

Exploring the challenges and ethical requirements of medical sciences education during COVID-19: a qualitative study

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Abstract

The controversial role of ethics in clinical education and its ability to draw the attention of a large audience is inevitable. The issues and challenges of the COVID-19 pandemic have transformed the clinical education environment. This study was conducted to explore the challenges and ethical requirements of medical sciences education during the COVID-19 pandemic in 2020. The study was qualitative research and the instrument was a semi-structured interview. The participants included faculty members of the basic and clinical Sciences at Iran University of Medical Sciences. After 16 rounds of interviews, theoretical saturation was achieved. Qualitative data were analysed using conventional content analysis, which resulted in 81 preliminary codes and 28 sub-categories. Finally, two themes of "ethical challenges" and "ethical requirements", and 10 categories were achieved. The categories were consisted of "being patient-centred", "social accountability of curriculums", "ethical challenges of the clinical environment", "the poor performance of the clinical faculty members and students", "being justice-centred", "raising awareness", "observing clinical research ethics", "preservation and promotion of mental health", "patient confidentiality", and "respect for individuals". We hope the ethical challenges in medical education that were created due to the emergence of Covid-19 can be reduced and eliminated by defining a framework for ethical requirements.

Keywords: Medical ethics; Medical education; COVID-19; Ethics in education; Clinical performance.

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Introduction

The increasing advances in medical sciences, diagnosis of various diseases, the discovery of effective drugs in the treatment of fatal diseases, and the emergence of new diseases have led to an inevitable necessity for an ethical approach to the medical professions (1). The term “emerging diseases” refers to diseases that evolve from unknown novel infectious agents, or are created by known ones, which expand geographically, or are subject to drug resistance, and are on the rise in terms of prevalence (2). Indeed, the causal factors of such emerging infectious diseases have been identified in the past two to three decades. According to this description, we are currently faced with over 30 emerging infectious diseases (3), among which are common diseases between humans and animals. Some of the infectious agents responsible for such diseases might undergo more changes and be transferred from human to human in a more exclusive manner (4). Basic vulnerabilities of the individuals to emerging diseases have increased so far. Reducing the vulnerability necessitates measures that empower individuals and societies to make effective choices, and hence, control health-related risks that they might be exposed to. Lack of ethical measures will result in challenges and consequences that will reduce patients’ satisfaction and the quality of care services. Therefore, concerning the importance of ethics in providing care to patients diagnosed with newly emerging diseases, with a special emphasis on the novel coronavirus, it is necessary for students

involved in an internship, apprenticeship, and the healthcare workforce to be observant about the ethical issues. With regard to the increasing number of COVID-19 patients across the world and the surge of COVID-19 in Iran, we are witnessing a distressing mortality rate in hospitals across the nation. Meanwhile, the hospital healthcare personnel, especially physicians and nurses, have the highest contact with these patients. Thus, it is essential that alongside healthcare issues, the significant ethical challenges and issues created in this regard should be considered (5-7). The emergence of infectious diseases has caused medical sciences universities to respond differently to these emergency conditions (such as full closure or online and virtual teaching), causing several challenges for the students. Existing experiences, such as encountering SARS in China and Canada in the years 2000 and 2003, retrospectively, indicate that replacing the typical curriculum with a distance-learning one has not been very successful (8). The emergence of the COVID-19 pandemic has resulted in a great disturbance in medical education and professional training (9). For example, these changes include reduced hours of instruction, students’ exposure to the patients, and lack of skills acquisition in providing clinical care and medical competencies capabilities (10). Providing clinical training and assessment, holding reflection workshops and international conferences to participate in educational programs, and using educational scholarships are among the major challenges, as discussed by the American

Medical Association (8). Considering the global prevalence of COVID-19, there is an absolute necessity for adequate measures to be taken to provide better education in all basic and clinical sciences departments for proper healthcare delivery. Considering the sensitive role of ethics in clinical training and the high attention on this issue, certain challenges have transformed clinical training environments after the coronavirus pandemic. Since qualitative studies provide researchers with more in-depth information, this research was conducted to explore the challenges and ethical requirements for medical sciences education during the COVID-19 crisis at Iran University of Medical Sciences. It is anticipated that the results of this study will familiarize professors and students with ethical issues and challenges during the pandemic to help them evaluate these issues and resolve them if deemed necessary.

Methods

Study Design

This qualitative study was conducted with a content analysis approach and purposeful sampling among the specialists and professors of basic and clinical sciences in Iran University of Medical Sciences using semi-structured interviews.

