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ORIGINAL RESEARCH

KNOWLEDGE AND ATTITUDE AMONG RESIDENT DOCTORS RELATED TO ETHICAL AND MEDICOLEGAL ISSUES IN A TEACHING HOSPITAL

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ABSTRACT

Background: Ethics and medicolegal as a mandatory competence that must be applied by resident doctors, because it is very helpful of deciding on medical practice. This study aims to assess the current status of the knowledge and attitude of dealing with ethical and medicolegal issues among resident doctors in a teaching hospital in Aceh.

Methods: This was a cross-sectional study conducted among resident doctors (n=156) with a self-administered online questionnaire. The Spearman test was used to identify the correlation between knowledge and attitudes. Meanwhile, the Chi-square test was used to identify the significance of influence selected factors with knowledge and attitude.

Results: A total of 156 respondents were involved in this study. Most resident doctors (94.2%) had limited knowledge and as many as 66% have a positive attitude in dealing with ethical and medicolegal issues. Based on the Spearman's and Chi-square test showed not a significant correlation between the knowledge and attitudes under the Sig. (2-tailed) 0.086 (Sig. (2-tailed) >0.05) and p-value 0.296 (p-value >0.05). Only length of education was significantly associated with a positive level of attitude (p=0.003). Selected factors did not significantly affect the lack of knowledge, for gender with a p-value of 1.000, age (p=0.306), study program (p=0.192), and length of education (p=1.000).

Conclusion: Positive attitudes are a very valuable asset to increase knowledge in dealing with ethical and medicolegal issues. The lack of knowledge of resident doctors is influenced by various factors. It is necessary to increase knowledge through continuing education, regular training, and short courses.

Keywords: resident doctors, Ethics and medicolegal, Knowledge, Attitude

ABSTRAK

Latar belakang: *Etika dan medikolegal merupakan kompetensi wajib yang harus diterapkan oleh dokter residen, karena sangat membantu dalam melakukan praktik kedokteran. Penelitian ini bertujuan untuk menilai status pengetahuan dan sikap saat ini dalam menangani masalah etika dan medikolegal di kalangan dokter residen di sebuah rumah sakit pendidikan di Aceh.*

Metode: *Studi Ini dirancang dengan* cross-sectional *yang dilakukan di antara dokter residen (n = 156) dengan kuesioner* online *yang dikelola sendiri. Tes Spearman digunakan untuk mengidentifikasi hubungan antara*

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pengetahuan dan sikap. Sedangkan uji Chi-square digunakan untuk mengidentifikasi signifikansi pengaruh faktor-faktor terpilih dengan pengetahuan dan sikap.

Hasil: *Sebanyak 156 responden terlibat dalam penelitian ini. Sebagian besar dokter residen (94,2%) memiliki pengetahuan yang terbatas dan sebanyak 66% memiliki sikap positif dalam menangani masalah etika dan medikolegal. Berdasarkan uji Spearman dan Chi-square menunjukkan tidak adanya hubungan yang signifikan antara pengetahuan dan sikap di bawah Sig. (2-tailed) 0,086 (Sig. (2-tailed) >0,05) dan p-value 0,296 (p-value >0,05). Hanya lama pendidikan yang secara signifikan berhubungan dengan tingkat sikap positif (p=0,003). Faktor yang dipilih tidak berpengaruh signifikan terhadap tingkat pengetahuan, untuk jenis kelamin dengan p-value 1.000, umur (p=0,306), program studi (p=0,192), dan lama pendidikan (p=1.000).*

Kesimpulan: *Sikap positif merupakan aset yang sangat berharga untuk menambah pengetahuan dalam menangani masalah etika dan medikolegal. Kurangnya pengetahuan dokter residen dipengaruhi oleh berbagai faktor. Perlu peningkatan pengetahuan melalui pendidikan berkelanjutan, pelatihan reguler, dan kursus singkat.*

Kata kunci : *dokter residen, Etika dan medikolegal, Pengetahuan, Sikap*

PRACTICE POINTS

- Ethics and medicolegal need to be continuously studied by resident doctors because they are closely related to medical decision making in clinical practice because medical decisions must be based on ethical decisions.
- The knowledge and attitude of the resident doctor must be in line in dealing with ethical and medicolegal issues so that what is done during medical practice has a theoretical basis, not only based on experience and knowledge gained from seniors and supervisors.

