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Changes in Medical Students' Opinions and Narratives in Medical Ethics Using Case-Based Discussions

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The importance of medical ethics education is increasingly emphasized in medical schools. To improve students' problem-solving skills, various medical ethics cases are developed and discussed in medical ethics. In this study, based on actual cases of telemedicine and doctors' strikes, we aim to reflect on medical students' narratives and identify changes in shared thoughts. The study included 83 students, with responses from 75 students, excluding insincere responses, analyzed. Changes in opinion during discussions were examined using Giorgi's phenomenological analysis. There was a significant difference in the pros and cons of telemedicine and doctors' strikes before and after the discussion. The pros of telemedicine were analyzed as 'expanding healthcare coverage,' 'preparing for emerging infectious diseases like coronavirus disease 2019,' and 'efficiency of care for certain conditions.' The cons included 'high likelihood of misdiagnosis,' 'premature implementation and possible abuse of the system,' 'risk of healthcare system collapse,' 'issues with rural internet and medical devices, and privacy leaks.' The pros of the doctors' strike included 'the need for policies with expert inputs,' 'telemedicine may not benefit patients,' and 'Korean Medical Association endorsement.' The cons focused on 'lack of legitimacy, even if the system is flawed,' 'negative image,' and 'ignoring doctors' personal opinions.' As future doctors, today's medical students will encounter more complex ethical issues. Medical ethics cases help determine whether they can effectively persuade others with evidence when faced with ethical dilemmas in actual practice.

Keywords: Case-based discussion, Medical ethics, Medical students, Strikes, Telemedicine

Introduction

Medical ethics education was included in the Korean medical school curriculum as a regular course in the 1980s [1]. Medical ethics education should be emphasized in medical schools to help resolve various ethical conflicts that cannot be resolved by classical medical ethics guidelines alone [2] due to the changing medical environment [1].

While various medical ethics education and cases have been developed for medical students, the recent topic of telemedicine and the subsequent doctors' strike can be an appropriate medical ethics case for medical ethics education to foster communication, collaboration, social responsibility, and professionalism in medical students.

Telemedicine in Korea began in 1988 as a pilot project between the Yeoncheon County Public Health Center and Seoul National University Hospital [3], but the initial telemedicine program was short-lived because of medical law and technology constraints. However, with an amendment to the Medical Act in 2003, research and pilot projects on telemedicine were initiated [4].

Telemedicine has been grappling with issues such as initial and secondary opinions, patient consent and medical staff explanation obligations and immunity, non-face-to-face medical fees, diseases and methods targeted by telemedicine, devices and platforms, treatment principles, and substance abuse [5,6]. However, coronavirus disease 2019 (COVID-19) has changed the perception of telemedicine [6]. There have been various discussions on telemedicine, and in 2014, there was a doctors' strike due to South Korean government's promotion of telemedicine and the commercialization of the Medical Act.

Doctors' strikes are not a new phenomenon, and there have been four such strikes in South Korea since the 2000s. The first was concerning division of labor between doctors and pharmacists in 1999 and 2000, which lasted almost a year. The second was in 2014 when the government pushed for telemedicine and the commercialization of medical corporations. The third and fourth were regarding the expansion of the capacity of medical schools in 2020, and then recently in 2024, respectively [7-9].

In Korea, much research has been published [10] on the law, policy, economics, and system of telemedicine [10-13], as well as the concept and meaning of doctors' strikes [14-18], but none have examined the change in students' thinking by applying these in the field of education. This study aims to reflect on medical students' opinions and to identify changes in their shared opinions, based on actual cases of telemedicine and doctors' strikes—the current issues in the Korean medical community—toward fostering ethical problem-solving skills in medical students. Therefore, the research questions of this study are as follows:

- 1) What do medical students think about telemedicine and doctors' strikes?
- 2) What are the students' reasons behind their thinking?
- 3) Do their opinions on telemedicine and doctors' strikes

change after the discussion on the topics? and why?

Methods

Research participants

The study was conducted with 83 students of the first-year medical ethics course at K University School of Medicine in Daegu, and after excluding 8 non-responses, 75 responses were analyzed. The medical school in this study has adopted a problem-solving instructional model for medical ethics (Fig. 1) that requires students to formulate their own opinions on the selected cases and then discuss and agree on the same case with their peers in small-groups (Fig. 1). Therefore, in this study, we aimed to identify students' individual opinions on "Telemedicine and Doctors' Strike," and how their opinions changed during the discussion process. The cases related to "Telemedicine and Doctors' Strike" were selected by professors of the medical education department at the university in the study (Fig. 2) after discussing the contents of medical ethics.

