

Research Paper

The Ethical Considerations in the Main Practices of the Iranian Legal Medicine Organization: A Qualitative Study



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ABSTRACT

Background: Effective and acceptable practice in Legal Medicine (LM) requires special attention to ethical and professional behaviors. In LM, the importance of practitioners' compliance with ethical standards is higher. LM covers a wide range of practices, requiring specific ethical considerations. This study aims to identify the ethical principles for considerations in Iranian Legal Medicine Organization (ILMO) from the perspective of experts in LM.

Methods: This is an applied and qualitative study using in-depth interviews and conventional content analysis. The study was conducted in three steps: 1) Determination of the main areas of work by reviewing academic texts; surveying 131 experts in this field with a questionnaire. 2) Qualitative Study for determination of ethical considerations of these areas by structured and in-depth interviews with 49 owner's Forensic and medical ethics experts obtained by purposive sampling and theoretical saturation and analysis of interviews by the conventional approach of content analysis to specify propositions and confirm the reliability of 80% research in coding through the double-coder agreement method. 3) Drafting ethical guidelines by the research group (students, supervisors, and consultants) in the focus group meetings based on the results of the second step.

Results: The ethical principles of LM were categorized as general and specific principles according to the perspective of experts in LM. General ethical principles included virtue ethics, professional and ethical behavior, and proper environment and working conditions. The specific ethical principles included six principles related to the entire organization, legal physical examinations, legal mental examinations, dissection rooms and crime scenes, LM laboratories, and LM commissions.

Conclusion: Developing and implementing general and specific ethical guidelines for ILMO is recommended. The comprehensive and holistic view of ethical considerations for main practices of LM in Iran provided by this study can be seen as a good taxonomy and a preliminary step to develop local ethical guidelines.

Keywords:

Legal medicine, Medical ethics, Ethical principles, Ethical guidelines, Ethical codes

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1. Introduction

Legal Medicine (LM) is a branch of medicine that deals with the application of medical knowledge in legal problems [1]. LM is considered to be the field of study and accumulation of materials which are scientifically valid and legally admissible for the presentation of evidence in legal proceedings [2]. LM organizations have a legal authority to comment in the courts. Their tasks include giving advisory opinions to the courts, providing competent legal authorities in case of accidents, violations in medical profession, marital conflicts, issuing abortion or burial-transit permits, determining the cause of suspicious deaths, assisting to find the culprit, identifying the lineage, and appointing specialized medical commissions in difficult and sensitive cases. Since more than 98% of the opinions of LM experts are directly accepted by the judicial authorities, such organizations have a special place in the legal system and society which necessitates preserving public trust by taking ethical issues into consideration [3].

Effective and acceptable practice in LM requires special attention to ethical and professional behaviors. Medical ethics, medical professionalism, and organizational ethics provide guidance in this regard. Medical ethics is an applied branch of ethics that analyzes the ethical practice in clinical medicine and related scientific research areas. Medical professionalism refers to the set of principles, commitments, and values that characterize the essence of humanism in a professional work. Finally, organizational ethics expresses the values and principles of an organization to its employees and how the organization responds to internal or external stimuli, irrespective of governmental or regulatory laws. Ethical and professional principles are the most important factors that lead to ethical and professional decisions based on characteristics such as confidentiality, honesty, altruism, continuous self-improvement, and organizational excellence [4]. In LM practice, the importance of practitioners' compliance with ethical principles is doubled for a variety of reasons [5]. Firstly, the valid and impartial comments of LM practitioners for the legal proceedings and courts have an important and direct role in the administration of justice, which is a very important and sensitive issue for society. Secondly, many documents generally used in LM practice are confidential and sensitive. LM practitioners, must understand and follow the standards of the legal system, in addition to ethical standards. They also have to manage the physician-patient relationships. These force them to play multiple roles [6, 7]. Moreover, these practitioners have to deal with

people with special social or psychological conditions, such as victim or criminals [5].

LM covers a wide range of practices, varies from crime scene investigation to physical and psychological assessments, each of which requires specific ethical principles [8]. Providing a holistic, systematic, and comprehensive view of ethical principles and their prioritization can be critical to provide ethical guidelines for professional and organizational processes [9-11]. Moreover, the study of ethical principles in a particular cultural or social context is important to implement ethical guidelines. Ethical principles may be perceived differently in different countries because of difference in culture and providers of LM services. In other words, although the basic principles of ethics are accepted by different societies, they are understood differently [12, 13]. To our knowledge, no research has been conducted to examine the compliance to ethical principles in the main tasks of **Iranian Legal Medicine Organization (ILMO)**. Therefore, this study aims to investigate the ethical principles that should be considered by the **ILMO** from the perspective of experts in LM.