INTRODUCTION

Ethics is the embodiment of moral philosophy that determines whether human actions are right or wrong, which is also referred to as the science of morals, manners, and behaviour in human life.[1,2] Ethical principles help identify ethical problems and become a consideration in making decisions as a consequence of the moral values adopted in a community.[3] Healthcare professionals are a community that is always related to healthcare ethics. Healthcare ethics is a sensitive framework embedded within the professionalism of medical personnel.[4] Ethical problems continue to grow along with the rapid advancement of medical technology.[5]

Ancient ethical issues that used to be only related to the doctor-patient relationship are now becoming more complex involving ethical dilemma issues regarding medical decisions which are not always easy to resolve. Traditional medical training offers little help in resolving the ethical dilemmas encountered by healthcare professionals.[6] Currently, ethical dilemma issues in medical practice often occur in all healthcare institutions worldwide.[7] Ethical dilemmas can occur from determining the beginning of life, during life, to the end of life. Ethical dilemma resolution can be resolved with basic ethical principles consisting of beneficence, non-maleficence, justice, and autonomy.[4] Ethical dilemmas also can be resolved with consideration of the clinical ethics approach namely medical indications, patient preference, quality of life, and contextual features.[8]

Medicine is a noble profession that is always bound by a professional code of ethics, always prioritizes human feelings, who always maintains doctor-patient relationships, patient interests, trust, and confidentiality.[1,2,9] The patient-doctor relationship begins with a therapeutic contract which contains an agreement that the doctor provides the best

medical care that can lead to consequences if there are errors in inpatient care.[9] This occurs as a result of the patient's dissatisfaction with the suboptimal services provided so that it becomes a doctor-patient relationship conflict which sometimes ends up being a medicolegal problem.[4,7,10] This is also triggered by public attention highlighting the ethical conduct of healthcare professionals. This reflects complaints about the lack of ethical conduct that leads to the litigation process faced by healthcare professional,[6] so needed a code of ethics that contains ethical, moral, and legal obligations in medical practice.[1]

Future doctors are expected to have the ability to apply basic ethical principles in their careers. The ethical challenges in the future are getting bigger considering the increasing kinds of medical services. A standardized ethical learning system is needed in the medical education curriculum.[4] Doctors who are currently undergoing specialization education (often referred to as resident doctors in Indonesia) as an advanced level of medical professional education. Resident doctors are key pillars of healthcare delivery,[4] must have a lot of experience, good knowledge, positive attitude, and strategies for dealing with, anticipating, solving problems, and discussing ethical and medicolegal dilemmas in daily practice.[3]

There have been many studies discussing the knowledge and attitudes of resident doctors related to medical ethics and medicolegal in several countries, especially in Asia. The majority of the results stated that the resident doctor's knowledge was lacking regarding ethics and medicolegal. A study in India state that 95.2% of resident doctors have poor knowledge of medical negligence and medical ethics.[2] In Sri Lanka, found that 81.2% of doctors had poor knowledge of medical ethics.[3] In Nepal, found that 89.8% and 85.6% of doctors had poor knowledge regarding the Nuremberg code and Helsinki code.[4] In Pakistan state that 61.3% of the doctors in a tertiary care hospital had poor knowledge of medical law and ethics.[10] In Malaysia state that 65.8% of physicians, pharmacists, and nurses had good knowledge of patient health literacy.[11] In Saudi Arabia, state that most of the respondents had sufficient knowledge (44.1% of respondents), followed by 35.6% of respondents having poor knowledge of medical ethics.[12]

There have been many reports stating the importance of ethical and medicolegal issues included in the medical education curriculum, and arguments which state that doctors should continue to study medical ethics and become role models in the study of medical ethics.[6] In our institution, we have an ethics and medicolegal courses (EMC) program in the early stages of residency education. EMC, as well as practice, is necessary to achieve the competencies. The main problem faced is about how to teach ethical and medicolegal aspects in medical practice, especially in residency education because of the tight schedule of resident doctors' activities. Research conducted by Jones, states that medical residency students learn in the health care system by conducting patient examinations, preparing for investigations and interpreting tests, formulating treatment plans, and supervising patients who sometimes handle patients in the same shift due to pressure and the demands of the educational process, the sense of empathy and compassion is neglected.[13] For this reason, it is necessary to research how the learning outcomes of EMC are implemented during residency education in teaching hospitals. This present study was assessed about the current status of knowledge and attitudes among resident doctors in dealing with these ethical and medicolegal issues at a teaching hospital in Aceh Province, Indonesia

METHODS

Study Setting

The research type is an observational with a cross-sectional design. The population in this study were resident doctors who are currently taking specialization education from 2016-2020 at the Zainoel Abidin Hospital (ZAH) which is one of the biggest and reputed teaching hospital in Aceh Province-Indonesia. The hospital employs 394 resident doctors enrolled in various postgraduate programs.

Study Participants

Study participants were doctors who are currently undergoing specialization programs (resident doctors) who met the inclusion criteria. Inclusion criteria: a) registered and active as a resident doctor

of Medical Faculty, Universitas Syiah Kuala (MF-USK), b) have undergone as a resident doctor for at least 6 months, c) have done medical practice at ZAH. Exclusion criteria: a) resident doctor who is taking academic leave, b) resident doctor who is currently receiving an academic sanction.