Research design

This study analyzed a worksheet used in a medical ethics class in 2022. The worksheets utilized in this class were developed to facilitate individual and small-group discussions and reflections on intergroup discussions [1]. Following the steps of a model medical ethics lesson to improve problem-solving skills, students, in the cognition and exploration phase, discover ethical issues derived from the cases presented, analyze the solutions to the issues based on the advantages/disadvantages and long- and short-term effects, and decide on a solution (first decision). In the collaboration and sharing phase, students engage in small-group discussions to share what they have learned from their individual studies and decide on a small-group solution through small-group discussions (sec-

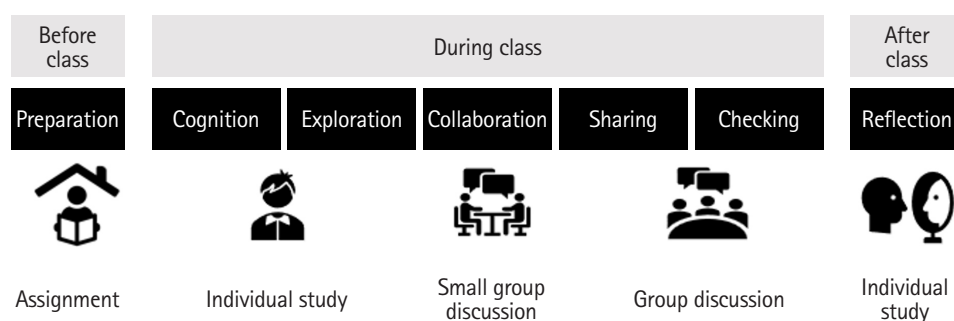


Fig. 1. Problem-solving instructional model for medical ethics.

ondary decision). In the checking phase, the group discusses among themselves, and in the reflection phase, the final decision is made through individual study, small-group discussions, and group discussions (third decision). Therefore, this study first examined the changes in individual opinions (first and third decisions) for each question in favor of and against telemedicine and doctors' strike through cross-analysis. It then explored the relationship between opinions in favor of and against telemedicine and opinions in favor of and against doctors' strike. The phenomenological analysis procedure proposed by Giorgi [19] was used for qualitative analyses. The semantic units were analyzed according to the analysis procedure, and the differently analyzed semantic units were discussed by the researchers in four online and offline meetings.

Results

Differences in favor and opposition to telemedicine and doctors' strike before and after the discussion

Cross-tabulation was performed to examine the differences in the frequency of those in favor of and against telemedicine before and after the discussion. The results showed that before the discussion, 20 students were in favor of telemedicine and 55 were against it, whereas after the discussion, 16 students were in favor of telemedicine and 59 were against it. To determine the statistical significance of the difference in favor of and opposition to telemedicine before and after the discussion, a chi-square test was performed, which revealed a significant difference ($p < 0.01$) (Table 1).

Cross-tabulation was performed to verify the differences in the percentages of pro- and anti-strike opinions before and

after the discussion. The results showed that 35 students were in favor of the strike before the discussion and 40 were against it, whereas 34 students were in favor of the strike after the discussion and 41 were against it. To determine the statistical significance of the difference in favor and opposition between the pre- and post-discussions, a chi-square test was conducted, which revealed a significant difference ($p < 0.01$) (Table 2).

Opinions in favor of telemedicine

1) Expanding healthcare coverage

"It can help care for patients in underserved areas or those with limited mobility." (Shin OO)

"This is because patients living in remote areas and without medical infrastructure can receive medical treatment, and additional costs and time, such as living expenses and accommodation, can be reduced. Doctors can also analyze and diagnose patients who do not visit in person, by transmitting data. Additionally, the integration of medical care into everyday life will create a social atmosphere that constantly monitors individual health." (Yoo OO)

2) Preparing for emerging infectious diseases such as the COVID-19

"Preparing for a healthcare system that could collapse in the event of an infectious disease epidemic, such as the COVID-19, in order to adapt to social change." (Kim OO)

"Telemedicine is a current trend, and the medical community should take a leading role in further defining the details of telemedicine implementation. I think it is not about opposing or striking against the implementation of telemedicine it-

Table 1. Changes of pros and cons to telemedicine before and after small group discussion class (Unit: frequency [%])