Study Participants

The participants were specialists and professors of basic and clinical medical sciences at Iran University of Medical Sciences. The participants' inclusion criteria were considered as having sufficient

expertise in the field of medical science education, being a faculty member of the Iran University of Medical Sciences, and having experience in dealing with issues and challenges caused by Covid -19 pandemic in the clinics and university environment.

Main research questions consisted of "What are the ethical challenges of medical education during the Covid-19 crisis?" and "What are the ethical requirements for medical education during the Covid-19 crisis?"

Setting

The participants made decision about the time and place of each interview. The interviews were conducted in a preferentially quiet atmosphere in places such as conference rooms, patients' rooms, or hospital courtyards (in coordination with the ward), considering the interviewees' wishes. Due to the Covid-19-related conditions and special travel restrictions, nine interviews were conducted by telephone. The researchers were committed to follow the principles of confidentiality and privacy of interviewees. The voices were recorded with permission. The transcripts were anonymous, and the recorded voices were destructed after the completion of the research. The study was conducted between September and October 2020.

Data collection

The interviews were recorded and verbatim transcription was performed by the first author and the concepts were extracted simultaneously. The selection process

continued until no new data emerged and the theoretical saturation of the data was achieved. Finally, the number of participants reached 16 people. Participants' views on the ethical challenges and requirements of medical education during the Covid 19 crisis were obtained through semi-structured interviews and qualitative content analysis. The duration of the interviews was between 20 and 30 minutes. The interview started with the main question of "What do you think are the challenges and ethical requirements of medical science education during the Covid 19 crisis?", and continued with enlightening questions; like: "Can you elaborate? Give an example!". Data were collected, recorded, coded, and categorized into major concepts over three months.

Data analysis

Based on the purposeful sampling method, among the experts and professors of basic and clinical medical sciences, the interview participants were selected and the interviews continued until theoretical saturation was achieved. Qualitative data were analysed using conventional qualitative content analysis. In this method, the analysis was performed simultaneously with data collection; codes and categories were extracted directly and inductively from raw data. Each interview was reviewed several times to identify the semantic units. Then, they were reviewed several times to classify according to the conceptual and semantic similarities. The categories and subcategories were compared to extract more abstract themes.

The interviews were analysed using the

seven-level Colaizzi method. As mentioned earlier, data were collected and analysed simultaneously. In this regard, the interviews were first written orally (word for word), and then the interview reports were prepared. In the next steps, semantic units were extracted as sentences from the text of the interview reports and identified as codes. Findings from the interview texts were then analysed and explained in a 7-step method. These steps include:

1. Study: study all the descriptions provided by the respondents; first, the researcher reads the whole interview text several times;
2. Extraction of important content: At this stage, the text is divided into meaningful units. Meaningful units are parts of the text that automatically conveys meanings. These units can be a word, a phrase, or a sentence.
3. Compilation of meanings: This step is descriptive coding of the meaningful descriptive units. At this stage, the coding process is started after each interview and revised several times in the course of the study.
4. Organizing meanings into categories and themes: In this stage, descriptive codes with common themes are placed in the same category and each category is given a title. These are the interpretive codes, or the meanings that the researcher gives to descriptive codes.
5. Detailed description of each theme: In this step, the interpretive codes are collected and merged.
6. Development of the main structure: Explanatory codes are created in this step.

7. Final validation of data: This is done by getting feedback from the members of the research team, and also the participants.

Trustworthiness

The trustworthiness of this study was based on two criteria, consistency and confirmability. Accordingly, the researcher sent the findings and the extracted codes to the participants; then, the findings were validated with their approval. Also, the researcher sent the extracted codes to three experts in qualitative research who provided their opinions about the themes and codes analysis and the execution process. In this method, the codes and categories were extracted directly and inductively.

Finally, the findings were sent to the participants to confirm the credibility of the results. To verify the credibility of the findings using the member review method, we returned the interviewees' answers that were transcribed exactly on paper to the interviewees. The purpose of this work was to conclude the accuracy of the person's perceptions of the interview. The results indicated the acceptability of the data. The opinion of the qualitative research experts was also used during the data analysis process. At the end of the analysis, the texts of the interviews and the findings were sent to three qualitative research experts to review the analysis process and validate the

findings.

Simultaneous reliability method was used to ensure the reliability of the research method. During the research and collection of interview data, the researchers simultaneously coded and analyzed the data while comparing the results with each other.

