CONHECIMENTO E ATITUDES SOBRE QUESTÕES ÉTICAS E MEDICOLEGAIS NO TRATAMENTO DA PANDEMIA DE COVID-19 ENTRE MÉDICOS RESIDENTES NO HOSPITAL ZAINOEL ABIDIN, ACEH, INDONÉSIA

KNOWLEDGE AND ATTITUDES REGARDING ETHICAL AND MEDICOLEGAL ISSUES IN HANDLING THE COVID-19 PANDEMIC AMONG RESIDENT DOCTORS AT ZAINOEL ABIDIN HOSPITAL, ACEH, INDONESIA

PENGETAHUAN DAN SIKAP MENGENAI ISU-ISU ETIKA DAN MEDIKOLEGAL DALAM PENANGANAN PANDEMI COVID-19 DI KALANGAN DOKTER RESIDEN PADA RUMAH SAKIT ZAINOEL ABIDIN, ACEH, INDONESIA

SURYADI, Taufik^{1*}; SUARDI, Hijra Novia²; ZAIN, Hanifah³; HAYATI, Zinatul⁴; YANTI, Budi⁵

¹ Department of Forensic Medicine and Medicolegal, Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

² Department of Pharmacology, Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

³ Medical Student, Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

⁴ Department of Microbiology, Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

⁵ Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

** Corresponding author*

e-mail: taufiksuryadi@unsyiah.ac.id

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RESUMO

Introdução: A doença coronavírus 2019 (COVID-19) se espalhou pelo mundo e se tornou uma pandemia, deixando todo o setor de saúde sobrecarregado. Os hospitais, como instalações de serviços de saúde, se esforçam continuamente para fornecer um serviço ideal aos pacientes com infecção confirmada por COVID-19. Os pacientes com COVID-19 no Hospital Zainoel Abidin (ZAH) são geralmente atendidos por médicos residentes. Como a linha de frente no tratamento da pandemia de COVID-19, esses médicos residentes devem ter conhecimento adequado e boas atitudes no tratamento de pacientes com COVID-19, especialmente no que diz respeito à ética e médico-legal. **Objetivo:** o objetivo deste estudo é conhecer o nível de conhecimento e as atitudes dos médicos residentes no enfrentamento da pandemia de COVID-19 no ZAH, Aceh. **Métodos:** Trata-se de um estudo transversal realizado entre médicos residentes (n = 80) do ZAH no período de novembro a dezembro de 2020 com questionário online autoaplicável. A validade foi testada por especialistas com Índice de Validade de Conteúdo / CVR de 0,738 e confiabilidade de 0,732. Os dados foram analisados por meio do teste de distribuição de frequência (univariada) e do teste de correlação do Qui quadrado (bivariada). **Resultados e Discussão:** Os resultados mostram que a maioria dos entrevistados tinha conhecimento inadequado sobre questões éticas e médico-legais no manejo da pandemia de COVID-19 (70,0%); no entanto, tiveram atitude positiva na superação de questões éticas e médico-legais, ou seja, 77,5%. O resultado do teste estatístico Qui-quadrado mostra que não houve correlação entre conhecimento e atitude com p-valor de 0,077 (p-valor > 0,05). **Conclusões:** Conclui-se, portanto, que o conhecimento teórico dos médicos não foi suficiente para identificar as questões éticas e médico-legais, mas a atitude no trato das questões éticas e médico-legais foi satisfatória. Este resultado oferece uma nova oportunidade e desafio para aumentar a consciência dos médicos na aplicação de seus conhecimentos e atitudes para lidar com a pandemia COVID-19.

Palavras-chave: COVID-19, ética, médico-legal, conhecimento, atitude

ABSTRACT

Background: Coronavirus Disease 2019 (COVID-19) has spread throughout the world to become a pandemic, making the entire health sector overwhelmed. Hospitals as health service facilities continuously strive to provide

optimal service to patients with the confirmed COVID-19 infection. Resident doctors usually handle COVID-19 patients at the Zainoel Abidin Hospital (ZAH). As the front liner in handling the COVID-19 pandemic, these resident doctors must have adequate knowledge and good attitudes in dealing with COVID-19 patients, especially regarding ethical and medicolegal. **Aim:** This study aims at finding out the level of knowledge and attitudes of resident doctors in dealing with the COVID-19 pandemic at the ZAH, Aceh. **Methods:** This was a cross sectional study conducted among resident doctors (n=80) in the ZAH during November-December 2020 with a self-administered online questionnaire. It had been tested for validity by experts with a Content Validity Ratio / CVR of 0.738 and reliability of 0.732. The data were analyzed using the frequency distribution test (univariate) and the Chi square correlation test (bivariate). **Results and Discussion:** The results show that the majority of respondents had inadequate knowledge of ethical and medicolegal issues in handling the COVID-19 pandemic (70.0%); however, they had a positive attitude in overcoming ethical and medicolegal issues, i.e. 77.5%. The chi square statistical test result shows no correlation between knowledge and attitude with a p-value of 0.077 (p-value > 0.05). **Conclusions:** Therefore, it can be concluded that the theoretical knowledge of doctors was not sufficient to identify ethical and medicolegal issues, but the attitude in dealing with ethical and medicolegal issues was satisfactory. This result offers a new opportunity and challenge to increase the awareness of doctors in applying their knowledge and attitudes towards handling the COVID-19 pandemic.