		Post-discussion		Total	χ^2	p-value
		Pros	Cons			
Pre-discussion	Pros	11 (68.8)	9 (15.3)	20 (100.0)	18.42	< 0.01
	Cons	5 (31.3)	50 (84.7)	55 (100.0)		
Total		16 (100.0)	59 (100.0)	75 (100.0)		

Table 2. Changes of pros and cons to doctors strike before and after small group discussion class (Unit: frequency [%])

		Post-discussion		Total	χ^2	p-value
		Pros	Cons			
Pre-discussion	Pros	28 (82.4)	7 (17.1)	35 (46.7)	31.824	< 0.01
	Cons	6 (17.6)	34 (82.9)	40 (53.3)		
Total		34 (100.0)	41 (100.0)	75 (100.0)		

self but about expanding and solidifying the position of the medical community in the telemedicine implementation plan as much as possible. The real consideration in the implementation of the telemedicine system should be to create an atmosphere in which the medical community's opinion can be positively accepted in favor of it based on (middle) social benefits." (Park OO)

3) Efficiency of care for certain conditions (between face-to-face and non-face-to-face care)

"For mild illnesses, such as the common cold, virtual care is more efficient." (Park OO)

"If we define non-face-to-face care as care for those cases where there is no significant difference between face-to-face care and non-face-to-face care, such as prescribing medicines for repeat or follow-up patients with hypertension, diabetes, etc., or for elderly chronic patients who have difficulty coming to the hospital....." (Jung OO)

Opinions opposing telemedicine

1) High likelihood of misdiagnosis

"It's less accurate than face-to-face care, and can lead to medical errors and other problems." (Park OO)

"Misdiagnosis is more likely than in face-to-face medical treatment. Therefore, it is necessary to complement the institutional system in terms of responsibility and medical fees." (Shin OO)

"There is a limit to the patients' abilities to accurately judge their condition, and even if medical devices that quantify medical conditions become widely available, numbers simply cannot be used to judge everything. They may have difficulty communicating. In addition, some information can only be obtained by directly dealing with the patient, such as palpation and auscultation; therefore, a medical examination is essential." (Choi OO, Park OO)

2) Prematurity and possible abuse of the system

"The current medical law only allows non-face-to-face medical treatment for consultations between doctors, and it has been temporarily allowed due to the coronavirus pandemic. In situations where non-face-to-face treatment and prescription are inevitable due to the coronavirus, we could have prevented abuse cases by creating a clear system and guidelines for telemedicine..." (Kim OO)

"If it is introduced hastily without sufficient discussions, it is likely to be used commercially rather than in a direction that truly considers the interests of patients..." (Park OO)

"I am in favor of telemedicine if a legal safety net is established, but..." (Shin OO)

"It can be done as a means of medical privatization with the involvement of large corporations and hospitals." (Oh OO)

3) Possible healthcare system collapse

"The implementation of telemedicine can disrupt primary care organizations if patients use secondary and tertiary hospitals more." (Park OO)

"If tertiary hospitals are able to provide telemedicine, fewer patients will visit primary hospitals. Primary hospitals attract patients based on geographical accessibility, and if this advantage is lost....." (Shin OO)

4) Others: rural internet and medical device issues, and privacy leaks

"Problems can also arise when obtaining the necessary medical equipment and internet resources for telemedicine. Internet problems are more pronounced in rural and remote areas and can undermine the goal of telemedicine in addressing health disparities. In addition, medical information shared over the Internet can lead to medical information leakage." (Choi OO)

"The development of telemedicine in South Korea may be slow compared to other countries." (Song OO)

Opinions in favor of doctors' strike

1) Need policies and systems with expert inputs

"Policies are directly related to the lives of the people and should include the opinions of relevant experts; if they are ignored, they need to express their opinions actively. Correctly introducing the bill is more important than financial gains or patient inconveniences that can be obtained by closing the office." (Shin OO)

"The message of doctors can be properly conveyed to the public, and wrong policies can be prevented by actively expressing collective opinions." (Kim OO)

2) Telemedicine may not benefit patients

"In the long run, doctors' strike to prevent the implementation of telemedicine would result in more beneficial outcomes for patients and leave a minimum number of doctors available." (Park OO)

3) Korean Medical Association endorsement

"(Omitted) representing the medical community can add strength to the current majority position and make more ro-

bust demands.” (Hwang OO)

“Simply speaking against it without collective action will not work.” (Kim OO)