Ethical considerations

For the implementation of the study after obtaining the scientific approval, an ethical approval was sought from the Research Ethics Committee of Iran University of Medical Sciences (code: IR.IUMS.REC.1400.152). In this study, the participants were informed about the purpose of the research, and they were assured that they could leave the study whenever they want. The interviews were recorded only with the consent of the interviewees.

Result

Sixteen participants with an age ranging between 38 and 58 years were recruited. Nine of these individuals were clinical faculty members who worked both at the university and in the hospitals affiliated with Iran University of Medical Sciences. The other seven participants were faculty members of basic medical sciences. Characteristics of the participants are presented in table 1.

Table 1- Demographic and background characteristics of participants.

Characteristics		Number
Gender	Male	10
	Female	6
Marital Status	Married	13
	Single	3
Academic Degree	Assistant Professor	7
	Associate Professor	6
	Full Professor	3
Field of Experience	Basic Sciences	7
	Clinical Sciences	9
Work experience	≤ 10 years	5
	>10 years	11

Data obtained from the analysis of the interview contents led to the identification of 81 initial codes, 28 sub-categories and ten categories. Four categories, out of 10, were related to ethical challenges and six ones to ethical requirements.

Therefore, the main themes are categorized into two main themes, as mentioned in table 2. Ethical challenges include "to be patient-centred", "social accountability of curriculums", "ethical challenges of the

clinical setting", and "the poor performance of clinical members of the faculty and the students". Ethical requirements, as the second main theme, consist of "being justice-centred", "raising awareness", "observation of clinical research ethics", "preservation and promotion of mental health", "patient confidentiality", and "respect for individuals". Citing some examples of interview contents confirms the findings (table 2).

Table 2 - Categories, Themes and some quotes.

Main Themes	Categories	Quotes
Ethical challenges	Being Patient-centered	"In these acute situations, all the efforts of the medical staff should be focused on the patients' management and trying to prevent the progression of the disease. In this regard, patients' isolation, while has social advantages, it is firstly beneficial for the patients themselves." (participant no.9)
	Social accountability of curriculum	"When unintended and unforeseen circumstances arise for an unusual period of time, we become more aware of the gap between the theory curriculum and its weak connection to society. Here, we can easily say that we have many weaknesses in the resources, outdated teaching methods, use of old curriculums; selection without consideration of competency, and, most importantly, irresponsibility in the educational schedule." (participant no.5)
	Ethical challenges of the clinical environment	Regarding the ethical challenges of the clinical environment, interviewee no. 10 stated that: "You see, a lot of ethical issues have arisen; for example, the issue of not harming a patients with Covid 19 disease is a very important moral and behavioral challenges today. In this disease, you want to treat a patient, so you use different treatments and protocols, but you do not really know how the patient may suffer, because there is not much knowledge about this disease and any treatment protocol may have side effects,. As a case in point, artificial respiration through ventilators, which were used in the early stages of the disease in many countries of the world, have recently been shown to carry a considerable risk and are now trying to use other methods for oxygenation."

Main Themes	Categories	Quotes	
Ethical Requirements	The poor performance of the clinical faculty members and students	"The current situation has caused that we cannot meet the desired educational standards. On the other hand, because we are at the beginning of the virtual education, this type of educational methods do not solve the problem at the moment, they are only more suitable for raising awareness." (Participant no. 8)	
	being justice-centred	"The issue of patients' management process and accelerating their treatment and triage is a basic condition and on the other hand is a serious challenge for the health care providers to do the best according to the condition of each patient." (Participant no. 1)	
	raising awareness	"The issue of raising awareness and informing about prevention of Covid-19 may be primarily a public duty, which national media and other institutions have responsibility in this area, but universities and hospitals are required to be involved in prevention and education, addition to the treatment, which makes their tasks somewhat heavy." (Participant no. 7)	
	observation of clinical research ethics	"Problems that can be raised in the clinical trial studies are the issue of unlicensed medicinal products to patients with COVID-19. Obviously, it is unethical to prescribe such medication or analgesics by the health care providers, and it cannot be prescribed to the patient until the medication is fully licensed." (Participant no. 13)	
	preservation and promotion of mental health	"Many patients, health-care providers and individuals have developed obsessive behaviours, such as using a disinfectant spray regularly and every few minutes, or having abnormal postures while eating or washing their hands excessively. These actions cause anxiety and endanger their mental health." (Participant no. 3)	
	patient confidentiality	"Expressing the patient's history aloud and disclosure of his personal information for the purpose of education, only because of we are facing a new disease, is something that I have encountered many times on the patient's bedside and in the corridor of the ward." (Participant no. 12)	
	respect for persons	"In many cases in Covid-19 condition, no specific questions were asked of the patient in the first visit, and initial examinations were performed without taking a history. Additionally, I saw that in the ward, medical intervention have done without permission of the patients (or those who apparently diagnosed with Covid-19); while this is against the standards of patients' ethics." (Participant no. 6)	

Discussion

In this qualitative research, there were two main themes, that is, ethical challenges and ethical requirements, and 10 categories as mentioned before.