Sample Size

The sampling technique used in this study was non-probability sampling (consecutive sampling). The sample size was calculated using the formula developed by Slovin. At a precision of 0.05 and a confidence level of 95%, the calculated sample size used in the study based on the Slovin equation was 199 respondents.

Study Instrument

The instrument used in this study was a questionnaire that was made by the researcher because there had not been any similar studies before. Data retrieval is carried out by the enumerator to the respondent. The instrument used is an online questionnaire (google form) which has been tested for validity with a Content Validity Ratio/CVR by experts, an original online questionnaire in the Indonesian language. A forty-two-item questionnaire including 4 questions on socio-demographic characteristics has been distributed to respondents. The questionnaire consists of two main parts. The first part of the questionnaire consisted of 22 questions regarding the knowledge. The second part of the questionnaire consisted of 16 questions regarding attitude.

Knowledge is everything the resident knows about ethical and medicolegal issues in medical practice. The Measurement of knowledge uses a Guttman scale which consists of 2 categories divided into good and poor. Each correct answer is assigned a value of one, and the wrong answer is assigned a score of zero. One can score a minimum of 0 and a maximum of 22 in this section. In this study, the average score of 11 (50%) from the 22 questions was used as a cut-off point to determine the level of knowledge of ethical and medicolegal issues. The criteria for assessing the respondent knowledge: (a) good knowledge > 50% (score 12-22), (b) limited knowledge: ≤ 50% (score 0-11).

Attitude is a response or what a respondent does to issues of ethical and medicolegal in their medical practice as measured by asking the respondent's opinion. Respondents are asked to determine the attitude they take on the questions in the questionnaire. The measurement of attitude uses a Likert scale which consists of 5 answer choices, namely strongly agree, agree, neutral, disagree, and strongly disagree. Where to answer positive questions, strongly agree is given a value of 5, agree is given a value of 4, doubt is given a value of 3, disagree is given a value of 2, and strongly disagree is given a value of 1. One can score a minimum of 16 and a maximum of 80 in this section. In this study, the average score (T Mean) of 48 from the 16 questions was used as a cut-off point to determine the level of attitude of ethical and medicolegal issues. Respondent attitude assessment criteria: (a) a positive attitude if the T score obtained by the respondent from the questionnaire > T Mean (score 49-80), and (2) a negative attitude if the score obtained by the respondent from the questionnaire is ≤ Mean (score 16-48).

Ethics Approval and Consent to Participation

This study was approved by the Health research ethics committee at the MF-USK/ZAH No. 271/EA/FK-RSUDZA/2020. Approval was sought from all relevant institutions such as the Dean of MF-USK and Director of ZAH due to the sensitive nature of the questions asked. Furthermore, permission to conduct the research was obtained from the research and development department of ZAH and each head of department or head of study program before data collection. Before data collection, the researcher explained the purpose of the study, the benefits of the research, and how to fill out the questionnaire, and respondents who participated in the study were voluntary. All respondents agreed to participate in the study by selecting the "Yes I agree" button in the consent sheet in Google form before answering the questionnaire.

Data Collection

The data collection technique in this study uses primary data using an online questionnaire (google form) which has been prepared by researchers to

respondents which are distributed via social media by enumerators to help gather resident doctors in filling out the questionnaire. The time for data collection began on 25 November to 31 December 2020. All respondents filled out the questionnaire independently consisting of knowledge, and attitudes related to ethical and medicolegal issues in their medical practice.

Data Analysis

This study uses univariate and bivariate data analysis to describe each variable. Descriptive statistics are used to explain the characteristics of respondents, the knowledge, and attitudes of resident doctors related to ethical and medicolegal issues. To investigate the correlation between knowledge and attitudes determined by the Spearman test, it was taken significantly when found Sig. (2-tailed) value<0.05. Chi-square test was used to determine the factors that influence knowledge and attitudes at 95% confidence intervals, it was taken significantly when found p-value ≤ 0.05. Data were processed and analysed by using SPSS version 18.

RESULTS AND DISCUSSION

Demographic Details

Table 1 shows the demographic details of the total 156 respondents (78.4% response rate), the majority of respondents are male (59.6%). The age range of respondents was between 25-42 years, with the largest age group being 34-36 years (34.0%). The majority of respondents came from the study program of Surgery (22.4%) and Neurology (21.8%). Most respondents are currently studying in the 2nd Year (36.5%).