Opinions in opposition to doctors’ strike

1) Lack of legitimacy, even if it is the wrong system

“I think that the telemedicine system is out of fashion and lacks justification because I think that it is clearly wrong, on behalf of all doctors.” (Kim OO)

“We should not forget that doctors’ professionalism is not just a privilege but a responsibility to serve patients. A doctors’ strike is an act of violating the trust and responsibility to provide proper medical care to patients.” (Choi OO)

2) Negative image

“Doctors’ strike may have the opposite effect of the medical profession’s intentions, creating a negative image of the medical profession in the eyes of society, which in turn may create a negative social climate for any opinions expressed by the medical professionals.” (Park OO)

3) Ignoring doctors’ personal opinions

“The Korean Medical Association’s policy decision ignores individual opinions.” (Hwang OO)

“It is important to participate in the struggle and add strength, but I think the most important thing is an individual’s position on it. It is important to sacrifice financial gains for the sake of the organization or society...” (Han OO)

“The financial situation of the doctor in the case cannot be ignored.” (Beak OO) “The strike does not represent the opinion of all doctors.” (Lee OO)

Why I changed my mind

1) Change from pro to against telemedicine

“It is inappropriate to implement telemedicine until there is a specific system in place for it because such systems are lacking.” (Kim OO, Hwang OO)

2) Change from opposing telemedicine to supporting it

“It saves time for both the patient and the doctor, (omitted), (omitted) has been allowed for a limited time during the pandemic, and (omitted) the response has been positive.” (Jung OO)

3) Change from pro-strike to anti-strike

“Doctors’ strikes can directly harm patients.....” (Yoon OO)

“There are other ways to express our collective will, such as

campaigns and posters; strikes can also harm patients by shutting down the entire healthcare system.” (Park OO)

4) Change from anti-strike to pro-strike

“If you look in the past, the information doesn’t seem to reflect the voice of the doctors’ organizations, and (omitted) if you act alone as a good person, it could be worse.” (Song OO)

Discussion

Medical students were given the case of telemedicine and doctors’ strike, and were able to identify differences in their opinions before and after the discussion. First, opinions in favor of telemedicine were based on the fact that it can expand the scope of medical services, prepare for new infectious diseases such as coronavirus, and efficiently treat certain diseases. The opposition to telemedicine was based on the possibility of misdiagnosis and abuse of the system, the system being premature, concerns about the possibility of medical collapse, the lack of rural Internet and medical devices, and leakage of personal information. In terms of changes in opinion before and after the discussion, those who changed from pro to anti telemedicine cited lack of a system, while those who changed from anti to pro telemedicine cited time savings and high satisfaction.

In a review of telemedicine and ethics, Nittari et al. [20] identified informed consent, protection of data and confidentiality, doctor malpractice and liability, and laws and regulations for telemedicine, while Solimini et al. [21] identified informed consent and autonomy, patient privacy and confidentiality, data protection and security, malpractice and professional liability/integrity, equity of access, quality of care, the professional-patient relationship, and the principle of beneficence or being disposed to act for the benefit of others. Although their opinions were mostly similar to those of the students, Solimini et al. [21] showed a relatively low interest in informed consent and cited the delayed development of the medical industry and the possibility of a medical collapse in the Korean context.

Pro-doctor’s strike opinions were based on the need for policies and systems that include expert opinions, the belief that telemedicine would not benefit patients, and the need to support the Korean Medical Association. Doctors’ opposition was based on a lack of justification, negative image, and disregard for individual doctors’ opinions. In terms of the change in opinion before and after the discussion, those who changed from favoring to opposing strike mentioned choosing other

means rather than strikes, and those who changed from opposing to favoring strike mentioned the need for active action to ensure that doctors' opinions are reflected in policy decisions. In a review of doctors' strikes, Chima [22] identified the causes of strikes as low pay and poor working conditions, policy issues, infrastructure constraints and deficits, safety and security of healthcare workers, leadership issues in healthcare, and disempowered healthcare workers. To minimize patient inconvenience in a strike, they recommended restricting services, prioritizing emergency and chronic care, greater cooperation with the private sector, and rearranging the tasks of the available staff [23]. Although their opinions were largely similar to those of the students, they were less interested in leadership issues in healthcare. However, they were similar in their prioritization of patients and seemed to be concerned about the image of doctors in the Korean context.

