

Using Delphi surveys to identify the core competencies of medical ethics for inclusion in the Korean Medical Licensing Examination*

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Abstract

Purpose: To identify the core competencies of medical ethics for the Korean Medical Licensing Examination (KMLE).

Methods: A literature review was conducted to determine the domains and details of the core competencies of medical ethics. A Delphi survey was then used to confirm these core competencies. The survey was conducted twice, using online Google Forms sent to selected medical ethics experts. The indices of core competencies were grouped into three categories: patient-doctor relationship, relationship between the healthcare sector and society, and individual field of expertise. Each category was further divided into three levels: sub-category, component, and definition of index. The questionnaire included the importance of the individual index as a core competency of medical ethics for the KMLE. The results were evaluated on a 4-point Likert scale.

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Results: The first Delphi questionnaire was sent to 36 willing participants, of whom 23 responded (response rate: 64%). The second Delphi survey was conducted with 23 respondents from the first survey, of whom 16 responded (response rate: 70%). To verify the importance and validity of the definition of index as a core competency of medical ethics, the medians and content validity ratios (CVR) were calculated and used to identify the core competencies of medical ethics for KMLE.

Conclusion: Based on the above results, 3 categories, 17 sub-categories, 30 components, and 62 index definitions were identified as required core competencies of medical ethics for KMLE.

Keywords

educational measurement, ethics, licensure, medicine, Republic of Korea

I. Introduction

After the medical ethics was introduced in the 1980s, the knowledge of medical ethics has been regarded as an essential competence of physicians. The inquiry of medical ethics in the Korean Medical Licensing Examination(KMLE) appeared in 2013, but the only one question was presented in the general part of medical knowledge. Korea Health Personnel Licensing Examination Institute (KHPLEI) proposed the assessment object of written test in 2014 [1] and the assessment object of clinical skill test in 2015 [2]. Even if each written test item and clinical skill were composed of rationale, assessment object and concrete outcome, the ethical portion was not classified and included sporadically. According to the Kwon's Report

2015 about the medical ethics education and health personnel national licensing examination, including medical ethics in the national licensing examination and standardization of contents were presented as a solution to improve the medical ethics education in medical schools and nursing colleges [3]. The relative portion of medical ethics in KMLE was hard to compare with other countries. For example, in United States Medical Licensing Examination (USMLE), medical ethics was included in social sciences which took 15~20% portion of total questionnaires of step 1 [3]. To clarify the core capabilities of medical ethics was the purpose of this study. Through the Delphi technique with the expert survey, we hope to delineate the core capabilities of medical ethics and its inclusion to KMLE.

II. Methods

Relevant domestic and international materials were collected, compared and reviewed to configure the domains and details of these capabilities. The domestic materials were the books *Textbook of Medical Ethics* published by the Korean Society for Medical Ethics [4], *The KMA Principles and Guidelines for Physician's Professional Ethics* published by the Korean Medical Association [5], *Clinical Ethics* published by Seoul National University [6] and *Human and Society-Centered Learning Outcomes in Basic Medical Education* by the Korean Association of Medical Colleges (2017) [7]. The reference materials published in foreign countries were the Decamp (1995) [8] and Romanell reports (2015) [9], both published in the U.S., *Good Medical Practice* (2013), published by the General Medical Council of the U.K. [10] and *The JMA Guidelines for Physician's Professional Ethics* (3rd edition) published by the Japan Medical Association [11].

The collected materials were used to configure items for a Delphi survey. The questionnaire included indices of core capabilities, which were grouped into three categories as patient-doctor relationship, relationship between medical care and society and individual field of expertise. These categories were divided into three levels:

sub-category, component and definition of index. The question was the suitability of the individual indices as a core ethical capability of KMLE. That suitability was evaluated on a 4-point Likert scale. In addition, open-ended questions were added to the questionnaire to collect expert opinions about the validity of the individual indices and to supplement the index. We chose the respondents from the member of the Korean Society of Medical Ethics and Korean Society of Medical Education. Respondents were in the position of medical school professors or the specialists of clinical faculty with the career of medical ethics education for four years or longer. The Delphi survey was conducted. The first questionnaire for the first Delphi survey was prepared on the basis of above mentioned literature and was designed to include 3 category domains, 18 sub-categories, 35 components. The survey was conducted twice via online Google Forms.

