and based on the Islamic Society of Iran.

Methods: The current study was a qualitative content analysis with a conventional approach where the information was acquired from in-depth personal interviews with 17 clinical professors and students in the medical, nursing, and midwifery majors from Isfahan University of Medical Sciences and Bushehr University of Medical Sciences.

Results: 25 sub-categories, 6 categories, and 3 themes were extracted from the qualitative data. Three themes, including basics of metacognition in moral reasoning, metacognitive process in moral reasoning, and metacognitive responsiveness in moral reasoning, were extracted from the qualitative data. Then, based on the results of the qualitative data, the concept of metacognition was explained in moral reasoning.

Conclusion: Metacognition in moral reasoning in medical departments is a mental process where the medical team uses their knowledge, skills, and experience in observance of the principles and a scientific and reliable process to have the necessary and sufficient responsiveness in their ethical decisions.

Keywords: Moral reasoning, Metacognition, Medical

Introduction

In the competitive and progressive society of the present century, the ethical decision-making skills and critical thinking play a key role to shape the society (1,2).

Paul and Elder believe that the ethical judgment and decision-making are the necessary skills for living and building a society based on ethics (3). Although it is essential to observe ethics in decision making in all occupations, it is more important in the medical disciplines given its impact on the patients' recovery (4). Kollemort *et al* also consider ethics as a significant part of clinical decisions and assert that the ethics lead to value judgment, consideration of decision-making outcomes, and acceptable strategies with regard to norms and ethical rules (5-8). Although the development of technology helps the observance of ethics in moral reasoning in the medicine, observance of ethical aspects requires the knowledge and specific technical capabilities and is one of the necessary skills along with other scientific abilities in the medical team (9).

Today, the traditional approaches based on guidelines are inefficient and the observance of nursing ethics has become more complex and difficult. Meanwhile, in performing clinical work, people who cannot merge these norms and personal values, are suffering from ethical-related stress and insufficiency in patient care and are in a state of uncertainty (7,10).

In medicine, solving ethical puzzles might fail to be achieved without acquiring the necessary skills (11). In moral decision-making and reasoning, thinking strategies completely depend on the individual and are defined as the black box. In the meantime, the concept of metacognition is the awareness and organization of the thought process that helps an individual in planning, learning, and problem solving, with the institutionalization of thinking (1). The questions such as what or how and to what extent an individual knows about knowledge make us aware of the concept of metacognition (1,12).

On the other hand, the society's expectations of medical jobs made the teachers become interested in comprehensive and complete teaching of skills and medical decision-making and pay more attention to training of virtuous people in the field of health who are capable of analyzing the puzzles and moral dilemmas (13-15). The progress of students' ethical and professional levels have taken place in the classroom and the training in ethical codes is not enough; therefore, in order to fill this scientific gap, teachers should be able to evaluate the ability of students' moral reasoning before graduation to develop the necessary skills in analyzing clinical situations. The advantage of knowledge and acquisition of moral experience in students is to be the basis for optimizing education, reasoning, and moral behavior in students (16).

Experts have many disagreements regarding the goals of education in the medical ethics, teaching-learning method, consequences measured in assessment, and place of moral reasoning (17), but the necessity of focusing on the acquired factors is emphasized by all (18). Eckles *et al* assert that training of virtuous physicians is the ultimate goal for medical ethics, but some professors prefer a curriculum based on teaching ethical skills and capability of choosing practical solutions to a virtuous physician-based curriculum (13).

At present, the teaching and evaluation methods of moral reasoning are often based on Kohlberg's approach, which are conducted with designing puzzles and making the learner encounter with the real and unreal problems. In these methods, the people's skills are placed on a spectrum, from abstract to conservative, and scoring is performed according to the viewpoints of experts and observing the legal aspects of the work (17,19-23).

The arguments are evaluated based on providing answers to a number of puzzles and less attention is paid to the factors affecting the choice of ethical method (24).

Since the process of thinking and metacognition can be effective in reasoning and decision making, there is a risk that sometimes inappropriate decisions might cause irreparable damage to patients. Therefore, ethical reasoning skills are essential skills in clinical work that can be strengthened to provide more effective care and treatment.

In a review study of nurses' moral reasoning tools, Ducket stated that the using these tools would list the decision-making strategies in different individuals, but the way of thinking and ethical aspects are not clear (25,26).

A few studies that are related to the subject of moral reasoning have examined the responsiveness of people to medical scenarios in a quantitative manner and the thoughts of people have not been investigated. However, since many experiences, perceptions, and ideas cannot be quantified, the qualitative research methods provide an in-depth understanding of human phenomena and experiences (27). On the other hand, having sufficient information is necessary for any planning, thus, studying metacognitive process in the moral reasoning in the learners of the medical disciplines seems essential to provide the possibility of choosing a proper curriculum and effective educational methods. Therefore, in the present study, the qualitative method was used as an appropriate method to explain metacognition in moral reasoning in medical groups to find a deep understanding of people's thoughts in clinical situations along with ethical issues.

Materials and Methods

Based on the aim of the study, which was to explain the metacognition in the moral reasoning in the medical group, the qualitative content analysis method with a conventional approach was used. The qualitative content analysis provides an opportunity to interpret the authenticity and validity of data in a subjective but scientific manner (28,29).