Tabel 1. Demographic Characteristics of Respondents Table

Characteristics		Frequency (N=156)	Percentage (%)
Sex	Male	93	59.6%
	Female	63	40.4%
Age (years)	25-27	6	3,9%
	28-30	30	19.2%
	31-33	51	32.7%
	34-36	53	34.0%
	37-39	15	9.6%
	40-42	1	0.6%
Study Program	Surgery	35	22.4%
	Internal Medicine	2	1.3%
	Obstetrics and Gynaecology	25	16.0%
	Paediatrics	16	10.3%
	Neurology	34	21.8%
	Pulmonology and Respiratory Medicine	1	0.6%
	Otorhinolaryngology, Head and Neck surgery	17	10.9%
	Anaesthesiology and Intensive Therapy	16	10.3%
	Cardiology and Vascular Medicine	10	6.4%
Length of education	1St Year	35	22.4%
	2nd Year	57	36.5%
	3rd Year	55	35.3%
	4th Year	8	5.1%
	≥5th Year	1	0.6%

In this study, we didn't eliminate any confounding factors that may affect the result of the study, however, in the beginning of the study we have limited the variables into two different variables which were knowledge and attitude toward ethical and medicolegal issues and we also included several factors that may affect those two variables such as age, sex, residency program, and the length of study. Other factors that may affect the participants' knowledge and attitude such as the place where the participant come from, the institution the participant study in before their residency, their grade point average (GPA), and their experience in joining any training were not recorded in this study. The demographic data from this study were analysed by univariate analysis.

The response rate of the present study was 78.4% (156/199), whereas a relative similar study successively conducted by Ranasinghe *et al* in Sri Lanka reported a response rate of 62%,[3] Brogen *et al* in India was reported a response rate of 78.1%,[14] Amarasinghe *et al*. in Sri Lanka reported a response rate of 79%,[15] Adhikari *et al* in Nepal, a response rate of 84%,[4] Biruk and Abetu in Ethiopia reported a response rate of 95.5%.[5] The relatively low response of the present study may be the respondents are busy, the number of questions is too much, the time taken to fill out the questionnaire is more than 30 minutes on average, the questions asked are sensitive, especially medicolegal issues, the respondents do not understand the contents of the questionnaire, are not willing to become respondents, and the scope of the research is too broad.[3] The following discusses the respondent's knowledge of ethical and medicolegal issues in their medical practice as well as how resident doctor attitudes towards these ethical and medicolegal issues.

At this time, medical education in Indonesia refers to the National Standard for Indonesian Medical Professional Education (NSIMPE) in 2019. Following the NSIMPE issued by the Indonesian Medical Council (IMC) in 2019, medical education has four scientific pillars, namely basic biomedical science, social science and medical humanities, medical science and clinical skills, public health sciences/ preventive medicine/community medicine.[16] EMC is included in the content of social science and medical humanities.

In our institution, one of the teaching subjects given is EMC. Since 2016, FM-USK has conducted ethics and medicolegal courses as general lectures (GL) in the Specialist Doctor Education Program (SDEP). In the EMC, SDEP participants were provided with six materials related to ethics and medicolegal, namely ethical theories, basic principles of bioethics, clinical ethics, medicolegal in medical practice, medical professionalism, and medical law trilogy covering medical confidentiality, informed consent, and medical records. The EMC learning methods include lectures, case discussions, and case reflections. The purpose given by EMC is that it is hoped that the material can be implemented in the learning practice of SDEP participants in each study program. The main goal of medical education worldwide is to prepare the competencies of medical students so that they will be eligible to provide professional services in the community. This is obtained with a structured and standardized medical education and experience of managing clinical problems that are adequate so that they can integrate their knowledge and attitudes.[17]

Knowledge related to Issues of Ethics and Medicolegal

Table 2 shows the knowledge related to issues of ethics and medicolegal. Among the resident doctors, only 22.6% knew the ethical theory, 30.8% knew the basic ethical principles, 23.1% knew the supporting ethical principles, 39.7% knew the ethical conflict resolution, 28.8% knew the end of life decision, 45.5% knew the medicolegal evidence, and 43.6% knew ethical consideration. Overall only 32.9% of the resident doctors knew the content of ethics and medicolegal. Respondent knowledge was tested with recalling questions and case analysis. From the 22 questions, the minimum score for individual knowledge was 6 and the maximum score was 14. The majority have limited knowledge (94.2%) with a score ≤ of 50 from a maximum score of 100.

The present study found that 94.2% of resident doctors have limited knowledge of ethical and medicolegal issues. Studies conducted in several countries have reported a similar situation. Research conducted by Mathew *et al*. in the United

States reported that resident baseline medicolegal knowledge was poor (80%).[18] Wandrowski *et al.*, in Bavaria demonstrate a lack of knowledge among physicians in deciding assisted dying, end of life, and doctor-patient relationship.[19] Varghese *et al.*, in India state that only 4.8% of resident doctors have good knowledge of medical negligence and medical ethics.[2] Several other studies have had slightly different results from the current study. Biruk and Abetu in Ethiopia state that 62.4% of the health professionals had poor knowledge of telemedicine.[5] Tahira *et al.*, in Pakistan state that 61.3% of the doctors in a tertiary care hospital had poor knowledge of medical law and ethics.[10]