Keyword: COVID-19, ethical, medicolegal, knowledge, attitude

ABSTRAK

Pendahuluan: Coronavirus Disease 2019 (COVID-19) saat ini merupakan penyakit yang tersebar ke seluruh dunia sehingga menjadi pandemi. Seluruh sektor kesehatan kewalahan menghadapi pandemi ini. Rumah sakit sebagai sarana pelayanan kesehatan terus menerus berupaya memberikan pelayanan optimal pada pasien terkonfirmasi COVID-19. Penanganan pasien COVID-19 di Rumah Sakit Zainoel Abidin (RSZA) biasanya dilakukan oleh dokter residen. Sebagai garda terdepan dalam menghadapi pandemi COVID-19, dokter tersebut harus memiliki kesadaran akan pengetahuan dan sikap yang tinggi dalam menangani pasien COVID-19 terutama terkait masalah dan tantangan etika dan medicolegal. **Tujuan:** Penelitian ini bertujuan untuk mengetahui gambaran tingkat pengetahuan dan sikap dokter residen dalam menghadapi pandemi COVID-19 di RSZA. **Metode:** Ini adalah studi cross sectional yang dilakukan pada dokter residen (n = 80) di RSZA selama November-Desember 2020 dengan kuesioner online yang diberikan sendiri. Yang telah diuji validitas oleh para ahli dengan Content Validity Ratio/CVR sebesar 0.738 dan reabilitas 0.732. Analisis yang digunakan adalah uji distribusi frekuensi (univariat) dan uji korelasi Chi square (bivariat). **Hasil dan Pembahasan:** Hasil penelitian didapatkan mayoritas responden memiliki pengetahuan yang terbatas tentang isu etika dan medicolegal terkait penanganan pandemi COVID-19 (70.0%), namun mempunyai sikap yang positif dalam mengatasi isu etika dan medicolegal tersebut yaitu sebanyak 77.5%. Berdasarkan hasil uji statistik Chi square menunjukkan tidak ada korelasi antara pengetahuan dan sikap dengan nilai p sebesar 0.077 (p-value > 0.05). **Kesimpulan:** Pengetahuan teoritis dokter residen belum memadai untuk mengidentifikasi isu etika dan medicolegal, namun sikap dalam menghadapi isu etika dan medicolegal cukup memuaskan. Hal ini merupakan peluang dan tantangan baru untuk meningkatkan kesadaran dokter dalam mengimplementasikan pengetahuan dan sikapnya terhadap penanganan pandemi COVID-19.

Kata kunci: COVID-19, etika, medicolegal, pengetahuan, sikap

1. INTRODUCTION:

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which was originally named novel coronavirus or 2019-nCoV, is one of the single-stranded RNA viruses of the seven coronaviridae - 229E, OC43, NL63, HKU1, Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), and Middle East Respiratory Syndrome (MERS-CoV) - which are known to infect humans (Nicola *et al.*, 2020; Wu *et al.*, 2020). On 11 February, WHO announced that the epidemic disease was caused by 2019-nCoV: coronavirus disease (COVID-19). Regarding the name of the virus, the International Committee on Taxonomy of Viruses has changed the name of

the virus from 2019-nCoV to Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) and the name of the disease as Coronavirus disease 2019 (COVID-19) (Lai *et al.*, 2020; Wang *et al.*, 2020; World Health Organization, 2020). The COVID-19 was declared a pandemic on 11 March 2020 by the World Health Organization (WHO). Currently, the COVID-19 pandemic is the biggest challenge for the health sector worldwide (McGuire *et al.*, 2020).

To date, 216 countries have contracted the SARS-CoV-2 virus according to data from the Task Force for the Acceleration of Handling COVID-19 of the Republic of Indonesia as of 21 August, 2020. COVID-19 is a contagious disease

that can spread directly or indirectly, from one person to another. This has led the Indonesian government to implement a strict policy to break the chain of its spread. The spike in COVID-19 cases has overwhelmed health systems worldwide, including Indonesia, which declared the COVID-19 as a national disaster on 14 March 2020.

The condition of the COVID-19 pandemic has created several ethical challenges in the form of a lack of public trust in the existence of this outbreak due to a lack of knowledge and public awareness of the dangers of the virus, which has claimed many human lives (Asghari and Tehrani, 2020). Several efforts to control the spread of COVID-19 have been carried out in various ways, for example, limiting large-scale social activities, social distancing, travel restrictions, quarantine, and lockdown (Xafis *et al.*, 2020).

In preventing the spread of the COVID-19 pandemic in some areas, there may still be an inability to meet facilities and infrastructure needs. The obstacles that often occur in hospitals are the lack of hospital beds, limited staff, medicines, and equipment. Along with the increasing number of COVID-19 cases, the allocation criteria for using sophisticated medical devices such as ventilators are widely discussed. In making decisions about resource allocation, a priority scale is needed by assessing the balance between benefits and risks and looking at the probability of recovery from patients (Robert *et al.*, 2020).