The participants of the present study were clinical professors and students from Isfahan University of Medical Sciences and Bushehr University of Medical Sciences who have a history of attending clinical settings and making clinical decisions for patients. Since the objective was to achieve a wide range of views and opinions, targeted sampling with maximum diversity was performed (30). Samples were selected with different characteristics in terms of age, gender, work experience, and field of study (Table 1).

Semi-structured individual interviews with required flexibility for deep inference in qualitative research were used for data collection. The interview began with an open question. The questions were based on their thoughts regarding ethical issues in clinical situations, and then the follow-up questions were asked to achieve more information and clarification. The participants' responses guided and determined these questions. The interviews took place in a quiet place and lasted 40-90 minutes. The analysis started from the first interview and continued until the data saturation. Data saturation refers to a state where no

Table 1. The Participants' Information

No. Participant	Work experience	Specialty	Education	Age
1	15	Midwifery	Master	35
2	20	Oncology	Specialist	52
3	3	Gynecology	Specialist	32
4	7	Infectious	Specialist	32
5	20	Rheumatology	Specialist	55
6	5	Nephrology	Specialist	30
7	15	Nursing	Master	48
8	23	Reproductive health	PhD	47
9	35	Pediatric	Specialist	65
10	12	Cardiologist	Specialist	35
11	26	Nuclear medicine	Specialist	50
12	30	Nephrology	Specialist	53
13	4	Surgery	Residency	33
14	30	Gastroenterologist	Specialist	55
15	3	Reproductive health	PhD	29
16	22	Reproductive health	PhD	49
17	16	Emergency	Specialist	49

new information is extracted from the data and the categories are filled with maximum features.

Data collection and data analysis were performed at the same time. In this method, the codes, categories and themes are extracted from raw data through the precise examination and constant comparative method (31). According to Ezzy, the constant comparative method is a good approach to increase the trust and credibility of data (32,33). MAXQDA 10 was used for data management.

Qualitative data analysis process based on the steps proposed by Graneheim and Lundman was as follows: This began with frequent reading of the data so that the researcher would be immersed in the data and achieve an overview. Then, the data were read word by word until the words containing key concepts were highlighted and the codes were extracted. Then, the researcher had the first interpretation of the text and the initial analysis was performed. As the process continued, labels known as codes were obtained. Then, based on the correlation of the codes, the codes were placed on the category, and a sub-category was defined for each category. In the last stage, the researcher attempted to discover the themes with a comparative review of the categories and sub-categories (31).

Streubert & Carpenter (2011), as cited in Guba & Lincoln, have proposed four criteria consisting of credibility, dependability, transferability, or confirmability to assess the validity of data in the qualitative research (27). In this study, in order to achieve credibility, the researcher's long-term engagement with the data, dedication of sufficient time for in-depth interviews, selection of participants with maximum diversity, and providing researcher's notes and perceptions to the participants were utilized. In the member check, a part of the text with the initial codes were observed by two participants in person and the coordination of the extracted codes was compared with their viewpoints and it was corrected if the perception of research was different from theirs. To increase the homogeneity of the research, the peer check method was applied. To determine the transferability of the total process, the type of sampling, interview, coding, and findings were precisely recorded. The targeted sampling with maximum variety was also useful for this purpose.

Expressing the goals of the study and research method, obtaining permission from the participants, acquiring written consent, voluntary participation in the study, right to withdraw, emphasis on the protection of audio files, and confidentiality of participants' identities, were the ethical considerations in this research.

Results
At the end of the qualitative content analysis, 950 initial codes and 407 codes (regardless of repetitions) were obtained in 25 subcategories and 6 categories (Table 2).

Principles of reasoning
Professional manner
Communication with the patient
From the viewpoint of participants, having a capability of communication with patient and attention to differences in communication with patients were considered effective in observance of professional manner, and of course, being unfamiliar with the principles of communication with the patient was one of the barriers to effective communication. Communication with the patient and his/her participation in decision-making created empathy and sympathy with the patient and provided an opportunity to find the patient's mental challenges. Participants paid attention to solving the patients' mental challenges and asserted: "Talking to the patient is important, I talk to the patient or patient's companion about anything, I help to ensure there is no questions in their minds, and this is communication with the patient" (Participant No. 6).

Understanding feelings and having empathy with the patient and family facilitate the communication and make the therapist more committed to the patient treatment. "It is so important that the patient feels we understand and empathize with him/her" (Participant No. 2).

Building trust
According to the participants, creating a feeling of trust after communicating with the patient, physician's efforts in treating patient and talking to patient's family, giving complete information to patient, ensuring the patient of the adequacy and capability of the treatment team, having enough knowledge

Table 2. Categories and subcategories in metacognition in moral reasoning

	Categories	Subcategories
Principles of reasoning	Professional manner	Communication with the patient Building trust Trying to ensure satisfaction Morality
	Professional responsibility	Being responsible for duties Observance of professional rules Maintenance of professional position Beneficial communication Maintenance of patient dignity
Process of reasoning	Evidence-based reasoning	Getting help from patient in decision-making Self-experience and others' experience Professional knowledge Thinking beside the patient's bed
	Analytical reasoning	Policies and law in decision-making Attitude in reasoning Religious beliefs Mental process in reasoning
Responsiveness in reasoning	Patient, disease, and family	Patient's family and decision-making Patient's family and disease Patient and truth of the disease hard-to-treat and incurable patients
	Excellence in care	Maximum efforts in treatment Fair care Error management Attention to patient's need for help

and skills in decision-making, having no doubts in diagnosis, and consulting with other physicians were other factors that were effective in building the trust.