Contrary to previous studies, for example, research conducted by Singh *et al.*, in India state that 75% of doctors had good knowledge and attitudes towards medical ethics.[20] Tiruneh *et al.,* in Ethiopia state that 75.7% of medical doctors were knowledgeable about the code of ethics.1 Barnie *et al.*, in Ghana,[7] state that the knowledge of health workers on ethics, confidentiality, and medicolegal issues is high. Meanwhile, a study conducted by Rajah *et al.*, in Malaysia, states that 65.8% of physicians, pharmacists, and nurses had good knowledge of patient health literacy.[11] Al Shehri *et al.*, in Saudi Arabia, state that 64.4% of resident doctors having good knowledge of medical ethics.[12] Karaskus *et al.*, in Turkey state that 88.0% hospital staffs were knowledgeable about the patient right directives.[21] These findings indicate that improving medical education on medical ethics and medicolegal is a timely necessity not only in Indonesia but for some other countries worldwide.[3]

This present study discusses knowledge about the ethical theory, basic ethical principles, supporting ethical principles, ethical and medicolegal conflict resolution, making the decision of end of life, medicolegal evidence, and ethical consideration. The content of the ethical theory is rarely discussed because it is considered that ethics is an application, not a theory so that in this present study the respondents' knowledge was not satisfactory. Meanwhile, the topic of basic ethical principles is more often discussed. However, the respondents' knowledge of the basic principles of ethics was also unsatisfactory. This is in line with the study conducted by Manurung *et al.*, shows that the respondents at the University of Lampung having a mean value of 3 with a maximum score of 8 indicate that the knowledge is still not adequate.[22]

Tabel 2. Knowledge Related to Issues of Ethics and Medicolegal

Code	Questions	Correct Answer	N=156 (%)
Which ethical theory is related to the following terms?			
Q1	The theory of inspanning verbintennis	Deontology	10 (6.4%)
Q2	Doctor knows best	Paternalism	43 (27.6%)
Q3	The character of the doctor's day-to-day	Agent (ethics of virtue)	53 (34%)
		Average	35 (22.6%)
Which basic ethical principles for making ethical decisions for the patient's condition?			
Q4	Febrile seizures and require immediate medical attention	Non-maleficence	35 (22.6%)
Q5	Diarrhoea for 2 days and suggested to the infusion	Non-maleficence	47 (30.1%)
Q6	Serious injury to the leg due to crush injury	Non-maleficence	52 (33.3%)
Q7	Crushing injury and was immediately amputated	Medical indications	58 (37.2%)
		Average	48 (30.8%)
Which is supporting ethical principles for making ethical decisions for the patient's condition?			
Q8	Pregnant woman with complications of heart disease	Minus malum	53 (34.0%)
Q9	Treating heart disease by pregnancy termination	Totality and integrity	23 (14.7%)
Q10	The operation performed to remove the tumour	Double effect	32 (20.5%)
		Average	36 (23.1%)

Code	Questions	Correct Answer	N=156 (%)
Which basic ethical principles conflict in this case?			
Q11	A patient presents with profuse bleeding from a traffic accident. The doctor suggested a blood transfusion, but the patient's family refused due to religious beliefs.	Non-maleficence vs Autonomy	21 (13.5%
Q12	A patient arrives with queue number 10. However, because the patient was bleeding profusely, the doctor examined the patient through the sequence of arrival of the patient.	Non-maleficence vs Justice	57 (36.5%)
Q13	The patient was admitted to the Intensive care Unit (ICU) for one week. Until one day due to financial constraints, the patient's family asked that the patient be forced home.	Medical indications vs. Patient preference	91 (58.3%)
Q14	The patient was diagnosed with a tricycle brain injury with an ASA level of 5. The doctor did not operate because it would be useless.	Medical indications vs. Quality of life	77 (49.4%)
		Average	62 (39.7%)
Which is the right term to describe the patient's condition?			
Q15	The patient was admitted to the Intensive care Unit (ICU) for several days but there was no improvement.	Futile treatment	48 (30.8%)
Q16	The patient is not given the drug because the medicine is no longer available and the patient dies afterwards	Withhold life support	49 (31.4%)
Q17	The patient is not given the drug because there is no healing benefit for the patient and the patient dies).	Futile treatment	37 (23.7%)
		Average	45 (28.8%)
What kind of medicolegal evidence is this case?			
Q18	The gauze is left in the patient's stomach post-operation causing the patient to develop an infection.	Res ipsa liquetur	18 (11.5%)
Q19	A patient with complaints of severe abdominal pain. However, the surgeon did not come to see the patient and in the end, the patient could not be saved.	Breach of duty	91 (58.3%)
Q20	One patient was given an antibiotic injection, and the patient had no history of drug allergy. However, it turned out that the patient had an anaphylactic shock.	Medical risk	102 (65.4%)
		Average	71 (45.5%)
Which ethical considerations are the most likely to cause conflict?			
Q21	Based on basic ethical principles	Non-maleficence vs Autonomy	35 (22.4%)
Q22	Based on clinical ethics theory	Medical indications vs. Patient preference	97 (62.2%)
		Average	68 (43.6%)
	Total average		51 (32.9%)