The COVID-19 pandemic has caused various problems, both medical and ethical-medicolegal. It is always emphasized that a doctor maintains ethical competence, morals, and medical professionalism. Considering the significance of doctor knowledge on ethical and medicolegal issues in dealing with the COVID-19 pandemic, research on this topic is essential. In this study, the ethical and medicolegal issues discussed are diagnostic and therapeutic, allocation of resources, facilities and infrastructure, and delivery of personal information for COVID-19 patients (Asghari and Tehrani, 2020; Huxtable, 2020; Yusof *et al.*, 2020; McGuire *et al.*, 2020).

Doctors who are currently undergoing specialization education (often referred to as resident doctors in Indonesia) are the frontline health service providers in dealing with COVID-19 patients. Resident doctors inevitably have to study issues related to the COVID-19 pandemic; however, they should not rule out medical ethics because many issues related to medical ethics are

developing in the midst of society. Therefore, resident doctors must identify issues of medical ethics as a means of fulfilling their competence in the field of noble professionalism of the medical profession (IMC, 2019).

Based on the 2019 National Standards for Indonesian Medical Professional Education compiled by the Indonesian Medical Council (IMC), there are nine expected graduate profiles, one of which is to fulfill noble professional competencies, namely being able to carry out professional medical practice following the values and principles of Godliness, noble morals, ethics, discipline, law, socio-culture, and religion in local, regional and global contexts in managing health problems of individuals, families, and communities (IMC, 2019). The medical profession emphasizes ethical competence, morals and medical professionalism. This is because this competence will support the participation of health workers in patient safety, which is central to better medical services (Kusumaningtyas and Hermasari, 2017).

Medical practice is closely related to ethics and medicolegal. In line with the times, ethics and medicolegal have become an inseparable part of medicine because it will guarantee a good doctor-patient relationship. On the other hand, some consequences must be faced if there is dissatisfaction on the side of the patient, which can cause the patient to sue the doctor. Resident doctors are guarded by a medical code of ethics and laws that always guide their practice (Taufan, 2019; Afandi *et al.*, 2010).

There are four ethical principles, namely: (1) Autonomy, which is recognizing the right of individuals to make their own decisions for what is best for themselves, (2) Beneficence, which describes the principle of doing good, showing goodness (demonstrating kindness), showing affection (showing compassion), and helping others, (3) Non-maleficence, which is an ethical principle that requires doctors (caregivers) to avoid things which can endanger patients, and (4) Justice, which is an obligation to be fair in the distribution of benefits and risks. Justice demands that people in the same condition be treated equally (Pozgar, 2020; Afandi, 2017).

These principles have a profound effect, not only in the field of medical ethics academically but also in their application in clinical situations to making ethical clinical decisions (Henky, 2018). Medical ethics will enable physicians to make a difference, recognize difficult situations and go through them properly according to ethical and medicolegal principles.

Significantly, a study is conducted to assess the knowledge and attitudes of resident doctors at the Zainoel Abidin Hospital (ZAH) regarding ethical and medicolegal issues in handling the COVID-19 pandemic. Therefore, the current research is intended to answer the following research questions: (1) what is the level of knowledge and attitudes of resident doctors at ZAH regarding ethical and medicolegal issues in handling the COVID-19 pandemic? (2) Is there a relationship between knowledge and attitudes of resident doctors regarding ethical and medicolegal issues in handling the COVID-19 pandemic?

Thus, this study aimed to obtain information about resident doctors knowledge and attitudes regarding ethics and medicolegal issues in handling the COVID-19 pandemic at ZAH, Aceh, Indonesia.

2. MATERIALS AND METHODS:

2.1. Design and research subjects

This research falls under an observational with a cross-sectional design. The population in this study was 394 resident doctors who were pursuing a specialization education from 2016-2020 at the ZAH. In this study, the sample size was determined using the Slovin equation 1 as follows:

$$n = \frac{N}{1+N(d^2)} \quad (\text{Eq.1})$$

where: N: Total population, n: Number of samples, d: Percentage of error rate in research (10%), with the following calculations:

$$\begin{aligned} n &= \frac{N}{1+N(d^2)} \\ n &= \frac{394}{1+394(0,1^2)} \\ n &= \frac{394}{1+394(0,01)} \\ n &= \frac{394}{4.94} = 79,7 \approx 80 \end{aligned}$$

The minimum sample size used in the study based on the Slovin equation was 80 respondents. Respondents who participated in this study were resident doctors who met the inclusion criteria. The sampling technique used in this study was non-probability sampling (consecutive sampling), namely sampling by dividing a population into strata, selecting a simple random sample from each stratum, combining it into the sample to

determine population parameters. The calculation of the number of samples per stratum uses the following equation 2:

$$n = \frac{\Sigma \text{ per department}}{\Sigma \text{ total population}} \times \text{number of sampels} \quad (\text{Eq.2})$$

Inclusion Criteria: 1) registered and active as a resident doctor of medical faculty, Universitas Syiah Kuala, 2) have been a resident doctor for at least six months, 3) have handled COVID-19 patients. Exclusion Criteria: 1) resident doctor taking academic leave, 2) resident doctor who is currently receiving an academic sanction.