"We need to build the trust in patient and patient's companion in the doctor and the medical team, and we should not think that we would become popular if we shrugged off the responsibility" (Participant No. 4).

Efforts for satisfaction

According to the participants, the patient is interested in explaining the information and disease by the treatment team and consider it as evidence of their efforts for treatment, which ensures the patient's satisfaction by utilizing more affordable and accessible drugs. The patients pay attention to the efforts of medical team and their presence and consider it as evidence for the doctor's skills, and reducing the patient's pain is another effective factor in creating this satisfaction. In this regard, the participants assert:

"It is better that doctors share everything with the patients as well as patient's companions" (Participant No. 6).

Mortality

Morality in the moral reasoning process was another factor that the participants considered important in dealing with patients. The cases such as honest behavior with the patient, resistance against superiors' wrong commands, commitment to the principles of medical oath, adherence to teamwork, having tolerance and patience in dealing with patients, observance of ethical standards in imposing medical costs on the patient, attention to conscience, observance of moral standards learned from the family, being influenced by the positive behavior of other colleagues, and having ethical mind and practice were factors affecting the observance of ethics in the moral reasoning. The participants noted the importance of honest behavior

even at the cost of personal loss and being affected by the unethical behavior of colleagues, talking to other colleagues about the observance of ethical principles, and efforts to change attitudes in patients with their ethical words and practice. The participants cited the examples of observing working ethics as follows:

"I hate lying to the patients. If I could not do the operation, then I would tell them the truth that you better find another doctor. I would not charge them and then refuse to operate on them" (Participant No. 3).

Professional responsibility
Being responsible for duties
Participants believe that trust in correctness of the measures taken, lack of attention to the unscientific requests of the patients, not handing things over to unskilled people, and having enough scientific capability in decision-making are the examples of responsibility. They also affirmed that a strong interest in work creates a pleasant feeling of patient recovery. Participants think that informing the patient about the uncertainty of the treatments is important, while some people have no need to express their failures to the patient. Some participants also believe that taking into account the benefits of themselves and patient is significant in decision-making, and it is not necessary to tell the truth in case of some consequences for themselves.

One of the participants declared: "I love my job. I feel very good when the outcome is great. It makes me work with more passion. On the contrary, bad outcomes make me feel sad" (Participant No. 6).

Observance of professional rules
One of the manifestations of professional responsibility in the present research is the observance of professional rules, in which the participants emphasized explaining the truth in case of ignoring patient's rights, legal consequences in dealing with non-scientific demands, and having knowledge of laws.

Maintenance of professional position
Paying attention to professional oath, avoiding damages to professional appearance in the eye of colleagues and health care system, and the best medical performance were effective in the participants'

viewpoint to keep the professional status, as one of them remarked: "The personnel trust in the quality of my work is important. It affects my decision-making and I can work more easily, so I would do my best to keep my status" (Participant No. 15).

Beneficial communication
Participants believed that having good communication with the patient and efforts for having sympathy helped them with the job and facilitated the acceptance of bad news and unintentional mistakes by the medical team.

"Communication skills are important. A physician working in a clinic must be skillful. In that case, he/she could even help me" (Participant No. 9).

Maintenance of patient dignity
Participants considered respect for human dignity and altruism as professional responsibilities in moral reasoning. In this case, respect for the patient's demand, freedom in choosing doctors, respect for human dignity, and keeping the patient's secrets, are considered as the important factors in this regard. They also believe that explaining the truths and revealing the facts are the patients' rights and are required to the extent that could benefit the patients or change the decision. In case of patient dignity, the participants cited: "Attention to human dignity is very important for me. I believe that a patient is a human being and we must observe the human principles" (Participant No. 8).

Process in reasoning
Evidence-based reasoning
Getting help from patient in decision-making
Getting help from patient in analyzing his/her needs and maintaining his/her spirit in expressing the facts of the disease and treatment methods, getting help from patient's beliefs in decision-making, paying attention to the patient's economic, cultural and social conditions, diversity in making decisions about different patients, effects of patient's personal circumstances on choosing a simpler treatment, consulting with the patient in choosing a treatment, paying attention to the patient's viewpoint, involvement of patient in decision-making, getting help from patient in revealing the truths to the

patient's companions, and informing the patient about the unpredictable results of the treatment are the evidences that can be used in reasoning. The difficulty in expressing the whole treatment details and the feeling of frustration in expressing the facts were among the issues that the participants considered as the challenges.

"If you are creating a treatment plan, it is better to involve the patient. Involvement of the patients and providing explanation to them could increase the patient's cooperation" (Participant No. 13).

Self-experience and others' experience
Consulting with experienced colleagues and using the shared experiences and learning from their decision-making method, learning from previous mistakes in managing new situations, and trust in strategies of other professors are the issues that improve decision-making and reasoning. According to the participants, increased capability and self-confidence and more cautious decision-making is associated with changes in decision-making over time.

They also believed that increased experience in decision-making leads to more involvement of patient and uses his/her viewpoints in choosing the treatment method. "If something goes wrong, I think I might want to talk to our experienced colleagues or those who have more experiences in forensic medicine to see how we can actually make up for this mistake" (Participant No. 4).