Lack of knowledge about ethics and medicolegal contributes to the increasing complaints against resident doctors who are suspected of carrying out unethical behaviour in medical practice. It is necessary to do self-update their knowledge about ethical and medicolegal knowledge as well as their clinical knowledge.[3] Resident doctors requires ethics and medicolegal training in practical situations to deepen their knowledge.[7]

In the present study, the respondents' lack of knowledge about ethics and medicolegal can be caused by several reasons. This is caused by

many factors, such as lack of opportunity to read textbooks or journals related to medical ethics and medicolegal.[3] There are so many ethical and medicolegal problems that resident doctors face in hospitals that they may not be completely resolved.[9] Another possibility is that many resident doctors do not understand the content related to ethics and medicolegal.[3] The excessive working time of resident doctors results in less time to study ethics and medicolegal contents.[23] At the time of the EMC evaluation during the early stages of education, the resident doctor already had good knowledge. However, when asked about ethical problems in a clinical setting, their responses were not consistent with previously expressed views.[10]

Attitudes Towards the Issues of Ethics and Medicolegal

Table 3 shows the attitudes towards the issues of ethics and medicolegal. Among many as the resident doctors, as many as 74.8% agree and strongly agree with the application of the basic principles of ethics, 77.0% agree and strongly agree with supporting ethical principles, 74.2% agree and strongly agree with the clinical ethics approach, and 78.4% agree and strongly agree with medicolegal issues management. Out of 156 respondents, 103 (66.0%) had positive attitudes, and the remaining 53 (34.0%) negative attitudes toward ethical and medicolegal issues. The respondent attitude was tested with critical thinking and case analysis.

The present study found that 66.0% of resident doctors have a positive attitude towards ethical and medicolegal issues. This is in line with the research conducted by Jatana *et al.*, it was found that the majority of the pre-clinical students' attitudes towards the core values of the guidelines, doctors' duties towards patients, and learning medical ethics in the curriculum were positive.[24] A study conducted by Ranasinghe *et al.* states that the majority of doctors (95.3%) showed positive attitudes towards gaining knowledge and the need for training.[3]

In the present study, most respondents agreed with the application of the basic principles of ethics, supporting principles of ethics, ethical clinic approach, and medicolegal issues management in medical practice. However, many resident doctors had different opinions in determining ethical principles in cases. In this present study, it was most difficult to distinguish between beneficence and non-maleficence, as well as justice from autonomy, and beneficence from justice. It is challenging to determine which basic ethical principles are the most dominant. Sensitivity and continuous training are required to identify ethical issues in health services.[25,26,27]

Tabel 3. Attitudes Towards the Issues of Ethics and Medicolegal

Attitudes (n=156)	Strongly agree or agree to	Doubtful	Disagree or strongly disagree
Basic ethical principles			
1. Doctor informed the patient husband that the patient life might not be long, it was under the basic principle of beneficence	111 (71.1%)	21 (13.5%)	24 (15.4%)
2. Patients with traffic accidents have found airway obstruction. Doctor performed a tracheostomy, it was based on the principle of non-maleficence	122 (78.2%)	19 (12.2%)	15 (9.6%)
3. The patient has severe bleeding from the head. The doctor state that the operation was no longer possible, it was based on the principle of beneficence	117 (75.0%)	21 (13.5%)	18 (11.5%)
Supporting ethical principles			
1. Pregnant patients with complications of heart defects, the decision was made to terminate the pregnancy with ethical considerations minus malum	130 (83.3%)	20 (12.8%)	6 (3.9%)
2. The doctor decision at that time was an operation, it was based on the ethical principle of double effect	124 (79.5%)	20 (12.8%)	12 (7.7%)