As medical students become doctors in the future, they face a variety of ethical issues in more complex medical settings. While the concepts and theories of medical ethics are important, medical ethics courses should also help students articulate the logical process and reasoning behind their thinking when faced with real-world ethical issues and how well-founded and persuasive they are to others.

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References

1. Meng K. Ethics education in Korean medical schools. *Korean J Med Ethics*. 2003;6:12–20.
2. Meng K. Ethics education in medical school: Why? What and how? *Korean J Med Ethics*. 1998;1:71–82.
3. Oh JY, Park YT, Jo EC, Kim SM. Current status and progress of telemedicine in Korea and other countries. *Healthc Inform Res*. 2015;21:239–43.
4. Kwon Ih. Concepts and definitions of telehealth. [cited 2024 Apr 9]. Available from: <https://www.khidi.or.kr/board/view?linkId=48905845&menuId=MENU01499>.
5. Kim H. Discussions and issues in the adoption of telehealth. [cited 2024 Apr 9]. Available from: <https://www.khidi.or.kr/board/view?linkId=48905845&menuId=MENU01499>.
6. Lee H. International telehealth utilization and tipping points. [cited 2024 Apr 9]. Available from: <https://www.khidi.or.kr/board/view?linkId=48905845&menuId=MENU01499>.
7. Myeong JY, Lee CE, Seol JW. 'Forget it, repeat it' Fourth healthcare strike...and patients fall victim. [cited 2024 Mar 20]. Available from: <https://www.seoul.co.kr/news/society/health-medical/2024/02/21/20240221500097>.
8. Song JH. 24 years of medical strikes. Yoon Seok-yeol - renamed 'Shallow Ties'. [cited 2024 Mar 20]. Available from: <https://www.nocutnews.co.kr/news/6100083>.
9. Lee HJ, Gwak SY. Undeclared in 9 fights so far... "The government can't beat doctors" with good reason Korea's deformed healthcare system that needs to be fixed. [cited 2024 Mar 20]. Available from: <https://www.seoul.co.kr/news/plan/medical-korea/2024/03/11/20240311002002>.
10. Kim NY. Assessing Korean telemedicine industry's potential national competitiveness and its policy implications. *Korean Association Trade Ind Stud*. 2020;25:33–79.
11. Kim JS, Oh SH, Kim SY, Lee PS. Telehealth policy analysis study telehealth policy analysis study. *Korean Med Assoc Health Policy Inst Res Rep*. 2015;5:1–216.
12. Kim H. Legal issues on telemedicine in the United States: focus on credentialing/privileging and telemedical malpractice. *Korean J Med Law*. 2014;22:113–40.
13. Hyun D. Legal regulations on telemedicine and their problems. *Korean Soc Law Med*. 2022;23:3–33.
14. Kim N, Jung M. An analysis of media coverage and frame of the 2020 doctors strike. *Health Soc Welf Rev*. 2022;42:28–42.
15. Oh YI, Park JH, Ahn DS, Lim SM. Case analysis and justification of physicians, collective actions. *J Korean Med Assoc*. 2021;64:159–70.
16. Chang D. The physician's professional ethics - strike, rights and

- duty -. *J Moral Ethic Educ.* 2023;79:171–86.
17. Jeong JC. What the doctor strike leaves behind: 4 suggestions to save local healthcare. *Seoul Health Air.* 2020;4:1–4.
 18. Jung J. The 1971 doctor's strike: between state control and autonomy of the medical community in 1960~1970s Korea. *Crit Stud Mod Korean Hist.* 2023;52:359–97.
 19. Giorgi A. The descriptive phenomenological method in psychology: a modified Husserlian approach. Duquesne University Press; 2009.
 20. Nittari G, Khuman R, Baldoni S, Pallotta G, Battineni G, Sirignano A, et al. Telemedicine practice: review of the current ethical and legal challenges. *Telemed J E Health.* 2020;26:1427–37.
 21. Solimini R, Busardò FP, Gibelli F, Sirignano A, Ricci G. Ethical and legal challenges of telemedicine in the era of the COVID-19 pandemic. *Medicina (Kaunas).* 2021;57:1314.
 22. Chima SC. Doctor and healthcare workers strike: are they ethical or morally justifiable: another view. *Curr Opin Anaesthesiol.* 2020;33:203–10.
 23. Manguete ALJ, Sidat M, Ferrinho P, Cabral AJR, Craveiro I. Strikes of physicians and other health care workers in sub-Saharan African countries: a systematic review. *Front Public Health.* 2024;12:1209201.