2. Materials and Methods

This is an applied and qualitative research. Participants were 49 managers and physicians with enough knowledge and experience in LM who were selected using a purposive sampling method. Semi-structured in-depth interviews were used for gathering information. conventional content analysis technique was used to analyze the qualitative data obtained from the interviews. The face-to face interview sessions were conducted individually in the workplace of participants, after appointing the time. The duration of interviews was not determined; it was based on the interactions between the researcher and participants, and the quality of responses; some might need more time to state their opinions. The average duration of interviews was 35 minutes, ranged from 20 to 55 minutes. As the interviews were semi-structured, a series of questions were formulated and categorized based on literature review, researchers' personal experience, and consultation with several experts in LM, to develop the initial draft and guide the interview. Before the interview, the researcher sent the summary of questions to the participants by e-mail. At the beginning of each session; the researcher reviewed the questions. The probing questions were also used to clarify and deepen the perspectives of participants. Concurrent data collection and comparative analysis were continued until theoretical data saturation.

Data analysis was performed in four stages: Preparation, familiarization, coding, and identification of key themes. All interviews were transcribed verbatim at the end. Then, each transcript was carefully read several times. At the same time, the relevant and important meaningful essences/semantic units were extracted and initial open codes were assigned to them by using the inductive coding approach. In the next stage, considering the similarities and differences among extracted open codes and their semantic relevance, they were grouped into sub-themes. The sub-themes were then assigned for each theme. Finally, the themes, sub-themes, open codes, and key statements extracted from the interviews were reported. To determine the validity of codes, participants were selected from the same LM centers. Also, the research questions, codes, themes, and sub-themes were reviewed and evaluated by colleagues and an expert in qualitative research. To ensure the reliability of coding, five interviews were analyzed by another researcher (the second author), independently and the percentage of intercoder agreement were calculated as following: $\text{Percentage of intercoder agreement} = \frac{\text{number of agreements} \times 2}{\text{Total number of codes}} \times 100$. The agreement

rate between the two coders was 80 %. Since it is >60%, the reliability of coding was confirmed.

3. Results

Demographic characteristics of the interviewed LM experts are summarized in Table 1. Content analysis of the interviews yielded two themes: (a) General ethical principles: All participants perceived them important for all LM practices. It includes three subcategories: Virtue ethics, professional and ethical behavior, and proper environmental and working conditions; (b) specific ethical principles: These principles were important for some of participants. It includes six subcategories: Principles related to the entire organization (organizational ethics), principles related to legal physical examinations, principles related to legal psychiatric and psychological examinations, principles related to dissection rooms and crime scenes, principles related to LM laboratories, and principles related to LM commissions. The general ethical principles and their sub-categories, themes, and codes are listed in Table 2 and the specific ethical principles and their subcategories are presented in Tables 3-8. Some of

Table 1. Demographic characteristics of the participants

	Variables	No.(%)
Gender	Male	28(57)
	Female	21(42)
Age	40-50 years	19(38)
	>50 years	30(61)
Educational background	Professional doctor of general medicine and LM expert	14(28)
	Professional doctor and specialist in LM	23(46)
	PhD or fellowship in medical ethics	2(4%)
	PhD in basic sciences related to LM*	10(20)
Work experience in LM	10-15 years	10(20)
	15-20 years	18(36)
	>20 years	21(42)
Working place	Headquarters of the ILMO	9(18)
	LM centers in Tehran province	35(71)
	LM departments in medical sciences universities in Iran	5(10)
Total		49(100)

* Including psychology, law, and traditional medicine.

Table 2. Classification of general ethical principles

Themes	Sub-themes	Codes
Virtue ethics	Approachability	Courtesy/being well-mannered Openness Receptiveness
	Patience	Calmness Composure/self-possession Tolerance
	Caring	Empathy Kindness Compassion
Professional and ethical behavior	Self-improvement	Continuous up-to-date specialized training Accountability skills training Communication skills training
	Ethical and professional investigation	Accurate, precise, and clear reports Conscientiousness, responsibility, and not being negligent Integrity and honesty Impartiality Accountability and responsiveness Simple and accessible information for the investigatory process
	Respect	Respectful behavior Respectful conversation Respect for religious, cultural and social beliefs Respect for human dignity Respect for individual autonomy and freedom
	Privacy and confidentiality	Protecting the privacy of clients Safekeeping Protecting the confidentiality of clients' or the deceased' information
Proper environmental and working conditions	Safety and security	Ensuring physical, psychological, and financial security of staff Maintaining staff's physical and psychological health Protecting the privacy of staff
	Physical environment	Safe and secure physical spaces Appropriate facilities and equipment proportional to the type of activities
	Financial	Reasonable salaries, benefits, and bonuses Payments commensurate with the difficulty of the tasks

statements by the participants related to the specific ethical principles are provided in next sections.

Ethical principles related to the entire organization (organizational ethics)

Table 3 presents the specific ethical principles related to the entire organization. A physician with 23 years of experience in LM stated: "we should not waste the time of clients and avoid useless consultations as far as possible." A toxicologist with 18 years of experience in LM said:

"Proper design of LM laboratories and departments, arrangement of facilities, and advanced ventilation systems are required to minimize any damage to staffs and guarantee their safety to consider non-maleficence."