Professional knowledge
Participants believe that choosing treatment method based on new studies and lack of unscientific costs are the important ethical principles in the moral reasoning. They also think that the use of new resources and reviewing and learning from previous mistakes is a way to increase this knowledge.

"I strictly follow the scientific principles at work. The scientific principles should be a priority even if they cost me. I would do my best to have enough medical knowledge to reduce the mistakes as much as possible" (Participant No. 3).

Thinking beside the patient's bed
Participants believed that the using mental files and their results, getting help from other colleagues,

attention to differences in data collection references, attention to the patient's financial situation, and being affected by information bombardment are the factor that unconsciously affect their way of thinking in clinical settings.

Analytical reasoning
Policies and law in decision-making
According to the participants in the study, merely legal decisions are inflexible. Therefore, according to the patient's conditions, it is necessary to change the rules. It is essential to consider the public interest and national good and the policies of the medical center in selecting the treatment method. From the participants' point of view, the existing laws and policies in decision-making in cases such as patients with sexually transmitted diseases, pregnant women, and patients for whom treatment has been ineffective are associated with problems. "The only thing that can control you is to consider that you are working in this setting and this country. Your efforts must benefit people and be in accordance with the policies of the country" (Participant No. 10).

Attitude in reasoning
In the participants' statements, the effect of prevailing cultural conditions of the society and patient, religious beliefs, the healthcare provider's worldview, are effective in the moral reasoning process.

"Moral reasoning is more a personal issue than an educational one. In fact, the whole life of a person affects his/her current situation" (Participant No. 17).

Religious beliefs
In the participants' viewpoint in this study, it is possible to form four relationships of an individual with himself/herself, environment, patient, and God in each decision-making. Trusting God, seeking the approval of God, having no fear and anxiety about anything that makes one close to God, performing deeds based on nature, and matching patients' demands with a monotheistic basis are important. Participants believe that the treatment of patients is an opportunity for the spiritual advancement of the healthcare provider and relate the poor moral foundations to the losses experienced by the physician and lack of God-pleasing deeds and errors in decision-making.

"There is love and altruism in our existence. These are the manifestations of God's love in the realm of our soul. That means I would become an attribute of God in the realm of kindness, altruism, secrecy, and anything you can imagine in the ethical realm. All would become a manifestation of human qualities, and that is why the patient is an opportunity for the spiritual advancement of the physician. Moral reasoning refers to a moral reasoning in the relationship of a person with himself. This means that a doctor wants to benefit from this moral opportunity that has arisen" (Participant No. 9).

Mental process in reasoning

Participants analyze their mental process in reasoning by collecting clinical data through observation, interview, analogy, and induction. They emphasized the design of patterns or hypotheses with the help of scientific principles and experience in decision-making. Participants also noted that having a competitive reasoning and considering the errors in the use of mental patterns and making decisions based on mental understandings and intuitive decisions are important.

One of the participants describes his/her mental process in dealing with emergencies as follows: "When I am dealing with multiple patients, I would go to those who have bleeding or have a better chance of survival. It is hard to make decisions. There you give the chance of survival to a person and the others would lose their chance of living. You should consider the treatment methods and the chance of success for patients. This is very important" (Participant No. 17).

Responsiveness in reasoning
Patient's family and decision-making

From the viewpoint of participants, paying attention to the impact of treatment outcomes on family spirit and non-involvement of patients' uninformed companions and attention to the judgment and role of companions and getting help from the patient's family in decision making are considered important. Accordingly, the patient's family could help choose the treatment method in non-emergency conditions. "We do not need anyone's consent when we have an emergency procedure, but if we have an elective procedure, we will definitely inform the patient's

companion" (Participant No. 13).

Patient's family and disease

According to the participants, the patient's family could even help the treatment process in some circumstances. The cases such as choosing a treatment method, expressing lack of recovery, and preparing the patient to accept the facts of the illness are some of these cases. Some participants believe that the patient's companions often prefer that the patient is better informed about the lack of effectiveness of the treatment by doctors so that it could make the acceptance easier. Participants stated that telling the family members about the secrets of the disease is one of their challenges.

"First, I set the mood for the patient's family to tell them the truth" (Participant No. 4).

Patient and the truth of disease

In expressing the truth of the disease to the patient, the participants emphasized the consideration of issues such as the patient's age, collective good, simple expression of the disease, maintaining hope for the patient's life, and its effect on the patient's personal roles. They also asserted that the explanation of truths in various patients and getting help from patient in revealing the facts of the disease to the family and paying attention to the cultural conditions of the society are effective: "I see that in our cultural context, it is better for the patient to know the truth. For example, when they ask about their condition, I would say 'every disease needs follow-up', but if the patient found about the cancer and the situation could get worse, I don not explain everything clearly. Sometimes, the patient's age and spirits affect my decision about telling the truth" (Participant No. 7).

Incurable patients

In managing incurable patients, the cases such as giving an opportunity to choose a treatment, consideration of routine treatments, and guidance of patients to diagnostic reassurance measures and following the instructions were considered essential by the participants. They noted that paying attention to the gradual expression of the truth and avoiding the terms such as cancer and emphasizing the curability of the disease are necessary. They also believed that

showing respect for the patient and his/her family's will is effective to continue treatment until the last moment of life.