	Attitudes (n=156)	Strongly agree or agree to	Doubtful	Disagree or strongly disagree
3.	The doctor decision at that time was to immediately take emergency action on the patient based on prima facie ethical principles	130 (83.3%)	24 (15.4%)	2 (1.3%)
4.	Doctor chose the one with the weakest autonomy with the principle of vulnerability	102 (65.4%)	34 (21.8%)	20 (12.8%)
5.	Doctor chose amputation to prevent infection and bleeding based on the principle of the totality of integrity	115 (73.7%)	31 (19.9%)	10 (6.4%)
Clinical ethics theory				
1.	In the case of a patient with a crush injury, amputation was performed. The clinical ethical choice to improve quality of life was prosthesis	128 (82.1%)	21 (13.5%)	7 (4.4%)
2.	The patient family asked that the patient be brought home by force due to financial constraints. This is called extraordinary and ethically permissible	101 (64.7%)	51 (32.7%)	4 (2.6%)
3.	The doctor didn't do the operation on a patient with traumatic brain injury with an ASA level of 4-5, because it would be useless. This is called extraordinary and ethically permissible	111 (71.1%)	43 (27.6%)	2 (1.3%)
4.	Patients were admitted to the Intensive Care Unit (ICU) for several days and had optimal treatment but there was no improvement. The ICU doctor suggested withholding life support.	123 (78.8%)	31 (19.9%)	2 (1.3%)
Medicolegal issues				
1.	The gauze is left in the patient's stomach causing the patient to develop an infection. In this case, the doctor can already be said to be negligent because there is the term "the thing speaks for itself".	116 (74.4%)	29 (18.6%)	11 (7.0%)
2.	A patient was consulted by the surgeon on duty that day. However, the surgeon did not come to see the patient and in the end, the patient could not be saved. According to the 4D doctrine, to prove whether there is negligence is a direct causal relationship.	115 (73.7%)	39 (25.0%)	2 (1.3%)
3.	One patient was given an antibiotic injection, and the patient had no history of drug allergy. However, it turned out that the patient had an anaphylactic shock. The medical risk that occurs in this patient is unavoidable risk and the doctor cannot be blamed.	130 (83.3%)	25 (16.0%)	1 (0.7%)
4.	A patient presents with profuse bleeding from a traffic accident. The doctor suggested a blood transfusion, but the patient's family refused due to religious beliefs. Doctors should prepare an informed refusal form to avoid medical disputes in the future.	128 (82.1%)	27 (17.3%)	1 (0.7%)

In resolving ethical dilemmas in a joint conference, these supporting ethical principles are often used to reinforce ethical decisions with basic principles of ethics approaches. Ethical care conferences were helpful for many of the resident doctors to know about ethics.[6] In the present study, the supporting ethical principles that are always used to solve ethical problems are the principles of totality-integrity, *minus malum*, prima facie, vulnerability, and the double effect. For example, in a case about pregnant patients with complications of heart defects, the decision was made to terminate the pregnancy with ethical considerations *minus malum*. By prioritizing the *minus malum* principle, namely by considering which one is the least risky between the two options.[28]

Ethical and medicolegal dilemmas also can be resolved with consideration of the clinical ethics approach namely medical indications, patient preference, quality of life, and contextual features.[8] In the present study, common clinical ethical considerations are medical indications, followed by quality of life, patient preferences, and context features. Medical decision-making coupled with ethical decisions is highly recommended which results in shared decisions between the doctor and the patient. Information regarding medical indications for action on patients is conveyed as clearly as possible while still paying attention to the perspective of the patient's preference, quality of life, and accompanying contextual features.[29]

In handling medicolegal cases, this study discusses four cases related to medical negligence, medical risks, and informed consent. In the present study, for example, 74.4% of respondents stated, "the gauze is left in the patient's stomach causing the patient to develop an infection. In this case, the doctor can already be said to be negligent because there is the term of the thing speaks for itself". Medical negligence is defined as an absence of reasonable care and skill, or wilful negligence of a medical practitioner in the treatment of the patient, which causes bodily injury or death of the patient.[2] With regards to medical negligence, the same results were obtained from research conducted by Kheir et al., which stated that 90% of respondents agreed that if there was an object left in the patient's body during surgery procedure, the punishment could be given.[30]

Most respondents find it difficult to determine their attitude when facing ethical and medicolegal issues. Some suggestions that can be done are a) it requires a consultant or senior resident to become a role model for their juniors in dealing with ethical and medicolegal issues in each study program,[3] b) it is also necessary to raise awareness of resident doctors to change their attitude towards ethical and medicolegal issues through on-job training and strengthening the integration of EMC in medical practice,[1] c) regular updates on the latest ethical and medicolegal issues.[7]

Statistical Analysis

Statistical analysis regarding the correlation of knowledge to resident doctor attitudes related to ethical and medicolegal issues in medical practice using the Spearman test and Chi square test can be seen in Table 4.