Another physician with 23 years of work experience in LM believed:

"Improving the communication skills of ILMO staffs is important due to the fact that the majority of clients are people with anxiety and emotional instability due to causing injury to others or being injured, experiencing the death of relatives, having a legal issue being addressed, or waiting for performing special tests. Therefore, constant communication with such people requires the acquiring the communication skills."

A physician with 20 years of experience in LM and performing educational activities stated:

"It is necessary to provide conditions for teaching the latest methods in the best educational environments within ILMO or in other educational and research settings. The dynamic nature of LM and its related sciences

Table 3. Classification of specific ethical principles related to the entire organization

Themes	Sub-themes	Codes
Ethics of resource management	Adequate training	Training of professional ethics Continuous and up-to-date specialized training
	Supply and distribution of manpower	Facilitating investigations by providing trained staff and high-quality equipment and facilities Providing and distributing examiners with the same gender as the clients (Optional) Providing and distributing staff to balance the number of referrals in different work shifts Periodic inter-sectoral changes in staff positions to prevent burnout
	Physical and mental health	Necessary arrangements for maintaining the physical and mental health of staff (e.g., a determined schedule for periodic examinations)
Ethical management	Ethics manager	Managers as role models in observing ethics (e.g., responsibility, professionalism, honesty, justice, fairness, empathy, organizational loyalty, conflict of interest management, acceptance of criticism, participatory management, and determination) Considering the professional ethics in the selection and cultivation of managers
	Inter-sectoral cooperation	Inter-sectoral cooperation with the steward and supervisory organizations for health Inter-sectoral cooperation for outsourcing
	Process management	Process management for timely report and accelerating the judiciary procedures
	Ethical supervision	Adequate supervision of staff's qualitative, ethical, and professional performance (including research ethics)
	Reasonable payments	Reasonable payments commensurate with the task difficulty and quality
Ethical structure	Suitable physical space	Re-structuring to provide suitable and separate physical spaces for different units
	Laboratory development	Re-structuring to develop and improve the laboratory methods
	Health and safety	Re-structuring to provide security and physical protection for staff
	Upstream documents	Developing regulations and ethical guidelines for the organization (including appropriate communication patterns)
Ethical services to clients	Suitable environment and facilities	Providing suitable environment and sanitary and welfare facilities for clients
	Appropriate information	Providing appropriate information to clients not in person (online or by interactive voice response)
	Time and cost management	Avoid to waste clients' time Avoid to request unnecessary consulting

as well as the variety of methods used by criminals require the LM staffs to update their LM knowledge.”

Ethical principles related to legal physical examinations

Table 4 presents the specific ethical principles related to legal physical examinations. An expert with 15 years of experience in LM stated: “Maintaining the confidentiality or privacy of a patient is very important in the medical profession. Therefore, their information should be kept as secret.” An expert with 22 years of experience in LM and the head of one of LM centers in Tehran said: “We should have respect for clients. We should not label them evil, criminal or murderer. Even if they are murderer, we have no right to disrespect them.”

Ethical principles related to legal psychiatric or psychological examinations

Table 5 presents the specific ethical principles related to legal mental examinations. A psychiatrist with 27 years of experience in LM said:

“The clients should cooperate during the interviews. If we provide the requirements for the interview, they will cooperate. The most common reason for their lack of cooperation is the poor relationship with them.”

A psychiatrist with 19 years of experience in LM stated

“It’s necessary for forensic psychiatrists to reduce the environmental stressors and make a cooperative interaction with the client. In the interviews, psychiatrists

Table 4. Classification of specific ethical principles related to legal physical examinations

Themes	Sub-themes	Codes
Respect for autonomy and human dignity	Respect clients during physical examination	Politeness, kindness, empathy and respect for human dignity Considering the physical condition and disability of the person being examined Respect for the religious beliefs and socio-cultural norms of clients Responding to the clients' objections about the results of examinations Providing appropriate information to the clients about the process of physical examination
	Informed consent before physical examination	Receiving informed consent before physical examination (at least verbally) Receiving a written informed consent before the clinical examinations of the genital organs
	Confidentiality and physical privacy of clients	Reporting the information obtained from the physical examinations only in case of the request of judicial authorities Preventing from the access of unrelated people to the clients' information and data banks Providing enough physical space to prevent the physical examination of clients in the presence of others
Ethical and professional physical examinations	Impartiality in physical examination	Avoiding any racial, ethnical, cultural or gender discrimination during physical examinations Considering the injuries caused by arbitrary beatings during the arrest Being impartial and fair in collecting, documenting, preserving, interpreting, and presenting evidences to the courts
	Benevolence and non-maleficence during physical examination	Active listening during the physical examination Avoid to refer the clients for unnecessary para-clinical examinations Prompt referral of rape victims for diagnostic and therapeutic procedures (e.g., HIV or pregnancy tests) Not asking the clients for any illegal privilege or benefit and refuse to accept illegal offers Avoid unnecessary diagnostic workups because of fee-splitting
	Honesty in physical examination	Honestly and precisely evaluation and reporting of the conditions of clients and their type of injuries Honest conversations with the clients Avoid tampering, fraud, or unnecessary use of documents

should be respectful and responsive. They should try to reduce the clients' psychiatric and psychological problems through appropriate communication and enough attention. They should be morally responsible."