"I tell the patient companion about the incurable disease. I will surely do that. This is very important, but sometimes the patient does not want the companions to know. If I am about to tell the companions, I would tell someone who is more capable of understanding" (Participant No. 7).

Maximum efforts in treatment

Participants believed that maximum efforts in treatment of patients by prioritizing the benefit of the patient, choosing the best solution, avoiding arbitrary treatments, efforts to perform different treatment methods, and making changes in standard treatment plans, are necessary. They also remarked that prioritizing patient's health over the financial interests of the physician, avoiding any harms to the patient, using all the facilities and supportive treatments, and consulting are essential.

"It gets more cautious overtime. We do not hurt the patient, but we learn that it does not need any commotion. There are many ethical issues, but perhaps we could change the way we approach it. First, we improve the peace and then make a decision" (Participant No. 8).

Fair care

Participants in the study cited that efforts for patient's treatment similar to the efforts for their family members, perception and sympathy, and lack of prejudice in patient care are their professional principles. "I always put myself in patients' place to see their expectations of the doctors, so I could meet those expectations. It is better that one could see himself/herself on the other side of the table" (Participant No. 11).

Error management

Participants cited that expression of unintentional mistakes increased the patient's trust in the medical team and prevents bigger errors. Accordingly, the expression of mistakes should be explained gradually and in an understandable language and at the right time for the patient to provide the possibility of making up for damages and complications caused

by the error. Some participants noted differences in patients' reactions to mistakes and complaints of some of them, however, seeing doctors' efforts increases the patient's acceptance of this error. Some advised that it is better to avoid informing the patient. However, they emphasized informing the officials and defending the unintentional mistakes of other colleagues in management of the mistakes.

"I evaluate the situation, for example, when the patient is at ease I would slowly address the issue. In that moment, I do not think about being reprimanded" (Participant No. 7).

Attention to the patient's need for help

Participants pay a lot of attention to giving the priority to providing the patient's benefit, and in this case, they affirmed dealing decisively with others, accepting the outcomes, making changes in some laws, and ineffectiveness of external pressures. They noted that it is essential to accept more stress and pressure to ensure the patient's peace and look at it as a source of satisfaction.

"You feel satisfied when the patient's treatment is successfully finished. I would feel guilty if the damage was done to the patient" (Participant No. 1).

Discussion

Based on the themes gained from the participants' experiences in this study, the definition of metacognition in ethical reasoning in the medical group is a mental process in which the medical team uses their knowledge, skills, and experiences in accordance with scientific and reliable principles and process to make decisions. Ethically have the necessary and sufficient accountability.

Basics in reasoning

Participants in this study stated that communicating with the patient, building trust, making efforts for creating satisfaction, and morality are the fundamentals of metacognition in professional manner in moral reasoning.

In the four principles of medical ethics, the communication with the patient should be established in such a way that patients' rights are not violated. In this communication, the patient's authority in decision-making, patient's benefit from physician's

work, harmlessness of the decision-making for the patient, and observance of justice are preserved in all fields (34).

Communicating with the patient by identifying the patient's specific needs and patient's care leads to better moral reasoning (8,35). Communicating with the patient by building trust and satisfaction meets the principles of professional commitment in moral reasoning. Trust is a rule that is implicitly given to physicians so that the doctor can make decisions with more authority. On the other hand, understanding and communication with the patient are as important as diagnosis. A doctor with friendly behavior can see the patient satisfaction and the effectiveness of treatment (36).

Morality is one of the other principles of moral reasoning. The recent increase in ethical dilemmas indicates the need to pay more attention to moral values (37). The modern world's approach is a return to rationality and ethics, hence, the ethics are the center of future developments. Providing service while observing professional ethics has raised the patient's welfare criteria, respects his/her choice, and guarantees the privacy and security. Clinical decisions are also affected by professional and personal values (38). The role of professors in the development of mortality is significant. The development of moral values in students leads to the ability of moral reasoning and safe and ethical care (39).

Professional responsibility

Professional responsibility was among other principles of metacognition in moral reasoning. Maintenance of patient dignity, observance of professional rules, being responsible for duties, and maintenance of professional position are some of these themes. Paying attention to the patient's dignity, which is one of the rights granted to human beings (40,41), has a long history in the medical fields. Telling the truth to the patient preserves the human dignity of the patient and strengthens his/her sense of independence (42). Observance of professional rules is noted by preventing unpleasant legal consequences in moral reasoning. In this study, the subjects found that learning from past mistakes and consulting with experienced individuals can lead to awareness of legal aspects. In a study conducted to assess the physicians'

knowledge and attitudes toward legal issues, they stated that acquiring legal information is necessary and effective in decision-making (43). Observance of legal aspects in clinical decision-making prevents adverse consequences (44).

Keeping the patient's secrets is important in professional responsibilities. The patient's desire to hear the truth is one of the effective factors in revealing the patient's secrets (45). Training on the timing, location, and how to reveal the patient's secrets lead to compliance with professional responsibility in clinical decision-making. Development of confidentiality and responsibility is possible in students through theoretical and practical education in the medicine and the development of mental skills (46). The results of a qualitative study show that the most successful program in training decision-making skills is learning based on problem solving in real situations, and the methods such as inverted class are helpful in this regard (47). The professional behavior training in the medical department trains physicians capable of identifying difficult ethical situations and finding practical and ethical solutions (13). This also indicates the preservation of the dignity of medical fields in teaching medical ethics. For various reasons, the World Health Organization considers the high-quality health care, best decision-making, and resource management skills as the characteristics of a good physician (48). This indicates that keeping the dignity and position of the medical profession affects the decision-making (37).