Tabel 4. The Correlation Between Knowledge and Attitudes

Statistical test			Attitudes		Total	p-value
Spearman's rho	Knowledge	Correlation coefficient		-0.138	-0.138	
		Sig.(2 tailed)		0.086	0.086	
		N		156	156	
Chi square test	Knowledge	Category	Positive	Negative		
		Good	4	5	9	0.296
		Limited	99	48	147	
		Total	103	53	156	

Based on Spearman's statistical test showed a negative correlation between knowledge and attitude. If the significance of the correlation is assessed, there is no significant correlation between knowledge and attitudes with a Sig. (2-tailed) 0.086 (Sig. (2-tailed) > 0.05). Based on the data presented in Table 4 by using Chi square test, as many as 99 respondents with limited knowledge had positive attitudes (63.5%), and only 4 respondents (2.6%) had good knowledge and positive attitudes. In the present study, the majority of respondents had limited knowledge of ethical and medicolegal issues, namely 147 respondents (94.2%), but the majority of respondents had a positive attitude in dealing with ethical and medicolegal issues, i.e.103 respondents (66.0%). Based on the statistical data

analysis there was no influence on the knowledge towards attitudes regarding ethical and medicolegal issues. The Chi-square test results gave a p-value of 0.296 (p-value >0.05).

Factors Associated with Level of Knowledge and Attitude on Ethical and Medicolegal Issues

The association between the overall level of knowledge and attitude on ethics and medicolegal and selected factors such as gender, study program group, and length of education was assessed by using Chi-square test and the results are shown in Table 5.

Length of education was significantly associated with a positive level of attitude (p=0.003). Based on the Chi-square test, it was found that the influence of several factors on the lack of knowledge of the resident doctor, each of the factors did not significantly affect the lack of knowledge, namely for gender with a p-value of 1.000, age (p=0.306), study program (p=0.192) and length of education (p=1.000). In addition, there was not a significant influence of several factors on the attitudes of the resident doctor, each of the factors of gender (p-value 0.974), age (p=0.317), and study program (p=0.512).

Of the four factors that influence knowledge and attitude, only the length of education is significantly associated with attitude. There were no significant associations between the overall level of knowledge and the factors such as gender, age, study program, and length of education. This reflects that there is no fundamental difference for all of these factors so that it is necessary to carry out continuing medical education (CME) activities to increase knowledge and attitudes towards ethical and medicolegal issues.

Tabel 5. Factors Associated with Level of Knowledge and Attitude on Ethical and Medicolegal Issues

Selected Factors (n=156)	Characteristic	Level of knowledge				p-value	Level of attitudes				p-value
		Good		Poor			Positive		Negative		
		No	%	No	%		No	%	No	%	
Gender	Male	88	56.4	5	3.2	1.000	62	39.7	31	19.9	0.974
	Female	59	37.8	4	2.6		41	26.2	22	14.1	
Age (years)	25-33	80	51.3	7	4.5	0.306	54	34.6	33	21.2	0.317
	34-42	67	42.9	2	1.3		49	31.4	20	12.8	
Study program	Surgery group	90	57.7	3	1.9	0.192	59	37.8	34	21.8	0.512
	Non surgery group	57	36.6	6	3.8		44	28.2	19	12.2	
Length of education (years)	1-2	87	55.8	5	3.2	1.000	70	44.8	22	14.1	0.003*
	≥ 3	60	38.4	4	2.6		33	21.2	31	19.9	

The reason why the length of study affects the resident doctors' attitude toward ethical and medicolegal issues but do not affect their level of knowledge is because the longer they study the better their attitude will be. This happens because we believe that they have enough chance to imitate their supervisors and seniors' attitude toward those things but, the level of their knowledge is usually unaffected, this is possible because most of the residents do not update their knowledge about ethical and medicolegal issues, so we believe that it is important for them to refresh and update their knowledge regarding those mentioned issues. Based on the phenomena that we found in this study, we can imply that it is a must for the residents to balance their cognitive aspect and the affective aspect in their residency education to support their skill achievement.

Advantage and Limitation of the Study

The advantage of this study is that data collection to measure knowledge and attitudes is carried out with analytical questions and critical thinking is not just a recall question, so the results are more reliable. The limitation of this study is the lack of focus on the problems being asked so that respondents find

it difficult to answer the questionnaire. In the future, more focused studies will be made on certain fields with more in-depth questions.

CONCLUSIONS

Most resident doctors who participated (94.2%) had a limited level of knowledge of ethical and medicolegal issues. Fortunately, doctor residents have positive attitudes in dealing with ethical and medicolegal issues. So it is necessary to increase their knowledge and awareness through CME and continuous professional development such as seminars, workshops, and regular training, and a joint conference to discuss ethical dilemma cases of patients in various clinical situations.

RECOMMENDATION

Seeing the phenomenon that occurs not only in Indonesia (at least in this study) but also in several other Asian countries, namely the lack of theoretical knowledge of ethics and medicolegal in resident doctors, efforts are needed from all medical education institutions in Indonesia to continuously provide ethical and medicolegal teaching materials continuously in the form of modules, refresher seminars, discussions and training. Further research is needed to analyse what factors can increase memory retention of ethical and medicolegal content among resident doctors.

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COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

KONTRIBUSI PENULIS

Taufik Suryadi – data analysis, and publication manuscript

Kulsum Kulsum – bdeveloping research proposal and collecting data

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