A psychiatrist with 17 years of experience in LM believed:

"The forensic psychiatrists should not distort or change any information related to the accused, misinterpret the existing evidences, try to avoid or reject conflicting evidences, or have any prejudice."

Ethical principles related to dissection rooms and crime scenes

Table 6 summary the specific ethical principles related to dissection rooms and crime scenes. A faculty member with 26 years of experience in LM said:

"One day, when I was going to teach the dissection lessons, I was thinking about the day that I was on a dead body with a scalpel in my hand, and without realizing it, I was found myself tapping on the dead body while talking (like tapping a pencil on the table). I stopped quickly and blamed myself: imagine that his parents were there!

Tapping on the dead body isn't ethical, even if there is no intention of insulting or any damage to the body."

A physician with 17 years of experience in LM who was in charge of the dissection room told:

"People in the dissection room do not have a good view of the autopsy; according to them, autopsy is like slicing the corpse, but when we describe the autopsy as a surgery, it gives them a sense of relief."

A physician with 26 years of experience in LM and the head of one of LM centers in Tehran argued:

"In my opinion, the LM practices related to examination of dead bodies need a lot of ethical considerations. Imagine a bereaved family comes to the center 10 minutes after the end of my working hour; I can tell them that the time is over and I don't accept the case, but morality tells me to accept it. Although by its rejection I don't do anything illegal, my act is unethical."

Table 5. Classification of specific ethical principles related to mental examinations

Themes	Sub-themes	Codes
Respect for autonomy and human dignity	Respect clients during mental examination	Respect for human dignity of the client (even if is culpable or accused) Treating the clients respectfully, kindly, and politely
	Quiet and safe environment	Reducing environmental stressors Providing a quiet and safe environment for the interview Avoid hand cuffing or leg cuffing of the client during interview
	Confidentiality and privacy of clients	Respect for the autonomy of clients and not insisting on disclosing secrets Avoiding disclosing clients' information to others except to their trusted colleagues Assuring the clients of not disclosing their information and secrets to others except to the competent legal authorities
Ethical and professional mental examinations	Impartiality in mental examination	Avoid the influence of factors such as race, religion, gender, sexual orientation, or specific beliefs of clients on mental examination Avoid legal mental examination of patients in private offices of LM psychologists or psychiatrists to guarantee impartiality Conducting mental interviews purposefully, independently, impartially, and fairly Conducting interview in the absence of the client's lawyer
	Benevolence and non-maleficence during mental examination	Active listening during the mental examination Using novel and valid scientific methods in the interview Issuing certificates carefully with good quality Ordering an immediate hospitalization in case of any risk for the client or others
	Honesty in mental examination	Not committing to immoral acts such as accepting bribes, lying and workplace violations Avoid conflicts of interest Not addressing issues beyond the clients' knowledge and experience in psychiatry or psychology

Ethical principles related to LM laboratories

Table 7 presents the specific ethical principles related to LM laboratories. A pathologist with 30 years of experience in LM stated:

“Experts and staffs of LM laboratories as well as other departments, in addition to paying attention to the rights of clients, should regulate their professional relations with colleagues so that they understand each other’s situations while helping each other to achieve their goals.”

A doctor of clinical laboratory science with 18 years of experience in LM said:

“Collecting, preserving, transferring, and using samples taken from clients or autopsy samples should be done in such a way that they be in favor of the interests of clients or the deceased. Their rights, demands, and confidentiality, must be strictly observed.”

Ethical principles related to LM commissions

Table 8 presents the specific ethical principles related to LM commissions. A physician with 22 years of experience in LM who was in charge of LM commissions:

“In my opinion, in LM commissions and in coordination with the plaintiff or the defendant for receiving ex-

planations or holding the meeting, our treatment should be accompanied by respect to the human dignity. We should refrain from any insults, humiliation, prejudice, and choosing a side.”

A physician with 17 years of experience in LM and a member in LM commissions argued:

“It’s important to have a right behavior, be polite, listen to the plaintiffs and the defendant, and not look at them in the commissions. Most of the mistakes in the commission results from the fact that many members close their minds before listening to the explanations of the plaintiff and the defendant. This is wrong.”