2.2. Instruments

The instrument used is an online questionnaire (google form) (see appendix) which has been tested for validity using a Content Validity Ratio/CVR by experts. The CVR validity test was conducted from 17 July to 12 August 2020. The assessment of each questionnaire item involved nine panelists consisting of 5 bioethicists and four medical experts in handling COVID-19. The average result of the CVR value was 0.738. The reliability test was conducted on 8 - 10 September 2020. The reliability test involved ten respondents. The results show that the Cronbach coefficient of the validated questionnaire is 0.732. This value meets the reliability requirements because it is higher than 0.70. From this CVR value, it can be concluded that the level of the instrument content validity is high level (Suryadi and Kulsum, 2020).

2.3. Procedure of data collection

Before collecting the data, the researchers 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 signing the consent sheet in Google form before answering the questionnaire.

This study used primary data collected using an online questionnaire (APPENDIX 1) delivered through Google Forms, which was prepared by researchers and distributed via social media by enumerators to help gather resident doctors in filling out the questionnaire. The data collection began on 26 November and concluded on 31 December 2020. All respondents completed the questionnaire independently. The questionnaire consists of doctors knowledge (29 statements: S1-S29), and attitudes related to ethical and medicolegal issues (29 statements:

S1-S29).

Knowledge is a respondent ability to identify the ethical principles of medicine (autonomy, beneficence, non-maleficence, and justice) related to ethical and medicolegal in handling the COVID-19 pandemic. Respondents were asked to determine which basic ethical principles are included in the statements in the questionnaire. The measurement scale used was an ordinal scale, and the categories were divided into good and less using the Guttman scale. Each correct answer was assigned a value of one, and the wrong answer was assigned a score of zero (Saryono, 2011). The criteria for assessing respondent knowledge were determined using the cut-off point method, namely by determining the cut-off point of the variable with the equation 3 (Sitorus *et al.*, 2018).

Attitude is a response or what a respondent does to ethical and medicolegal issues in handling the COVID-19 pandemic as measured by asking the respondent's opinion. Respondents were asked to determine the attitude they take on the statements in the questionnaire. Statement items were similar to those in the knowledge variable. Attitude was measured using a 5-point Likert scale (5 = strongly agree to 1 = strongly disagree). After the data were collected, the answers were grouped into two categories: the agree group consisting of answers strongly agree and agree and disagree group consisting of answers to doubtful, disagree, and strongly disagree. The measurement scale used was ordinal, and the categories of which were divided into right and wrong. The criteria for assessing the respondent's attitude were determined using the cut-off point method, namely by determining the cut-off point of the variable with equation 3 (Sitorus *et al.*, 2018).

$$\text{Natural cut - off point} = \frac{(\text{max score} - \text{min score})}{2} \quad (\text{Eq.3})$$

2.4. Data analysis

This study used a univariate and bivariate data analysis to describe each variable. Descriptive statistics were used to describe the characteristics of respondents, the knowledge, and attitudes of doctors related to ethical and medicolegal issues. The correlation between knowledge and attitudes was determined by using the Chi square's test at 90% confidence intervals, at the significance level of 0.05. The data were processed and analyzed by using SPSS version 22.

2.5. Ethical statement

This study was approved by the Health research ethics committee at the Medical Faculty of Universitas Syiah Kuala / Zainoel Abidin Hospital No. 281/EA/FK-RSUDZA/2020.

3. RESULTS AND DISCUSSION:

3.1. Results

3.1.1 General characteristics of research subjects

This study involved 80 resident doctors who met the inclusion criteria. Data collection was carried out from 26 November to 31 December 2020 using an online questionnaire distributed directly to resident doctors at ZAH Aceh. Table 1 shows the general characteristics of the respondents.

Table 1. General characteristics of respondents

Characteristics	Frequency (N=80)	Percentage (%)
Sex		
Male	44	55%
Female	36	45%
Age (years)		
26-27	4	5%
28-29	9	11%
30-31	17	21.3%
32-33	22	27.5%
34-35	14	17.5%
36-37	14	17.5%
Study Program		
Surgery	7	8.8%
Internal medicine	18	22.5%
Obstetrics and Gynecology	15	18.8%
Pediatrics	10	12.5%
Neurology	10	12.5%
Pulmonology	2	2.5%
Oto-rhino-laryngology	7	8.8%
Anesthesiology	6	7.5%
Cardiology	5	6.3%

Based on Table 1, there were 80 respondents who participated in this study. There were 36 female respondents and 44 male respondents, and the majority of respondents were between 32 and 33 years old (27.5%). Most respondents were majoring in Internal Medicine and Obstetrics Gynecology, namely 18 respondents and 15 respondents respectively.