Validity of items were calculated based on the central validity ratio (CVR). According to Lawshe's suggestion, CVR values of individual competence were calculated to verify the validity of the results as a core competence of medical ethics.

$$CVR = [ne - (N/2)] / (N/2)$$

ne: Number of panelist indicating "essential"

N: Total number of panelists

The first round survey was done from March 21, 2019 to April 5, 2019. The questionnaire was composed of 93 indices of definitions and sent to 36 willing participants, of whom 23 responded (response rate: 63.8%). The 2 indices of definitions were regarded as overlapped questions and finally the number of indices became 91.

The second survey with 76 items was conducted from May 1, 2019 to May 9, 2019 to 23 respondents from the primary survey, of whom 16 responded (response rate: 69.6%).

III. Results

The minimum of CVR is determined according to the number of respondents. In the first Delphi survey, the 23 respondents determined the CVR of 0.39 or higher were to show content validity. The data collected from the Delphi surveys were analyzed by

using the Excel software program (ver. 15.34). Among the 91 indices, the 20 indices showed CVR values lower than 0.39 and the 71 indices showed CVR values 0.39 or higher .

The second Delphi, the 16 respondents determined the CVR of 0.49 or higher were to show content validity. The questionnaire was prepared 76 index definitions. Along with the 71 items of first survey survivors, 5 items were added. The 3 were revised indices (1.5.1.1., 1.5.2.1., 3.5.2.1.) failed at the first Delphi and the 2 were new indices (2.5.2.1., 2.5.2.2.) had been missed at the first survey. The 62 indices survey items having sufficient content validity (Table 1) and 14 indices failed.

To summarize the research result, through the first and second round Delphi survey, we surveyed the 93 items about medical ethics and the 62 indices showed the content validity and 31 indices failed to show the content validity (Table 2).

〈Table 1〉 The definition of index established with the two round Delphi survey

Category	Sub-category	Component	Definition of Index
1. Patient-Doctor Relationship	1.1. Patient Welfare, Rights and Safety	1.1.1. Patient welfare	1. I can understand a patient's best interests based on their medical interests, the patient's preferences and other factors 2. I can list the general responsibilities of a doctor for patients' best interests. 3. I can understand and manage the human, social and systematic elements that allow patients' best interests to be secured.

		<p>1.1.2. Patient rights</p>	<ol style="list-style-type: none"> 1. I can explain patients' rights in general, including their right to receive the best medical care, their right not to be discriminated against and their right to self-determination. 2. I can provide the basis of patients' rights, including their right to receive the best medical care, their right not to be discriminated against and their right to self-determination. 3. I can explain the principles and priorities related to a patient's right to self-determination as applicable to different situations.
		<p>1.1.3. Patient safety</p>	<ol style="list-style-type: none"> 1. I can explain doctors' general responsibilities regarding patient safety. 2. I can understand and manage the human and systematic factors that may precipitate a patient safety incident. 3. I can explain the responsibility to open patient safety incidents, and the related report system and procedures.
	<p>1.2. Communication and Asking for Consent</p>	<p>1.2.1. Communication</p>	<ol style="list-style-type: none"> 1. I can attentively listen to patients, respect their situations, and recognize and emphasize with their thoughts, emotions and value systems. 2. I can collect necessary information from patients, understand patients' situations, share information with patients and make agreements about future plans. 3. In cases where a patient's will is different from that of the caregiver or medical staff or where a patient does not want to let his or her situation be known to others, I can explain why the patient's will should be considered preferentially.
		<p>1.2.2. Asking for Consent</p>	<ol style="list-style-type: none"> 1. I can provide all relevant information and sufficient explanation to a patient and receive the patient's consent accordingly. 2. In cases where a patient's decision-making capability is not complete (children, minors, dementia patients, mental patients and patients