4. Discussion

The study showed that the ethical principles that should be considered by the ILMO are general and specific ethical principles, according to the perspective of LM experts. This is similar to the results of Yadav [8]. The general ethical principles that should be considered in all main procedures of ILMO were categorized as: Virtue ethics, professional and ethical behavior, and proper environment and working conditions. Virtue ethics similar to other personal characteristics can be trained and continually improved. Virtue ethics is one of three well-known types of normative ethics developed

Table 6. Classification of specific ethical principles related to dissection rooms and crime scenes

Themes	Sub-themes	Codes
Respect for autonomy and human dignity	Respect for the dead body	Respect the dignity and proper coverage and movement of the dead body Avoid unnecessary investigations if the cause of death is known and the relatives of the deceased have no complaint Limiting the need for dissecting, repairing, and reconstructing of the dead body as much as possible
	Respect for the relatives of the deceased	Providing proper information to the relatives (e.g., information about administrative procedures, necessary documents and costs) Describing the autopsy as a surgery for the relatives in a proper language Being patient when talking to the relatives Having good communication to decide on the use of body tissues and organs for transplantation and receiving informed consent Providing a suitable seating place, and sanitary and welfare facilities for the relatives in the reception and waiting areas
	Privacy and confidentiality of the deceased and their relatives	Protecting the confidentiality of the deceased's information Covering the genital areas of the dead body and avoiding unnecessary contact with them Observing professional ethics while investigating crime scenes (e.g., respect for the privacy of the deceased's family)
Ethical and professional investigation in dissection rooms and crime scenes	Honesty in proving and reporting the facts	Honestly and precisely evaluation and reporting of the condition and damages to the dead body Precisely examining the dead body based on scientific criteria to find the truth Impartially collecting, documenting, preserving, and interpreting the evidence at the crime scenes and dissection rooms and reporting them to the court Improving the scientific knowledge and skills of staff to precisely examine the dead bodies and investigate the crime scenes Balancing the number of referrals to physicians for examining the dead bodies in their working shifts

Table 7. Classification of specific ethical principles related to LM laboratories

Themes	Sub-themes	Codes
Respect for autonomy and human dignity	Respect to the clients	Designing proper spaces for easy movement of the disabled clients
	Privacy and confidentiality of clients	Protecting the confidentiality of the laboratory samples by coding Avoid disclosing the clients' information to other people except to their trusted colleagues Protecting the privacy of clients when admitting, obtaining information, and sampling Protecting the confidentiality of the defendants' samples until the exact verdict is determined Laboratory sampling by staff of the same gender (Optional)
Ethical and professional investigation in LM laboratories	Honesty in laboratory investigations	Reporting the results of diagnostic tests honestly Not committing immoral acts such as accepting bribes, lying and changing the test results Conducting tests as quickly as possible to prevent delays in judiciary procedures Working with conscience and not changing the test results Considering professional ethics in accepting job applicants
	Beneficence and non-maleficence during laboratory-investigations	Conducting tests properly and being responsible for possible mistakes Attending timely in crime scenes to accelerate the identification of bodies and transfer samples to the laboratories Designing and providing facilities for the laboratories such as advanced ventilation systems to guarantee the safety of staff
	Responsibility for the quality of test and care of samples	Utilizing valid and novel laboratory methods Supervising the laboratory equipment and new devices extensively and appropriately Supplying required laboratory equipment and facilities Investigating samples carefully and diligently Being responsible for improving communication skills of laboratory staff Destroying the DNA samples taken from the accused clients after proving their innocence Providing the necessary physical facilities and equipment to store laboratory samples and prevent them from spoilage Coding and storing laboratory samples under strict protection regulations

Table 8. Classification for of ethical principles related to LM commissions

Themes	Sub-themes	Codes
Respect for autonomy and human dignity	Respect to the clients	Respect for all people in commission meetings (regardless of being culpable and accused) Determining the exact time of meetings to prevent keeping the plaintiff and the defendant waiting for the meeting Giving appropriate time to the plaintiff and the defendant to present their explanations in the commission meetings
	Quiet and safe environment for the clients	Providing a quiet and safe environment for the meetings Reducing stressful factors and providing interactive dialogues in the commission meetings Avoid meeting the plaintiff and the defendant in commission meetings by necessary arrangements Having Kind and respectful behavior with the plaintiff and the defendant in the commission meetings and obtaining explanations before and after the commission meetings Managing the meeting properly to prevent verbal conflicts among the experts, the plaintiff, and the defendant
	Confidentiality	Avoid disclosing information by commission members to other people except to those being legally competent Protecting the confidentiality of information submitted to the commission and not publishing them in social media
Ethical and professional investigation in LM commissions	Impartiality	Quarantining the authority and independence of experts to state their opinions in commissions Citing the opinions of commission members based on valid sources while respecting their opinions Avoid conflicts of interest Avoid biases and asking frequent and unclear questions, especially in psychiatrist meetings Informing new experts and providing the necessary basic training to manage and evaluate cases impartially Employing trusted and specialized experts and faculty members (if possible) for the commissions