3.1.2 Doctor knowledge regarding medical ethical issues in handling the COVID-19 pandemic

The distribution of respondent answers can be seen in Table 2, which shows that the correct answer was the statement S14, which was answered correctly by 47 respondents (58.8%), and the statement S4, answered correctly by 45 respondents (56.3%). Statements that had been validated consisting of 29 points were answered with one of the four basic rules of medical ethics (Suryadi and Kulsum, 2020). The answer to the statement was based on the four basic principles of medical ethics, namely beneficence, non-maleficence, autonomy, and justice, with the characteristics of each basic ethical principle.

The results show that the highest score for knowledge was 21 and the lowest was 4 (out of 29), so based on the natural cut-off point, the cut-off point was determined to be 8.5. Based on this calculation, it was considered good knowledge if the score was between 12.6 and 21, while limited knowledge is concluded when the score was between 4 and 12.5.

Table 3. Distribution of analysis of doctors knowledge on issues of medical ethics and medicolegal in handling the COVID-19 pandemic

Knowledge	Frequency (N=80)	Percentage (%)
Good	24	30%
Limited	56	70%

Table 3 shows that as many as 56 respondents (70%) had limited knowledge of medical ethics and medicolegal issues in handling the COVID-19.

3.1.3 Doctor attitudes regarding ethical and medicolegal issues in handling the COVID-19 pandemic

Based on the research results on respondent attitudes towards ethical and medicolegal issues related to handling the COVID-19, the distribution of respondents' answers is

shown in Table 4. Answers to the attitudes that respondents should take are adjusted to the applicable laws in Indonesia, regulations of the minister of health of the Republic of Indonesia, and the Indonesian Medical Code of Ethics (IMCE) compiled by the Medical Ethics Honors Council (MEHC) in 2012.

The results show that the highest score for attitude was 25 and the lowest one was 10 (out of 29), so the cut-off point was 7.5, based on the natural cut-off point. From this calculation, the attitude is considered a positive attitude if the score is between 17.6 and 25, and it is negative if the score is between 10 and 17.5.

Table 5 shows that 62 respondents (77.5%) had a positive attitude regarding medical ethics issues in handling COVID-19.

Table 5. Distribution of analysis of doctors attitudes regarding ethics and medicolegal in handling the COVID-19

Attitudes	Frequency (N=80)	Percentage (%)
Positive	62	77.5%
Negative	18	22.5%

3.1.4 The relationship between doctor knowledge and attitudes regarding ethical and medicolegal issues in handling the COVID-19 pandemic

The distribution of the number and percentage of correct answers related to respondent knowledge and attitudes towards ethical and medicolegal issues in handling the COVID-19 pandemic can be seen in Table 6. Statistical analysis regarding relationship between doctor knowledge and attitudes regarding ethical and medicolegal issues in handling the COVID-19 pandemic using the Chi square test can be seen in Table 7.

Based on the data presented in Table 7, as many as 40 respondents with limited knowledge had positive attitudes, and 22 respondents (27.5%) had good knowledge and positive attitudes. In this study, the majority of respondents had limited knowledge of basic principles of ethics, namely 56 respondents (70%), but the majority of respondents had a positive attitude in dealing with ethical and medicolegal issues related to COVID-19, i.e. 62 respondents (77.5%).

Based on the statistical data analysis there was no correlation between the respondent knowledge and attitudes regarding the ethical and medicolegal issues in handling COVID-19. The

Chi-square test results gave a p-value of 0.077 (p value >0.05).

3.2. Discussion

The following discusses the respondent knowledge of ethical and medicolegal issues based on basic principles of ethics and medicolegal consideration related to handling the COVID-19 pandemic as well as how a resident doctor behaves towards these ethical and medicolegal issues.

This study discusses several ethical and medicolegal issues related to handling COVID-19 such as protection when doing medical practice, keeping personal data and information, diagnostic and treatment, quarantine and isolation, discrimination and stigmatization, vaccination, resource allocation, and respecting individual rights.

3.2.1 Protection when doing medical practice

The statements S1, S2, S7, and S21 are related to protection while performing medical practice. The statement S1 reads, "Doctors who are not equipped with complete Personal protective Equipment (PPE) may refuse to examine patients who are suspected of having COVID-19". The statement P2 is "Doctors who are not equipped with PPE may refuse to treat patients suspected of having COVID-19". Finally, statement S7 is "Doctors, nurses and other health workers have the right to receive protection in the form of the use of complete PPE while working during the COVID-19 pandemic". The correct answers from the respondents for the knowledge category of each statement were S1 (26.3%), S2 (23.8%), S7 (21.3%), while for attitudes indicate S1 (92.5%), S2 (86.3%), S7 (91.3 %). The basic ethical principles for statements S1, S2, and S7 relate to beneficence.

The beneficence principle is the responsibility of doctors to take actions that benefit patients and support the moral role of protecting and defending the rights of others, preventing damage, eliminating conditions that can cause harm, helping people with disabilities, and saving people in danger (Varkey, 2020). In a medical context, general beneficence is defined as improving the patient's well-being (Papanikitas, 2013). According to Beauchamp and Childress, in general, the basics of beneficence aim to help people exceed their interests (Beauchamp and Childress, 2013).