		<p>with compromised consciousness), I can assess whether someone meets the criteria necessary for the role of representative and the criteria for judging consent.</p> <p>5. In cases where a patient's confidentiality is not protected, I can provide the patient with sufficient information about the exception and receive consent from the patient.</p> <p>6. I can record the details of the explanation provided by the doctor and the decisions made by patients (consent or refusal).</p>
1.3. Patient Privacy and Confidentiality	1.3.1. Privacy and Confidentiality	1. I can keep the confidentiality of the information obtained from patients, including mature minors, related to their specific disease and treatment during medical care as well as other personal information of the patients.
	1.3.2. Exceptions of Privacy and Confidentiality	1. In the exceptional cases where patient confidentiality is not protected, I can understand the relevant laws and information and provide them to patients.
1.4. Truth telling	1.4.1. Giving Bad News	<p>1. I can inform patients of bad news following the appropriate procedures, give proper explanations and converse empathetically to prepare future plans.</p> <p>2. I can inform families or caregivers about a patient's cancer diagnosis or death following the appropriate procedures, give proper explanations about the severity of the patient's disease and future plans, and converse empathetically.</p> <p>3. I can determine the cases where directly informing a patient of bad news may be deferred and handle those situations appropriately. (1. When the patient's ability to make decisions has been severely damaged, such as cases of dementia patients, mentally impaired patients and children and 2. when the patient may suffer an intolerably severe medical effect by hearing the truth.)</p>

		1.4.2. Publicizing and Apologizing for Medical Errors	1. I can communicate concerning the publicizing of medical errors according to the appropriate principles. (Honest communication is provided at an appropriate time. The errors are admitted, and regret or an apology is expressed. The expectations of the patients and their families are recognized while maintaining confidentiality.)
	1.5. Coping with Problematic Situations (Keeping Professional Boundaries with Patients)	1.5.1. Demands Against Medical Advices	1. I can appropriately cope with cases where a patient or a caregiver demands or refuses a test or treatment against a professional decision made by a medical worker.
		1.5.2. Professional Boundaries	1. I can explain the concept of professional boundaries. (Professional boundary refers to a boundary that should not be transgressed in order to maintain the integrity of a doctor-patient therapeutic relationship. This term also refers to the limits on behavior or attitude that a doctor and patient must adhere to in order to maintain the therapeutic relationship.) 2. I can recognize a monetary or affectionate relationship that may threaten the patient-doctor relationship and cope with such situations appropriately.
2. Relationship Between Medical Care and Society	2.1. Understanding and Application of Medical Ethics Theory	2.1.1. Understanding of Ethical Theory and Ethical Reasoning	1. I can list and explain the four principles of medical ethics. 3. I can reason ethically in various medical situations by applying the four principles of medical ethics and various other ethical theories and guidelines.
	2.2. Professionalism	2.2.1. Professionalism	1. I can list and explain the concept and components of professionalism. 2. I can explain professional autonomy and social accountability. 4. I can explain why ethical codes are necessary for medical professionals.

2.3. Relationships with fellow medical workers	2.3.1. Communication	3. I can provide appropriate and sufficient information when transferring a patient or entrusting his or her medical service to a fellow doctor.
	2.3.2. Collaboration	<ol style="list-style-type: none"> 1. I can maintain partnerships with fellow healthcare and medical workers, provide them professional opinions and cooperate with them (interprofessional collaboration). 2. I can understand how medical staff provide medical services as a team and explain a doctors' roles and responsibilities that enable a team to function effectively.
2.4. Management of Conflicts of Interest	2.4.1. Conflicts of Interest	<ol style="list-style-type: none"> 1. I can explain the concept of conflicts of interest. 2. I can appropriately cope with the conflicts of interest resulting from the healthcare and medical service systems. 3. I can appropriately handle the conflicts of interest occurring between doctors and companies. 4. I can appropriately handle the conflicts of interests occurring in medical research.
	2.4.2. Prohibition of Unjust Enrichment	<ol style="list-style-type: none"> 1. I can define unjust enrichment and explain the basis of the unjustness. 2. I can list the types of unjust enrichment (medical service in the pursuit of unjust profits for a medical worker or his or her affiliated institution, demanding or receiving money or other valuables besides the medical service cost, joining in a medical service act in the pursuit of private profit by being employed by non-medical personnel, etc.)
2.5. Coping with Medical Accidents and Disputes	2.5.1. Medical Accidents, Disputes and Lawsuits	2. I can understand the concepts related to medical accidents, disputes and lawsuits.
	2.5.2. Resolution of Medical Disputes	<ol style="list-style-type: none"> 1. I can understand the process of medical dispute mediation law. 2. I can understand and explain the legal process and the litigation.