by philosophers to emphasize the moral character (or characteristics for doing a right action) to make an ethical decision. While other two types of deontology and consequentialism are based on the ethical guidelines to give us right actions. virtue ethics guide and assess the traits of a moral character [14]. In recent years, virtue ethics is experiencing a strong upsurge and renewal of interests in biomedical ethics [14-16]. Many researchers such Axtell and Pellegrino have strongly argued the central role of character traits (virtues) in applied ethics and medicine [17, 18]. Deval also discussed the importance of virtues in LM practice [19]. According to the views of LM experts in our study, approachability, patience, and caring are virtue ethics required to be considered in LM practice. Having these virtues are very necessary for LM practitioners because their clients are often in bad mental conditions (e.g., experienced loss or committed a crime or suicide) or are often physically injured (e.g., experienced rape or violation). Furthermore, according to the LM experts, LM practitioner should have following professional and ethical behaviors: Self-improvement, protecting the privacy and confidentiality, respecting clients, and carrying out ethical and professional investigations. In fact, LM profession is different from other professions because it has the legal power and duty to regulate the members and practices; it happens through various ways such as the commitment of professionals to self-improving. Moreover, LM practitioners usually have access to information which is sensitive and important for

the completion of trials; therefore, the confidentiality of this information is even more important than confidentiality of information in medicine. As mentioned above, the people referred to the **ILMO** have specific conditions which doubles the importance of respectful behaviors towards them (compared to the behaviors in the patient-physician relationships). For example, ethics and professionalism ask LM practitioners to respect for autonomy and human dignity of clients even if they were culpable or accused of murdering.

LM practitioners in **ILMO** must have ethical and professional behaviors, at least at three areas. Firstly, they should self-regulate the sensitive and complicated profession of LM, so that the community, healthcare providers, and the judiciary system can trust them. Secondly, they should help the judiciary system to be ethical and professional and achieve their goal (realization of justice), because their comments are important in issuing verdicts and directly affect the people's lives, properties, and reputations. Thirdly, they should help the medical team, because LM commissions which are one of the important parts of **ILMO** are also involved in investigating medical malpractice. The participants in our study also emphasized a set of principles that should be considered for the working environment of **ILMO** staff: Ensuring their safety and security, providing appropriate physical environment, and financial incentives.

The participants also reported organizational ethics, as one of specific ethical principles that is related to the entire ILMO. It included the ethics related to management of resources, organization, structure, and services provided to the clients. Providing adequate training, supply, and distribution of manpower, necessary arrangements for maintaining the staff's physical and mental health, and providing a convenient physical space for clients are some of the elements of organizational ethics for ILMO. Negligence of ethical principles in behaviors and actions by managers and staff is a main factor for major problems that question the legitimacy of the organization and its actions and, thus, cause damage to the reputation, profit, and success of the organization [20-22]. Therefore, deliberately pursuing a clear policy to implement organizational ethics should be considered as a necessity for ILMO.

The present study showed that the respect for autonomy and human dignity of clients (respect to the clients, obtaining informed consent, and protection of their privacy and confidentiality), and providing ethical and professional examinations (maintaining honesty, impartiality, and responsiveness as well as beneficence and non-maleficence) were the main specific ethical principles for ILMO. The concepts of respect for autonomy, beneficence, non-maleficence, and justice are the four principles introduced by Beauchamp and Childress in their framework for ethical evaluation in biomedical practice [23]. This framework also can help LM practitioners for ethical evaluation. However, there are important considerable differences. For instance, justice in their theory mainly means justice in distribution of resources, while in LM practice it indicates the criminal justice. Maintaining impartiality is more important in LM than in medicine, since the realization of justice definitely needs impartiality.

Our study showed that creating a quiet and safe environment for mental examination is an important principle, as reported in legal psychology [24-27]. Specific ethical principles reported by the participants for the practices related to dissection room (limiting the need for dissecting, repairing tissue, and reconstructing the body as much as possible) are in accordance with the literature [28]. Furthermore, protecting the confidentiality of the defendants' samples until the exact verdict is determined was reported as a specific ethical principle for LM laboratories in our study, as it has also been mentioned in other studies [29, 30]. The participants in our study also emphasized other principles such as providing a suitable place for seating, sanitary and welfare facilities in the reception and waiting areas, or giving appropriate information to the clients about the process of autopsy.

Another reported principle was outsourcing some of previous duties to improve the ethical and professional state of the organization and prevent staff burnout.

To our knowledge, this study was the first study that identified the ethical principles to be considered by the ILMO. In this regard, no similar study was found to compare findings. For LM practices such as DNA testing there are specific ethical principles which require more deep and detailed investigations; it was not investigated in this study because we it is holistic, systematic, and comprehensive review of ethical principles for the ILMO practices, from crime scene investigation to mental examinations. In this regard, the participants included a wide range of practitioners and experts with considerable work experience in LM. Therefore, the ethical principles for DNA testing and other laboratory practices were provided under the title of "ethical principles related to LM laboratories".