Process in reasoning
Evidence-based reasoning

According to the participants in this study, getting help from the patient in decision-making, self-experience and others' experience, professional knowledge, and thinking beside the patient's bed are the evidences used metacognition in moral reasoning.

Today, patient's participation in decision-making is not only a basic necessity around the world, but also the patient should be given the opportunity to choose the best option (49). This increases the motivation to participate in medical activities and health care planning (50). Although some patients prefer the decision-making by doctors, today the tendency of those who would like to participate in decision-making

is growing (51). Participants in the study noted that self-experience and others' experience is important in the moral reasoning. Ethical issues are inherently complex and the cases such as experience contribute to this decision-making (6). Varcoe declared that the role of knowledge, experience, risk-taking, and problem-solving ability is effective in resolving the moral bottlenecks (52). Therefore, in order to achieve more skills in moral reasoning, the share of the others' experience can be increased (53,54). According to the results of the current study, the acquisition of knowledge and decision-making based on scientific principles was emphasized. Murrel believes that observing professional principles along with knowledge and skills indicates a physician's capability in decision-making (55). This capability requires gaining extensive academic knowledge, lifelong learning, up-to-date information, and scientific skills (56,57).

One of the other issues confirmed in this study was thinking beside the patient's bed. The physicians' approach in dealing with medical ethics is composed of determining the problem, collecting and organizing information, determining the ethical aspects of the problem, paying attention to obtaining more information, and determining the best work and its support, which is different in beginners and experts (6,58).

Analytical reasoning

Participants in this study pointed out that cases such as politics and law in decision-making, attitude in reasoning, religious beliefs, and mental process in reasoning are effective in analyzing moral situations. Studies represent that changes in the organization's policies and the effect of ethical conditions on workplace can affect the attitude and performance of the medical team (59), since coordination between professional and personal values is the most important way of carrying out the tasks based on ethics (60).

From the participants' viewpoint, the religious belief in reasoning is effective. Meta-ethical beliefs play a more important role than individual differences in making the decisions and judgments. The results of previous studies show that religious people are resistant in providing individual benefit (61). However, paying no attention to the students' education in observance

of ethics has led to gradual oblivion of moral issues, and people consider themselves only required to follow the clinical guidelines and considerations and no progress has been made in ethical decision-making. However, more familiarity and training regarding ethical concepts and following the religious and cultural teachings of society play a key role in promoting and developing the moral reasoning abilities in students (62). Another theme discussed in the mental process research was reasoning. The physicians began decision-making with a non-analytical process using the patient's symptoms and differential diagnoses, and in the case of decision-making not being provided, the work continued with an analytical process to make a final diagnosis (63).

Responsiveness in reasoning
Patient, disease, and family

Patient's family and decision-making, patient's family and disease, patient and the truth of disease, and incurable patients were the themes considered effective in metacognitive responsiveness in the moral reasoning. Studies indicate that patients and their families are much interested in better communication, their greater role in the decision-making process, and physicians' responsiveness to meet the health-care needs (64).

Excellence in care

According to the participants, the maximum efforts in treatment, fair care, error management, and attention to patient's need for help are excellence in care in the metacognition responsiveness in moral reasoning. Efforts for patient's recovery, especially in the difficult phases of the disease leads to the acquisition of knowledge and experience and development of moral reasoning phases in the medical team (55). Error management is another issue that is associated with ethical aspects. The blame culture is one of the causes of errors in medical centers. Making changes in the workplace culture and team affairs is effective in providing better care and reduced medical errors (65). After fair enforcement of laws during decision-making, fair care is provided in professional work (66).

Conclusion

Moral reasoning is the cognitive ability in analysis of

ethical assumptions and the use of rules in order to make the most satisfying decisions. One of the most important tasks of relevant organizations is to increase the capability of moral reasoning in learners. It seems that it is necessary to correct the teaching methods of moral reasoning to students, since the learners have many questions in mind and the training of moral reasoning is a good opportunity to use the explorer mind of the student in developing moral knowledge. Individual differences in using metacognitive strategies depend on their intelligence. Therefore, metacognitive knowledge with its compensatory role improves cognitive performance due to the use of these strategies.

Thus, given that thinking process in moral reasoning is not the same in all people and in many cases, it is outside of our realm of consciousness, by knowing the basics and process, it is possible to modify the curriculum and perform the effective educational interventions to provide an opportunity for the development of moral knowledge in students.

Acknowledgements

References

1. Samanci NK. A Study on the Link between Moral Judgment Competences and Critical Thinking Skills. Int J Environ Sci Educ 2015;10(2):135-43.

2. Azimi A, Alhani F. Educational Challenges in Moral Decision Making in Nursing. Med Ethics Hist 2008 Oct 10;1(4):21-30.

3. Paul R, Elder L. Critical Thinking: Ethical Reasoning and Fairminded Thinking, Part I. J Dev Educ 2009;33(1):38-9.

4. Dehghani A, Dastpak M, Gharib A. Barriers to respect professional ethics standards in clinical care; viewpoints of nurses.

5. Cerit B, Dinc L. Ethical decision-making and professional behaviour among nurses: a correlational study. Nurs Ethics 2013 Mar;20(2):200-12.