	2.6. Distribution of Medical Resources	2.6.1. Distribution of Medical Resources	<ol style="list-style-type: none"> 1. I can understand the principles and theories related to the distribution of medical resources. 2. I can distinguish the medical conditions that should be considered from conditions that should not be considered in determining the priorities of medical service provision and medical resources distribution.
3. Individual field of Expertise	3.1. Reproduction- Related Ethics	3.1.2. Artificial Abortion	<ol style="list-style-type: none"> 1. I can explain the (ethical and legal) details related to artificial abortion. 3. I can explain the laws relevant to the allowable range of artificial abortion. 4. I can understand the ethical issues concerning the life of a fetus and the self-determination of pregnant women.
	3.2. Ethics Related to Transplantation	3.2.2. Brain Death	<ol style="list-style-type: none"> 1. I can understand the criteria and procedures for pronouncing brain death and adequately provide the relevant information to the caregivers of the patient. 2. I can understand the ethical principles related to the selection of the beneficiaries of organ donation.
		3.2.3. Prohibition Against the Sale of Organs	<ol style="list-style-type: none"> 1. I can understand the ethical and legal principles related to the prohibition against the sale of organs.
	3.3. Ethics Related to End-of-Life Medical Care	3.3.1. End-of-Life Medical Care	<ol style="list-style-type: none"> 1. I can appropriately communicate bad news and express proper condolences. 2. I can help a patient control his or her own body and personality as much as possible until death, and provide aid to establish an advance medical directive with the doctor.
3.3.2. Medical Care for Life-Prolongation		<ol style="list-style-type: none"> 1. I can understand the concepts of medical care for life-prolongation and the relevant ethical issues (the discontinuation and suspension of medical care for life-prolongation, DNR, death with dignity, euthanasia, physician-assisted suicide, 	

		<p>persistent vegetative state, etc.).</p> <p>2. I can understand the laws related to the decisions concerning the provision of medical care for life-prolongation and carry out the procedures to decide whether to continue or discontinue medical care for life-prolongation.</p>
	3.3.3. Hospice and Palliative Care	1. I can understand the concepts of hospice and palliative care and the scope of patients who are subject to hospice and palliative care, and adequately provide the relevant information to patients and their families (caregivers).
3.4. Ethics Related to Public Health	3.4.1. Public Health	1. I can explain the roles and responsibilities in public health of individuals, the public, the state and medical professionals.
	3.4.2. Infectious Disease Control	<p>1. I can explain the legal and ethical principles of infectious disease control.</p> <p>2. I can understand exceptional patient confidentiality cases and provide sufficient information to the patient in such cases.</p>
3.5. Ethics Related to Human Subject Research	3.5.1. Human Subject Research	<p>2. I can explain the purposes and functions of institutional review boards.</p> <p>3. I can appropriately protect human subjects according to the guidelines for medical research.</p>
	3.5.2. Informed Consent	2. I can explain matters that should be preferentially considered in order to protect vulnerable research subjects.
3.6. Research Integrity	3.6.1. Research Integrity	2. I can explain the types of research misconduct that may violate research integrity.

〈Table 2〉 Items eliminated for lacking content validity

No.	First Survey	Second Survey
1.2.2.3.	I can understand the economic and social factors that may affect the willingness of a patient and receive his or her consent by minimizing them.	
1.2.2.4.		I can obtain the informed consent for non-therapeutic use of medical information including medical records.
1.5.1.2		I can appropriately cope with cases of secondary gain where a patient or a caregiver demands a unnecessary treatment for economic or legal benefit.
2.1.1.2.	I can explain various ethical theories (deontology, utilitarianism, virtue ethics, feminism theory, natural law theory, religious views, etc.).	
2.2.1.3		I can explain the function of medical association and its ethics committee.
2.3.1.1.		I can express the understanding and respect to the variable roles and responsibilities of colleague medical staffs.
2.3.1.2.		I can attentively listen and express courtesy and concern to the opinions of other medical colleague.
2.3.2.3.	I can form and maintain a positive working environment without discrimination and harassment.	
2.4.3.1.	I can explain the scope of advertisement permitted by laws and regulations.	
2.4.3.2.	I can understand and explain the ethical issues related to the use of mass media.	
2.4.3.3.	I can explain the prohibition of participating for profit in the mass media, including broadcasting, and of using the mass media as a means of advertisement.	
2.4.3.4.		I can understand the principle of media usage and explain the detailed guideline for physician mass media broad casting.
2.5.1.1	I can explain the causes for the increasing conflicts between patients and medical doctors.	