Respondents did not realize that protection at work is included in the act of beneficence, namely preventing badness. Most respondents considered it non-maleficence, and this is expected because the principles of beneficence and non-maleficence in certain conditions are not easily differentiated. However, according to Beauchamp and Childress, the non-maleficence obligation is not to inflict evil or harm, while the consecutive beneficence obligations are to prevent evil or harm, to remove evil or harm, and to do or promote goodness (Beauchamp and Childress, 2013).

For statements of attitude related to statements S1, S2, and S7, most respondents had a positive attitude. Based on the Indonesian Medical Code of Ethics (IMCE) article 20 concerning the doctor's obligation to protect themselves, "Every doctor is always obliged to maintain his or her health so that he or she can work well" (MEHC, 2012). The objective of maintaining a doctor's health is to stay healthy while performing their duties, become a role model for patients and society, and prevent risks to patients that can be avoided (preventing transmission and preventing harm to patients) (MEHC, 2012). For statements S1, S2 and S7 related to the Law of the Republic of Indonesia No. 36 of 2014 concerning health providers, article 57 letter d, the health providers in carrying out their practices receive protection for occupational safety and health (Law of Republic of Indonesia No.36, 2014).

The statement S21 reads, "The replacement of the doctor in charge of the patient, who provides care for COVID-19 patients is carried out regularly according to needs" The correct answers from the respondents for the knowledge (33.8%) and attitude (86.3%). The statement S21 is related to the justice principle. The term distributive justice refers to fair, equitable, and appropriate distribution in society determined by justified norms that structures the terms of social cooperation (Beauchamp and Childress, 2013).

Inadequate knowledge of the respondents regarding the S21 statement might be caused by confusion in distinguishing between the principles base of ethics, i.e., beneficence, non-maleficence, and justice principles. On the one hand, changing the guard duty is similar to beneficence because the goal is to prevent harm when the doctor is too tired. However, it can also be non-maleficence because working extra can harm the patient. However, in the context of the S21 statement, it is closer to the justice system for all doctors on duty, so the principle is justice.

According to the standard guidelines for doctor protection in the era of the COVID-19 pandemic, compiled by the Executive Board of the Indonesian Medical Association (IMA), doctors as one of the providers of COVID-19 services have an important meaning in handling COVID-19. With the determination of COVID-19 as a disease that can cause an epidemic, it is necessary to provide doctors as health workers with legal and social protection. Resident doctors as the front liners are at risk for various hazards, including exposure to pathogens, long working hours, psychosocial distress, fatigue, occupational burnout, and stigma (IMA, 2021).

According to IMCE, if the doctor in charge is absent, a replacement doctor who has a valid registration certificate and licenses to practice with the same competence as the doctor in charge of the patient can be appointed. In handling COVID-19 patients, doctors must be completely fit both physically and mentally. If they are not in mental and physical fitness, they should not take part in treating patients. One of the other professional attitudes of doctors is that doctors must take care of their health to avoid endangering themselves and their patients (MEHC, 2012).

3.2.2 Keeping personal data and information

In this study, the statements of points S3, S4, and S26 are related to keeping personal data and information. The statement S3 is "Doctors may notify patient data to the general public to prevent the spread of COVID-19" In the statement S26 "Personal data of COVID-19 patients may be published". The correct answers from the respondents for the knowledge were 26.3%, and attitude was 56.3%. These statements are related to autonomy principle.

Autonomy means self-control. In essence, autonomy is the ability to 1) provide reasons and think about choices for themselves; 2) decide how to behave; and 3) to behave by decisions, without obstruction from others (Varkey, 2013). Autonomy is defined as the right to determine fate, and it is related to privacy, authority, freedom, and self-power. Respect for autonomy is an important ethical basis because this point emphasizes self-worth and trust and emphasizes that a person can determine what is best for himself or herself, even though his or her choice is detrimental to his health (Beuchamp and Childress, 2013; Manoppo, 2020).

In principle, doctors should not disseminate any information on COVID-19 patients because this is a medical confidentiality. The ethical aspect

of confidentiality for COVID-19 patients is that there is a moral obligation in terms of preventing stigmatization, discrimination, and errors in disseminating information related to and related to COVID-19 (Yusof *et al.*, 2020). Ethical issues can arise from the process of health surveillance activities as a basic action in handling conditions. The Covid-19 outbreak requires extensive patient data information. Patient identification information must be protected, and disclosure of medical information is limited to those relevant to tracing transmission. It is feared that this could lead to stigmatization in the community and increase the government difficulty in controlling the outbreak (Agustin *et al.*, 2020; Page, 2012). In pandemic conditions, the principle is to protect those who are most vulnerable (Coghlan *et al.*, 2020).

According to Agustin *et al.* transparency in providing health-related information needs to be done because handling the COVID-19 outbreak is currently an urgent matter, but in the process, patient identification information must be protected and the disclosure or publication of medical information is only limited to information relevant to tracing transmission (Agustin *et al.*, 2020).