6. Ebrahimi HO, Nikravesh M, Oskouie F, Ahmadi FA. Stress: Major reaction of nurses to the context of ethical decision making. Razi J Med Sci 2007 Apr 10;14(54):7-15.

7. Goethals S, Gastmans C, de Casterlé BD. Nurses' ethical reasoning and behaviour: a literature review. Int J Nurs Stud 2010 May;47(5):635-50.

8. Swisher LL, Kessel GV, Jones M, Beckstead J, Edwards I. Evaluating moral reasoning outcomes in physical therapy ethics education: stage, schema, phase, and type. Physic Ther Rev 2012 Jun 1;17(3):167-75.

9. Brody H, Doukas D. Professionalism: a framework to guide medical education. Med Educ 2014 Oct;48(10):980-7.

10. Madani M, Saeedi Tehrani S. Evaluation and comparison of conventional ethical decision-making models in medicine. Iran J Med Ethics Hist Med 2016 May 10;9(1):11-25

11. Koohi, A, Khaghanizade M, Ebadi A. The relationship between ethical reasoning and demographic characteristics of nurses. Iran J Med Ethics Hist Med 2016 May 10;9(1):26-36.

12. Akturk AO, Sahin I. (2011). Literature review on metacognition and its measurement. Procedia-Social Behav Sci 2011 Jan 1;15:3731-6.

13. Eckles RE, Meslin EM, Gaffney M, Helft PR. Medical ethics education: where are we? Where should we be going? A review. Acad Med 2005 Dec;80(12):1143-52.

14. Freeman SJ, Engels DW, Altekruse MK. Foundations for ethical standards and codes: The role of moral philosophy and theory in ethics. Counsel Values 2004 Apr;48(3):163-73.

15. Safaeian L, Alavi S, Abed A. The components of ethical decision making in Nahj al-Balagha. Irani J Medl Ethics Hist Med 2013 Aug 10;6(3):30-41.

16. King PM, Mayhew MJ. Moral judgement development in higher education: Insights from the Defining Issues Test. J Moral Educ 2002 Sep 1;31(3):247-70.

17. Tsai TC, Harasym PH. A medical ethical reasoning model and its contributions to medical education. Med Educ 2010 Sep;44(9):864-873.

18. Asgari H. The relationship between professional ethics and the efficiency of the nurses employed in Imam Hospital and Mostafa Khomeini Hospital in Ilam. Iran J Med Ethics Hist Med 2016 Oct 10;9(3):65-73.

19. Abdullah S, Salleh A, Mahmud Z, Ghani SA. Moral value inventory for muslim adolescents. Procedia-Social Behav Sci 2010 Jan 1;7:106-12.

20. Kohlberg L. Moral stages and moralization. Moral development and behavior: Theory Res Social Issues 1976:31-53.

21. Lohfeld L, Goldie J, Schwartz L, Eva K, Cotton P, Morrison J, et al. Testing the validity of a scenario-based questionnaire to assess the ethical sensitivity of undergraduate medical students. Med Teach 2012;34(8):635-42.

22. McLeod-Sordjan R. Evaluating moral reasoning in nursing education. Nurs Ethics 2014 Jun;21(4):473-83.

23. Price J, Price D, Williams G, Hoffenberg R. Changes in medical student attitudes as they progress through a medical course. J Med Ethics 1998 Apr;24(2):110-7.

24. Black JE, Reynolds WM. Development, reliability, and validity of the Moral Identity Questionnaire. Personal Individ Differ 2016 Jul 1;97:120-9.

25. McAlpine H, Kristjanson L, Poroch D. Development and testing of the ethical reasoning tool (ERT): an instrument to measure the ethical reasoning of nurses. J Adv Nurs 1997 Jun;25(6):1151-61.

26. Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative: Lippincott Williams & Wilkins; 2011.

27. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res 2005 Nov;15(9):1277-88.

28. Mayring P. Qualitative content analysis. A companion to qualitative research 2004 Apr 21;1(2):159-76.

29. Ritchie J, Lewis J, Nicholls CM, Ormston R, editors. Qualitative research practice: A guide for social science students and researchers. sage; 2013 Nov 1.

30. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004 Feb;24(2):105-12.

31. Braun VCV, hayfield N, Terry G. Thematic Analysis. Handbook of Research Methods in Health Sciences. 2018.

32. Douglas E. Qualitative analysis: practice and innovation. Taylor & Francis; 2002.

33. Alhoseini M, Alhoseini Z, Mahmudian F. Investigating the moral and behavioral role of the physician in observing the patient's medical instructions in the treatment process. Med Ethics J 3(8), 99-101.

34. Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. BMC Med Educ 2009 Jan 8;9(1), 1-7.

35. Eveleigh RM, Muskens E, van Ravesteijn H, van Dijk I, van Rijswijk E, Lucassen P. An overview of 19 instruments assessing the doctor-patient relationship: different models or concepts are used. J Clin Epidemiol 2012 Jan;65(1):10-5.

36. Shafakhah M, Molazem Z, Khademi M, Sharif F. Facilitators and inhibitors in developing professional values in

nursing students. Nurs Ethics 2018 Mar;25(2):153-164.

37. Khaki S, Poorzanjani M. Investigating the Relationship between Nurses 'Professional Ethics and Quality and Providing Care for Patients' Perspectives. Clin J Nurs Midwifery 5(1), 1-11.