2.6.1.3.	I can explain the prohibition of discrimination against races, ethnics, ages, genders, jobs, social status, economic status, social beliefs, religions and social reputations.
3.1.1.1.	I can understand and explain the ethical and legal principles involved in the protection of privacy related to the provision of reproductive cells, the prohibition of the involvement in the trading of sperm and eggs, and the management of the residual embryos.
3.1.1.2.	I can understand the ethical issues of gene manipulation and explain the reason of the prohibition of positive gene selection and the physician's role.
3.1.2.2.	I can protect the confidentiality of maternity.
3.2.1.1.	I can protect a potential organ donor so that he or she may make relevant decisions freely.
3.2.1.2.	I can understand the ethical issues related to organ donation by minors.
3.3.1.3.	I can protect the confidentiality of the end of life.
3.3.2.3.	I can understand the process of hospital ethics committee to manage the conflicts.
3.3.3.2	I can make a plan about the hospice and palliative medicine and explain it to the patient and its family.
3.4.1.2.	I can understand the roles and duties of medical doctors in their work related to public healthcare, ranging from local community healthcare to international healthcare.
3.4.3.1.	I can understand the ethical issues related to the limits of liability of individuals in health promotion and those of the government, and explain the roles played by medical doctors.
3.5.1.1.	I can explain the difference between therapy and research.
3.5.2.1.	I can provide all information related to a study, explain the study sufficiently and receive consent from the study subjects based on the information and explanation. (revised) I can protect the voluntariness of study subjects and minimize the factors concerning their voluntariness.

3.5.2.3.	I can identify the factors to the voluntariness of study subjects and make efforts to minimize them.
3.6.1.1.	I can explain the concept of research integrity.
3.6.1.3.	I can list examples of activities to prevent scientific misconduct, including those of the Committee on Research Integrity.
3.7.1.1.	I can explain the 3R principles for designing an animal experiment.
3.7.1.2.	I can explain the functions and roles of the Institutional Animal Care and Use Committee.

IV. Discussion & conclusion

The coverage of context of each reference was different (Table 3.) So we had to prepare the questionnaire comprehensive way. So the respondents tend to narrow down the scope of KMLE suitability of the individual index compared with the questionnaire. The reasons were as follow; The first, some items considered to be peripheral, too detailed, or too specialized for medical college students. Ethics related to animal experimentation (component 3.7.1.), the definitions of “I can explain the 3R principles for designing an animal experiment (3.7.1.1.)” and “I can explain the functions and roles of the Institutional Animal Care and Use Committee (3.7.1.2.)” failed to show the content validity. Ethics related to the protection of organ donors (component 3.2.1.), the definitions of “I can protect a potential organ donor so that

he or she may make relevant decisions freely (3.2.1.1.)” and “I can understand the ethical issues related to organ donation by minors (3.2.1.2.)” failed to show content validity. The comments on these items had in common as these are peripheral, too detailed, or too specialized for medical college students.

The second, the some items considered to be covered simultaneously by the other medical parts, mainly health and medical jurisprudence and preventive medicine. Ethics related to mass media and advertising (component 2.4.3.), “I can explain the scope of advertisement permitted by laws and regulations (2.4.3.1)”, “I can understand and explain the ethical issues related to the use of mass media (2.4.3.2)”, “I can explain the prohibition of participating for profit in the mass media, including broadcasting, and of using the mass media as a means of advertisement (2.4.3.3.)” and “I can

〈Table 3〉 The different scope of contexts of references

	1	2	3	4	5	6	7
1. Patient-Doctor Relationship							
1.4.1. Giving Bad News	Δ	○	○	○	Δ	Δ	○
1.4.2. Publicizing and Apologizing for Medical Errors	Δ	Δ	○	Δ	○	○	○
1.5.1. Demands Against Medical Advices	Δ	○	○	○	○	○	○
1.5.2. Professional Boundaries	Δ	○	○	○	○	○	Δ
2. Relationship Between Medical Care and Society							
2.1.1. Understanding of Ethical Theory and Ethical Reasoning	○	○	○	○	○	Δ	○
2.5.1. Medical Accidents, Disputes and Lawsuits	○	Δ	○	○	○	○	Δ
2.5.2. Resolution of Medical Disputes	○	Δ	○	○	○	○	Δ
3. Individual field of Expertise							
3.1.2. Artificial Abortion	X	○	○	○	X	Δ	○
3.2.2. Brain Death	X	○	○	○	Δ	X	Δ
3.2.3. Prohibition Against the Sale of Organs	X	○	○	○	Δ	Δ	X
3.4.2. Infectious Disease Control	Δ	○	○	○	○	○	Δ