The results of this study can be used for developing and implementing general and specific ethical guidelines for LM practices in Iran. Such guidelines have several important functions: They can guide the ethical conduct of practitioners in LM, and define general standards for practitioners. Compliance with these guidelines can be a basis for ethical and professional auditing and accreditation [31]. According to the findings, providing upstream documents for ethical structuring and supervision was a specific principle related to organizational ethics in ILMO. However, these guidelines should be proactive and cover not only the existing challenges, but also the future challenges. As Taborda et al. [32] suggested, the LM will face important challenges in the next century, challenges related to genetic manipulation or keeping the confidentiality of electronic documents. These challenges should be assessed in future studies.

5. Conclusion

Effective and satisfactory performance in ILMO necessitates the consideration of general and specific ethical and professional principles. Developing and implementing general and specific ethical guidelines for LM in Iran are suggested. A comprehensive and holistic view of ethical principles for IMLO provided by this study can be seen as a good taxonomy and a preliminary step to develop ethical guidelines for Iran.

Ethical Considerations

Compliance with ethical guidelines

This research was ethically approved by the Research Ethics Committee of [Tehran University of Medical Sciences](#) (Code: IR.TUMS.MEDICINE.REC.1396.4330). Verbal and written informed consents were obtained from all participants. They could leave the study at any time and were assured of the confidentiality of their information.

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Authors' contributions

All authors contributed equally to this work

Conflict of interest

The authors declared no conflict of interest.

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References

- [1] Beran RG. What is legal medicine-Are legal and forensic medicine the same? *Journal of Forensic and Legal Medicine*. 2010; 17(3):137-9. [DOI:10.1016/j.jflm.2009.09.011 PMID:20211453] [PMID]
- [2] Wecht CH. The history of legal medicine. *The Journal of the American Academy of Psychiatry and the Law*. 2005; 33(2):245-51. [PMID]
- [3] Masjedi Arani A. Iranian Legal Medicine Organization. https://en.lmo.ir/index.php?module=cdk&func=loadmodule&system=cdk&sismodule=user/content_view.2
- [4] Post SG. *Encyclopedia of bioethics*. 3th ed. USA: Macmillan Reference; 2004. https://books.google.com/books/about/Encyclopedia_of_Bioethics_I_M.html?id=L1BqAAAAMAAJ
- [5] Kalmbach KC, Lyons PM. Ethical issues in conducting forensic evaluations. 2006. <https://www.semanticscholar.org/paper/Ethical-Issues-in-Conducting-Forensic-Evaluations53>
- [6] Woody RH. Ethical considerations of multiple roles in forensic services. *Ethics & Behavior*. 2009; 19(1):79-87. [DOI:10.1080/10508420802623690]
- [7] Rogers R. Ethical dilemmas in forensic evaluations. *Behavioral Sciences & the Law*. 1987; 5(2):149-60. [DOI:10.1002/bsl.2370050207 PMID:11650773] [PMID]
- [8] Yadav PK. Ethical issues across different fields of forensic science. *Egyptian Journal of Forensic Sciences*. 2017; 7(1):10. [DOI:10.1186/s41935-017-0010-1 PMID:28775903 PMID:PMC5514178] [PMID] [PMCID]
- [9] Gilman SC. Ethics codes and codes of conduct as tools for promoting an ethical and professional public service: Comparative successes and lessons. 2005. <https://insightsonindia.com/wp-content/uploads/2013/09/codes-of-ethics-oecpdf>
- [10] Sheikh A. Death and dying-a Muslim perspective. *Journal of the Royal Society of Medicine*. 1998; 91(3):138-40. [DOI:10.1177/014107689809100307 PMID:9659326 PMID:PMC1296563] [PMID] [PMCID]
- [11] Sajid MI. Autopsy in Islam: Considerations for deceased Muslims and their families currently and in the future. *The American Journal of Forensic Medicine and Pathology*. 2016; 37(1):29-31. [DOI:10.1097/PAF.0000000000000207 PMID:26505228] [PMID]
- [12] Taylor SK, Bergeron WP. Cultural considerations in forensic science in the United States. 2015. <https://www.semanticscholar.org/paper/Cultural-Considerations-in-Forensic-Science-in-the-Taylor-Bergeron/a55c8e260adf22804bc93a>
- [13] Rispler-Chaim V. The ethics of postmortem examinations in contemporary Islam. *Journal of Medical Ethics*. 1993; 19(3):164-8. [DOI:10.1136/jme.19.3.164 PMID:8230149 PMID:PMC1376285] [PMID] [PMCID]
- [14] Moosapour H, Mashayekhi J, Zahedi F, Soltani A, Larijani B. General approaches to ethical reasoning in Islamic biomedical ethics discourse. *Journal of Medical Ethics and History of Medicine*. 2018; 11:11. eCollection 2018. [PMCID]
- [15] Sugarman J, Sulmasy DP. *Methods in medical ethics*. Washington, D.C.: Georgetown University Press; 2001. https://books.google.com/books/about/Methods_in_Medical_Ethics.html?id=-5a0nza21ZMC
- [16] Ashcroft R, Lucassen A, Parker M, Verkerk M, Widdershoven G. *Case analysis in clinical ethics*. Cambridge: Cambridge University Press; 2005. https://books.google.com/books/about/Case_Analysis_in_Clinical_Ethics.html?id=ueCkzgeEACAAJ
- [17] Axtell G, Olson P. Recent work in applied virtue ethics. *American Philosophical Quarterly*. 2012; 49(3):183-203. <https://www.jstor.org/stable/23213479>
- [18] Pellegrino ED. Toward a virtue-based normative ethics for the health professions. *Kennedy Institute of Ethics Journal*. 1995; 5(3):253-77. [DOI:10.1353/ken.0.0044 PMID:10144959] [PMID]
- [19] De Vaal C. Raising ethical issues in the dead: An exploration of ethical challenges in Forensic Medicine [PhD, Dissertation]. Stellenbosch: Stellenbosch University; 2018. <http://scholar.sun.ac.za/handle/10019.1/103736>
- [20] Aansari M, Hosseini A, Rahmany Youshanlouei H, Seifi S. [Effect of professional ethics on the loyalty of bank customers