38. Shahriari M, Mohammadi E, Abbaszadeh A, Bahrami M. Nursing ethical values and definitions: A literature review. Iran J Nurs Midwifery Res 2013 Jan;18(1):1-8.

39. Avizhgan M, Mirshahjafari E. Dignity in medicine: emphasis on dignity of end stage patients. Iran J Med Educ 2012 Mar 10;11(9):1496-510.

40. Rosenberg AR, Wolfe J, Wiener L, Lyon M, Feudtner C. Ethics, emotions, and the skills of talking about progressing disease with terminally ill adolescents: a review. JAMA Pediatr 2016 Dec 1;170(12):1216-23.

41. Flickinger TE, Saha S, Roter D, Korthuis PT, Sharp V, Cohn J, et al. Clinician empathy is associated with differences in patient–clinician communication behaviors and higher medication self-efficacy in HIV care. Patient Educ Couns 2016 Feb;99(2):220-6.

42. Parker M, Willmott L, White B, Williams G, Cartwright C. Medical education and law: withholding/withdrawing treatment from adults without capacity. Intern Med J 2015 Jun;45(6):634-40.

43. Manson HM. The development of the CoRE-Values framework as an aid to ethical decision-making. Med Teach 2012;34(4):e258-68.

44. Asai A. Should physicians tell patients the truth? West J Med 1995 Jul;163(1):36-9.

45. Kuiper RA, Pesut DJ. Promoting cognitive and metacognitive reflective reasoning skills in nursing practice: self-regulated learning theory. J Adv Nurs 2004 Feb;45(4):381-91.

46. Cummings CL. Teaching and assessing ethics in the newborn ICU. Semin Perinatol 2016 Jun;40(4):261-9.

47. Cheng SY, Lin LH, Kao CH, Chan TM. Influence of Course in Medical Ethics and Law on Career Plans of Medical Students. Univer J Educ Res 2015;3(11):834-42.

48. Beykmirza R, Negarandeh R. What are the factors influencing nurses to neglect patients' autonomy and decision-making? Nurs Pract Today 2017 Nov 21;4(4):212-5.

49. Penninx BW, van Tilburg T, Kriegsman DM, Deeg DJ, Boeke AJ, van Eijk JT. Effects of social support and personal coping resources on mortality in older age: The Longitudinal Aging Study Amsterdam. Am J Epidemiol 1997 Sep 15;146(6):510-9.

50. Soliman HMM, Kassam AH, Ibrahim AA. Correlation between Patients' Satisfaction and Nurses' Caring Behaviors. J Biol Agric Healthc 2015 Jan 1;5(2):30-41.

51. Varcoe C, Doane G, Pauly B, Rodney P, Storch JL, Mahoney K, et al. Ethical practice in nursing: working the in-betweens. J Adv Nurs 2004 Feb;45(3):316-25.

52. Borhani F, Abbaszadeh A, Kohan M, Fazael MA. Nurses and nursing students' ethical reasoning in facing with dilemmas: a comparative study. Iran J Med Ethics Hist Med 2010 Oct 10;3(4):71-81.

53. Chiapponi C, Dimitriadis K, Özgül G, Siebeck RG, Siebeck M. Awareness of ethical issues in medical education: an interactive teach-the-teacher course. GMS J Med Educ 2016 May 17;33(3):Doc45.

54. Murrell VS. The failure of medical education to develop moral reasoning in medical students. Int J Med Educ 2014 Dec 27;5:219-25.

55. AFABoI M. Medical professionalism in the new millennium: a physician charter. Ann Intern Med 2002 Feb 5;136(3):243-6.

56. Yamani N, Changiz T, Adibi P. Professionalism and hidden curriculum in medical education. Med Edu Res Center

57. Kaldjian LC, Weir RF, Duffy TP. A clinician's approach to clinical ethical reasoning. J Gen Intern Med 2005 Mar;20(3):306-11.

58. Hwang JI, Park HA. Nurses' perception of ethical climate, medical error experience and intent-to-leave. Nurs Ethics 2014 Feb;21(1):28-42.

59. Altun I. Burnout and nurses' personal and professional values. Nurs Ethics 2002 May;9(3):269-78.

60. Piazza J, Landy J. " Lean not on your own understanding": belief that morality is founded on divine authority and non-utilitarian moral thinking. Judgment Decision Making 2013;8(6):639-61.

61. Rejeh N, Karimoy M, Borhani F, Khatooni A, Zirak M. Ability of moral reasoning of master's degree students in nursing at Tehran University of Medical Sciences in the face of professional ethical problems. J Med Ethics 8(28), 143-65.

62. Marcum JA. An integrated model of clinical reasoning: dual-process theory of cognition and metacognition. J Eval Clin Pract 2012 Oct;18(5):954-61.

63. Visser M, Deliens L, Houttekier D. Physician-related barriers to communication and patient-and family-centred decision-making towards the end of life in intensive care: a systematic review. Crit Care 2014 Nov 18;18(6):604.

64. Polit DF, Yang F. Measurement and the measurement of change: a primer for the health professions: Philadelphia, PA: Wolters Kluwer; 2016.

65. Self DJ, Baldwin Jr DC. Should moral reasoning serve as a criterion for student and resident selection? Clin Orthop Relat Res 2000 Sep;(378):115-23.