These results can encourage us to aim at reducing the ethical challenges of medical sciences education and overcoming the existing ethical obstacles. Moreover, ethical requirements in various dimensions (professors, students, curriculum, clinical environment, and defining the necessary ethical requirements) can help with the

effective implementation of educational programs when an unprecedented phenomenon such as the COVID-19 pandemic emerges. Some approaches should be taken into account, as constructive measures, to enhance social responsiveness and the commitment of the healthcare system. As discussed by Larijani and Zahedi (2013), the issue is particularly important in Iran, since the cultural and religious contexts influence medical practice (11).

The COVID-19 pandemic has created deep gaps in society. This highlights the need for an in-depth review of ethical considerations

to justify difficult decisions and protect us against those lacking ethical backgrounds (12 - 13). Ethical problems arise in various areas of a pandemic such as restrictions on moving around freely, individuals' refusal to adhere to preventive intervention, rights and duties of the healthcare workers, allocating limited resources, and off-label use of diagnostic and therapeutic measures (14 - 15). During the critical time of the COVID-19 pandemic, it has been crucial for the academic community to learn from this experience and prioritize a prospective and scholarly approach by implementing practical strategies (15 - 17). Accordingly, Dehghan Nayyeri et al. (16) have reviewed the most important ethical challenges in relation to emerging diseases, including observing patients' rights and autonomy, maintaining patients' privacy, the principle of reciprocity, the accountability and responsibility of the government to care for patients, and preventing stigma and discrimination. Concerning the newly emerging diseases, the findings indicate the necessity for taking into account ethical considerations in caring for patients. Moreover, to optimize the management of these diseases, it is recommended to incorporate professional ethics education and ethical decision-making during pandemics into caregivers' curriculum (16).

One qualitative study (11) conducted to explore faculty-related challenges in medical ethics education found three themes in terms of the types of challenges, including: "specialized abilities of medical ethics professors, "medical ethics education through active teaching methods, and "the

gap between teaching theory and practice". Each of these themes includes several categories and sub-categories that depict a specific aspect of the existing challenges in medical ethics education related to professors. In general, it was concluded that medical professors and medical ethicists specifically have not been able to play a pivotal role in enhancing students' moral development (11). In addition, another study (12) was carried out to discover the ethical challenges in the clinical and educational environment of the university based on the experiences of nursing and midwifery students. Their findings were categorized into three main themes including "ethical challenges in the educational environment", "the educational gap between clinical theory and practice", and "ethical challenges in the clinical environment". The students' perspectives on ethical issues was extensive and not limited to professional ethics; rather, they believed social-behavioral dimensions to be of greater significance. The study participants considered abnormal behaviors as immoral acts that could cause tension in the educational environment. However, these challenges can be minimized or overcome with better management of education and issues related to culture (12). Examination of the ethical challenges in conventional and modern teaching has demonstrated that modern ethical attitudes are stagnated or neglected, especially due to the recent social developments and changes in value criteria. Every dimension in the realm of medicine such as education, research, and practice, from the beginning of the general courses to the highest level of

specialization and sub-specialization, is reviewed and modified (13). A great leap in Iran's higher education, the increase in the number and variety of universities and higher education institutions, and the ever-increasing establishment of disciplines from associate degrees to doctorates, specialties, sub-specialties, and fellowships have enhanced the general scientific level and awareness in the society. However, the inadequate number of professors with appropriate theoretical and practical qualifications as ethical role models for the student community has resulted in changing the selection criteria for professors in higher education institutions from a system based on perfectionistic, traditional ethical rules to one focused on rankings and GPAs. Sadly, the number of ethical role models and competent professors is declining. One of the results of such an educational system is the transformation in the admission and evaluation methods. There is an educational weakness in medical specialization courses, in which ethical orientation has not been the priority. This is a serious problem that needs to be considered as such, and approaches to resolve it should be thoroughly contemplated. One of the best solutions is to conduct a review using ethical criteria. If authentic ethical criteria are observed by ethics specialists during the selection, training, and assessment process in an accurate and biased manner, many of the current problems and difficulties will be resolved (17). In a review study by Farajpour and Afshar, the ethical issues of medical clinical education were discussed