- (Persian)]. *Ethics in Science & Technology*. 2012; 7(3). <https://www.sid.ir/en/Journal/ViewPaper.aspx?ID=306330>
- [21] Melson KE. Codes of ethics in forensic science societies: The organizational parameters of morality and conduct. In: Upshaw Downs JC, Ranadive Swienton A, editors. *Ethics in forensic science*. Cambridge: Academic Press; 2012:81-135. [DOI:10.1016/B978-0-12-385019-5.00004-X]
- [22] Cordner S, Leahy F. Ethics and research on bodies in the jurisdiction of coroners or medical examiners. *Academic Forensic Pathology*. 2013; 3(3):301-11. [DOI:10.23907/2013.040]
- [23] Beauchamp TL, Childress JF. *Principles of biomedical ethics*. USA: Oxford University Press; 2001. https://books.google.com/books/about/Principles_of_Biomedical_Ethics.html?id=_14H7MOW1o4C
- [24] Austin W, Goble E, Kelecevic J. The ethics of forensic psychiatry: Moving beyond principles to a relational ethics approach. *The Journal of Forensic Psychiatry & Psychology*. 2009; 20(6):835-50. [DOI:10.1080/14789940903174147]
- [25] Guilmette TJ, Hagan LD. Ethical considerations in forensic neuropsychological consultation. *The Clinical Neuropsychologist*. 1997; 11(3):287-90. [DOI:10.1080/13854049708400457 PMID:11657024] [PMID]
- [26] Swanepoel M. Ethical decision-making in forensic psychology. *Koers*. 2010; 75(4):851-72. http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2304-85572010000400009
- [27] Taborda JG, Arboleda-Flórez J. [Forensic psychiatry ethics: Expert and clinical practices and research on prisoners (Portuguese)]. *Brazilian Journal of Psychiatry*. 2006; 28(S 2):s86-92. [PMID]
- [28] Amoroso J. Consenting recently bereaved adults for post mortem research: An evaluation of ethical considerations. *Journal of Forensic Radiology and Imaging*. 2016; 4:12-6. [DOI:10.1016/j.jofri.2015.12.003]
- [29] World Health Organization (who). *Ethical practice in laboratory medicine and forensic pathology*. Geneva: WHO Regional Publications; 1999. <https://apps.who.int/iris/handle/10665/119604>
- [30] Williams R, Wienroth M. Ethical, social and policy aspects of forensic genetics: A systematic review. 2014. https://nrl.northumbria.ac.uk/id/eprint/16313/1/Forensic_Genetics_ELSA_Review_Williams_Wienroth.pdf
- [31] Georgia H, Tucker L, Kirkwood C, Telyea B, Melnikoff A, Sager R, et al. Northwest association of forensic scientists. 1983; 9(2). <http://nwafs.org/newsletters/83%20June.pdf>
- [32] Taborda JG, Arboleda-Flórez J. Forensic medicine in the next century: Some ethical challenges. *International Journal of Offender Therapy and Comparative Criminology*. 1999; 43(2):188-201. [DOI:10.1177/0306624X99432006 PMID:11658090] [PMID]
- [33] Saeeddi Tehrani S, Nayeri F, Parsapoor A, Jafarian A, Labaf A, Mirzazadeh A, et al. Development of the first guideline for professional conduct in medical practice in Iran. *Archives of Iranian Medicine*. 2017; 20(1):12-15. [PMID]