Legal aspects of patient confidentiality for COVID-19 states that every patient has the right to privacy and confidentiality of the illness, including medical data. This is regulated in Article 32 of Law Number 44 of 2009 concerning Hospitals, concerning patient rights and hospital obligations. Thus each hospital must keep medical secrets, which can only be disclosed for the benefit of patient health and to fulfill requests from law enforcement official with the patient's own consent (Law of Republic of Indonesia No.44, 2009).

The statement S4 states that "The doctor can ask the patient's travel history for tracing," Statement S4 was mostly answered correctly, i.e. 45 respondents (56.3%). Based on the principle of beneficence, doctors are obliged to take actions that benefit patients and support a moral role to protect and defend the rights of others, prevent damage, and eliminate conditions that cause harm (Varkey, 2020). By asking about the patient's travel history, doctors can make early anticipations to anticipate losses that may occur, such as the transmission of the coronavirus to the people around them. In the Law of the Republic of Indonesia No. 29 of 2004 concerning medical practice, article 50c states that "In carrying out medical practice, doctors have the right to obtain complete and honest information from patients or their families (Law of Republic of Indonesia No.29, 2004).

3.2.3 Diagnostic and treatment

In statement S12, "A person with symptoms similar to COVID-19 without a swab result needs to undergo treatment for COVID-19" The correct answers from the respondents for the knowledge was 36.3% and 48.9% for the attitude. This statement is related to non-maleficence. In accordance with the principle of non-maleficence, the obligation to prevent injury to people is much stronger (Papanikitas, 2013).

To diagnose a corona virus infection, it is necessary, to begin with a history or medical interview. For this purpose, a doctor asks about the symptoms or complaints experienced by the patient. In addition, the doctor also performs a physical examination and blood tests to help make a diagnosis. The diagnosis of COVID-19 must be confirmed by reverse transcription-polymerase chain reaction (RT-PCR) or gene sequencing for respiratory or blood specimens as a critical indicator for hospitalization. Furthermore, the patient can do a Computerized Tomography (CT) scan or thorax photo (Susilo *et al.*, 2020; Burhan *et al.*, 2020).

When this article was prepared, there were no specific management recommendations for COVID-19 patients, including antivirals or vaccines. Management that could be done was symptomatic therapy and oxygen. In patients with respiratory failure, mechanical ventilation could be performed. China's National Health Commission (NHC) had studied several drugs that had the potential to overcome SARS-CoV-2 infection, including interferon-alpha (IFN- α), Lopinavir/Ritonavir, Ribavirin, Chloroquine phosphate, Remdesvir, and Umifenovir (Arbidol). In addition, several other antiviral drugs were being tested elsewhere (WHO, 2020; Burhan *et al.*, 2020). Thus, patients who had symptoms similar to COVID-19 but had no PCR swab results did not need to be treated as COVID-19 patients.

The statement S19 is related to justice, i.e. "Patients with COVID-19 and not COVID-19 have the right to receive appropriate treatment according to their illness". The correct answer from the respondents for the knowledge was 42.5% and 47.5% for the attitude. Every individual has the right to get health services according to their medical needs (Wasisto *et al.*, 2020). The principle of justice in a medical context demands equal rights to fair treatment in the health system. Every individual has the right to get health services according to their medical needs (Beuchamp and Childress, 2013; Manoppo, 2020).

The statement S23 states that "COVID-19 patients who have a history of comorbid diseases are prioritized to be hospitalized," and the statement S24 reads "Patients with elderly COVID-19 are prioritized to get treatment at the hospital". Statement S23 and S24 are also related to justice. The principle of justice basically treats all patients the same, unless there are reasons for different treatment, for example choosing priority vulnerabilities based on age, gender, economic status or disease severity.

Justice is generally defined as treating someone fair, equal, and appropriate (Beuchamp and Childress, 2013). According to Aristotle, justice is more than just equality because someone can feel that they are not treated properly even though they have been treated the same. Beauchamp and Childress stated that the philosophical theory of justice related to the wholeness of one life applies throughout life. This theory is closely associated with being fair to others, such as who needs health assistance is first considered based on the severity of the disease (Afandi, 2017).

In statement S5, "Doctors give drugs circulating in the market to treat COVID-19 patients, and it is permissible even without going through the stage III clinical trial stage for the treatment of COVID-19 during the pandemic period". The statement S6 states that "Consumption of drugs circulating in the market to treat COVID-19 patients who are self-isolating in their living quarters is allowed even without a doctor's recommendation and has not passed stage III clinical trials to treat COVID-19 during the pandemic period". Statement P5 and P6 are related to goodwill.

The beneficence principle is the principle that prioritizes good deeds. In a medical context, beneficence means improving the patient's well-being. The principle of beneficence is the golden rule principle: to treat patients as they should commonly, where every medical practice must be compassionate, altruistic, full of kindness, and respect for human dignity (Mappaware *et al.*, 2020).

In principle, COVID-19 treatment is usually given based on symptomatic, so it is allowed for the doctor to provide drugs on the market or for the patient to take over-the-counter medications without a doctor's recommendation as long as the patient feels the symptoms. In principle, all medicines sold in the market have gone through phase III clinical trials before being distributed to the public.