and an attempt was made to provide appropriate ethical codes of medical education for the cultural and social circumstances in Iran. Considering the significance of medicine both in Islam and from a social perspective, training specialized and committed physicians is an essential undertaking. Accordingly, students are expected to be devoutly committed to enhancing their professional views, communication skills, professional encounters, and general behavioral standards during the medical training period (14).

Specific associations, communities, and professional committees can strengthen ethics in practice and emphasize ethical behavior through spreading the necessary knowledge and facilitating the process of sharing experiences. In recent decades, we have been witnessing significant progress in Iran, and certain organizations including the Medical Council of the IR of Iran and the Iranian Nursing Organization have paid more attention to ethics education and strengthening ethical performance by providing codes and guidelines. Professional ethics is taught in different courses across various disciplines in Malaysia and Japan (19). The results of research on the COVID-19 pandemic and the ethical challenges in patient care suggest that training healthcare providers in professional ethics and ethical decision-making is essential. In addition, preventing ethical challenges, supporting patients' rights, and providing high-quality healthcare should be considered seriously (25).

During pandemics, higher education may

play a significant role, in empowering human resources to fight the disease. Although it is still important to consider the role of higher education in various political, economic, and social contexts during the COVID-19 pandemic, educational systems and universities in particular face more complications and difficulties (24 - 26). When societies pay serious attention to higher education during such a crisis, they make it possible for individuals to adapt more easily to life in the new world, acquire the required knowledge, values, perspectives, and abilities, and take effective steps toward social justice and maintaining their social status. Therefore, university systems should be aware of their role and responsibility in different societal crises such as pandemics to resolve problems, consider the consequences, and change their outlook and activities following these conditions. Hence, adequate measures and approaches need to be taken to ensure the positive and meaningful performance of university systems. Moreover, organizations should regularly opt for self-organizing processes to respond to environmental demands. The main limitation of this study was the inadequate experience of the faculty members in such emergency conditions. As another limitation, students (interns and residents in hospitals) were not a part of our study, while their views could have been of additional value. The strength of this study was the fact that the professors were actively present in educational medical centers and closely witnessed or were involved in the existing challenges.

Conclusion

The emergence and spread of COVID-19 have created several problems and challenges for health systems, among the most important ones being the ethical challenges in medical education. The results of this qualitative study emphasize moral and ethical pitfalls that our health system is trying to avoid. The findings also indicated that by defining a framework and ethical requirements, the existing ethical challenges can be reduced or eliminated. It is noteworthy that medical curricula should be reinforced to enhance capabilities, competence, and skills.

To meet the above-mentioned requirements, it is essential to consider social needs, especially in critical situations like the COVID-19 pandemic, to improve social accountability in the medical education system.

Declarations

Ethics approval and consent to participate

The present study was approved by the Ethical approval of the Ethics Committee of Iran University of Medical Sciences (IR.IUMS.REC.1400.152).

Competing interests

The authors declare that they have no competing interests.