1. Learning Outcomes in Basic medical education

2. The KMA principles and guidelines for physician's professional ethics

3. Clinical ethics (3rd ed)

4. Textbook of medical ethics(3rd ed)

5. GMC good medical practice (U.K.)

6. The JMA guidelines for physician's profession-al ethics(Japan)

7. DeCamp Report, Romanell Report(U.S.A.)

○ = same (sub)category or component

X = none

Δ = similar or related content

understand the principle of media usage and explain the detailed guideline for physician mass media broad casting. (2.4.3.4.)” were fail to show content validity. The comments on these items had in common as these were regulated by detailed provisions in the Medical service act.

The third, the respondents’ degree of understanding would affect the positivity of answers. If there was a lack of explanation, the answers were shifted to the negative side. After we added the explanation, the respondents then answered positively at the second Delphi. “I can explain the concept of professional boundaries (1.5.2.1.)” had failed to show content validity at the first Delphi survey (CVR, 0.043). We added the explanation and revised to “I can explain the concept of professional boundaries(Professional boundaries are boundaries that must not be transgressed in order to maintain a therapeutic relationship made between a doctor and a patient. Professional boundaries are also the limit of the conduct or attitude that must be kept by a doctor and patient in order to maintain a therapeutic relationship),” it showed content validity (CVR, 0.875). “I can appropriately respond to a patient’s (family or guardian) refusal of or demand for a test or treatment against medical knowledge (1.5.1.1.)” had failed to show content validity (CVR, 0.304). We changed the phrase

“medical knowledge” to “professional decision made by a medical worker” and revised to “I can appropriately cope with cases where a patient or a caregiver demands or refuses a test or treatment against a professional decision made by a medical worker.”, than CVR was changed to 0.5.

This research was aimed to set the boundaries of the medical ethics for the KMLE and conducted to identify required ethical competencies for medical doctors in a clinical setting by collecting experts’ opinions. The results showed 3 categories, 17 sub-categories, 30 components, and 62 index definitions and which were identified as required core competencies. The results of this study may help in adjusting the details and scope of inclusion of medical ethics items to KMLE. Despite of these results, the scope of competences could be extend. If the new contexts added to the medical school curriculum, the corresponding ethical competencies should be constructed. The developments of detailed contexts and specifying the assessment methods of established definitions would be the next task to perform. ©

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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전문가 델파이 조사에 의한 의사 국가시험에 포함될 핵심 의료윤리 역량 발굴에 관한 연구*

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요약

목적: 대한민국 의사면허 시험에 포함되어야 할 의료윤리 핵심 역량의 확립

방법: 수개의 국내, 국외 대표 자료들을 수집, 비교 분석하여, 유망한 의료윤리 역량 선정, 분류 및 세부 내용을 정하였다. 국내 의료윤리 전문가들을 대상으로 구글폼을 이용하여 2차례 델파이 조사를 하였고, 구체적으로 국가시험에서 확인이 필요하다고 하는 핵심 의료윤리 역량을 확인하였다. 의료윤리 역량은 의사-환자 관계, 의료와 사회 그리고 개별 전문 분야 윤리로 3 분류하였다. 3 분류는 다시 하분류, 구성 및 개별 항목의 3 단계로 구분하여 최종적으로 개별 항목에 정의를 기술하고, 그것을 적합도에 대한 질문으로 하여 델파이 조사하였다. 결과는 4점 리커트 척도로 분석하여 만족도를 평가하였다.

결과: 일차 델파이 조사는 36명에게 전달되어 23명이 답변하였다(응답률 64%). 이차 델파이 조사는 23명의 일차 답변자에게 전달되었고, 16명이 답변하였다(응답률 70%). 개별 항목의 의료윤리 핵심 역량은 중간값과 내용타당도 비율을 검증하여 결정하였다.

결론: 위 조사 결과에 따르면, 3 분류, 17 하분류, 30 구성 그리고 62 항목이 의사 국가시험에 대한 의료윤리 평가대상 핵심역량으로 선정되었다.

색인어

교육적 측정, 윤리, 면허, 의료, 대한민국

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