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References

1. Mokhtari Lakeh M, Nafar M, Ghanbari Khanghah A, Kazemnezhad Leili E. Nursing students' views on code of ethics, commitment to the ethic of academic dishonesty and neutralization behaviors. *Journal of Holistic Nursing and Midwifery*. 2014; 24(3): 64-71. [in Persian]
2. Tsai FJ, Tseng E, Chan CC, Tamashiro H, Motamed S, Rougemont A. Is the reporting timeliness gap for avian flu and H1N1 outbreaks in global health surveillance systems associated with country transparency? *Global Health*. 2013; 9(14): 1-7.
3. Hajiesmaeili M, Jahanpour F, Mehrpoor G, et al. Supporting nursing systems in Clinical decision-making situations. *Nursing Journal of the Vulnerable*. 2015; 2(4): 65-81. [in Persian]
4. Ebrahimi H, Sadeghian E, Seyedfatemi N, Mohammadi E. Challenges associated with patient autonomy in Iranian hospitals: a qualitative study. *Medical Ethics and History of Medicine*. 2014; 7(4): 92-103. [in Persian]
5. Mosalanezhad L, Abiri S, Kalani N. Moral distress level in nurses and physicians caring for patients with COVID-19: a cross-sectional descriptive study in 2020. *Journal of Education and Ethics in Nursing*. 2020; 9 (3 and 4):1-8.
6. Asghari F, Saeedi Tehrani S. Ethical issues in responding to the COVID-19 pandemic; a narrative review. *Front Emerg Med*. 2020; 4(2s): e60.
7. Takian A, Raoofi A, Kazempour-Ardebili S. COVID-19 battle during the toughest sanctions against Iran. *Lancet*. 2020; 395(10229):1035-36.
8. Taha MH, Elhassan Abdalla M, Wadi M, Khalafalla H. Curriculum delivery in Medical Education during an emergency: a guide based on the responses to the COVID-19 pandemic [version 1]. *MedEdPublish* 2020, 9: 69.
9. Ahmed H, Allaf M, Elghazaly H. COVID-19 and medical education. *Lancet Infect Dis*. 2020; 20(7): 777-8.
10. Murphy B. COVID-19: how the virus is impacting medical schools. [cited Dec 2021]; Available from: <https://www.ama-assn.org/delivering-care/public-health/covid-19-how-virus-impacting-medical-schools>
11. Khaghanizade M, Malaki H, Abbasi M, Abbaspour A, Mohamadi E. Faculty-related challenges in medical ethics education: a qualitative study. *Iranian Journal of Medical Education*. 2012; 11(8): 903-16.
12. Sanagoo A. Ethical challenges in the clinical and educational environment of the university: experiences of nursing and midwifery students. *Journal of Education and Ethics Nursing*. 2018; 7(1 and 2): 383-90.
13. Guidolin K, Catton J, Rubin B, et al. Ethical decision making during a healthcare crisis: a resource allocation framework and tool. *Journal of Medical Ethics*. 2021; 0: 1–6. doi:10.1136/medethics-2021-107255.
14. Farajpour A, Afshar L. Review of ethical consideration in clinical training; propose behavioral codes in Iranian educational system. *Educational Development of Jundishapur*. 2016; 7(1): 1-9.

15. Sohrabi Z, Kheirkhah M, Sahebzad E, Rasoulighasemlouei S, Khavandi. Correlation between students' self-efficacy and teachers' educational leadership style in Iranian midwifery students. *Glob J Health Sci.* 2015; 8(7): 260-5.
16. Dehghan Nayeri N, Taghavi T, SHali M. Ethical challenges in emerging disease care: a systematic review. *Journal of Bioethics.* 2018; 7(26): 85-96.
17. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet.* 2020; 395(10223): 507-13.
18. Xafis V, Schaefer GO, Labude MK, Zhu Y, Hsu LY. The perfect moral storm: diverse ethical considerations in the COVID-19 pandemic. *Asian Bioeth Rev.* 2020; 12(2): 65-83.
19. Raoofi A, Takian A, Sari AA, Olyaeemanesh A, Haghghi H, Aarabi M. COVID-19 pandemic and comparative health policy learning in Iran. *Arch Iran Med.* 2020; 23(4): 220-34.
20. Larijani B, Zahedi F. Patient centred care in diabetology: an Islamic perspective from Iran. *J Diabetes Metab Disord.* 2013; 12(1): 18.
21. Rezaei H, Mosavi A, Yousefi A, et al. Strengths of Iran for internationalization of medical sciences education. *J Educ Health Promot.* 2020; 9: 92.
22. Zahedi F, Emami Razavi SH, Larijani B. A two-decade review of medical ethics in Iran. *Iranian Journal of Public Health.* 2009; 38(Suppl. 1): 40-6.
23. Larijani B, Motevaseli E. Needs and necessities of medical ethics education. *DARU: Journal of Pharmaceutical Sciences.* 2006; Supplement 1: 21-7.
24. Larijani AMB, Ghaforifard S, Zahedi F. Ethical considerations in clinical education of medical students. *Journal of Diabetes and Metabolic Disorders.* 2004; 4, Supplement of Ethics in Clinical Research: 105-7.
25. Sahebi A, Moayedi S, Golitaleb M. COVID-19 pandemic and the ethical challenges in patient care. *J Med Ethics Hist Med.* 2020; 13: 24.
26. Papapanou M, Routsis E, Tsamakakis K, et al. Medical education challenges and innovations during COVID-19 pandemic. *Postgrad Med J.* 2021; postgradmedj-2021-140032.