The statements S5 and S6 are related to the regulation of the Ministry of Health (MOH) Republic of Indonesia. According to the Ministry of Health (MOH) the Republic of Indonesia, drugs circulating in the market are divided into four groups: free drugs, limited free drugs, strong/psychotropic drugs, and narcotic drugs. Therefore, the administration of drugs must still be under the supervision of a doctor (MOH, 2007).

3.2.4 Quarantine and isolation

Statements S8, S9, S10, and S11 are related to quarantine and isolation. In statement S8, "Doctors can force someone who is in close contact with probable or confirmed to do self-isolation". Statement S8 is related to the principle of non-maleficence.

Non-maleficence is related to the Latin phrase *primum non nocere* which means "for the most part, do not cause harm/damage" (Varkey, 2020). This principle aims to protect individuals who are unable or individuals who do not have the ability to autonomy themselves. The beneficence principle also protects this individual. On the principle of non-maleficence, the obligation not to hurt others is much stronger than the obligation to do goodness (Beuchamp and Childress, 2013).

According to the Law of the Republic of Indonesia No. 6 of 2018, article 1 paragraph 6, quarantine is a limitation of activities and/or separation of a person who is exposed to an infectious disease even though he has not shown any symptoms or is in the temporary incubation phase. According to article 1 paragraph 7, isolation is the separation of sick people from healthy people, carried out in health facilities to get treatment and care. Self-isolation is carried out at home or a designated place. Based on article 3, the objective of quarantine is to protect, prevent, and ward off diseases and public health risk factors that can cause public health emergencies. Based on article 9, everyone is obliged to comply with and participate in implementing health quarantine (Law of Republic of Indonesia No. 6, 2018).

In statement 9, "Patients with suspicion or close contact with probable/ confirmed patients have the right to refuse to self-isolate". Statement P9 is related to the principle of autonomy. The principle of autonomy is related to equality and freedom of choice as the basis of the human rights paradigm. The principle of autonomy is defined as the right to make choices, which relates to the concepts of privacy, authority, freedom, and self-management. However, the rights and freedoms

outlined in law can be limited by other laws for public order and the interests of the state (Ranasinghe *et al.*, 2020).

In the statement S10, "Suspected patients or patients who had a close contact with probable/confirmed patients who do not want to self-isolate may be forcibly picked up so as not to infect the people around them", and statement S11 reads "A person who has been confirmed with COVID-19 and refuses to be treated can be forced to be isolated". Statements S10 and S11 are related to the principle of justice.

The principle of justice in the medical context refers to allocating or distributing resources to the population. This principle demands the same treatment in the health system. However, there is no single definite answer as to what is meant by fair and equal distribution. The possible answers are (Papanikitas, 2013): a) Equality - each person receives the available resources in equal proportion, b) Need - each person receives the appropriate resources according to how much someone needs them, c) Deserve - each person receives a resource based on how much they deserve it (in terms of contribution, effort, or worth it or not), and d) Desire - everyone got what they wanted.

3.2.5 Discrimination and stigmatization

In the statement S13, "People who reject COVID-19 patients in their environment commit ethical violations". In statement S14, "People who reject the dead bodies of COVID-19 patients are violating ethics." Under the principle of justice, every individual must be treated fairly, equally, and properly (Papanikitas, 2013).

Based on the principle of justice, a person must be treated equally and cannot be discriminated (Afandi, 2017). This study is contrary to the principle of justice if there is unfair treatment due to discrimination and stigmatization from the surrounding community. Everyone must be given an understanding that everyone can be infected with COVID-19. An explanation must be conveyed to the public that COVID-19 can affect anyone, and this disease is not a disgrace that the public must stigmatize. Therefore, what must be done in the community is to work hand in hand to reduce the risk of transmission by limiting activities outside the home, maintaining physical distance, wearing masks, and always washing hands (Xafis *et al.*, 2020). Thus, after the public understands that discriminatory actions against patients or bodies confirmed to have COVID-19 can harm themselves because they may become the next

patient. Thus, the most important thing for society is to treat other people the way they want to be treated.

3.2.6 Vaccination

In statement S15, "Phase III COVID-19 vaccine trials may be carried out directly on humans". Statement point S15 states that most respondents answered correctly, namely 33 respondents (41.3%). In this study, statement S15 is related to the principle of non-maleficence.

Statement number S15 reads "Clinical trials of the COVID-19 vaccine phase III may be carried out directly on humans". Like clinical trials of drugs, clinical trials of vaccines are conducted to test safety, immunogenicity, and tolerability. Preclinical trials use experimental animals, while phase III clinical trials include human subjects. The implementation of clinical trials of drugs or vaccines is based on the Declaration of Helsinki (CIOMS, 2016).

Before clinical trials in humans are carried out, preclinical trials are carried out on experimental animals to gather information on toxicity and activity testing. The toxicity test results provide information related to the safety level of a substance/material in experimental animals or other biological substances before the substance/material is used in clinical trials. Meanwhile, the activity test (efficacy) provides information regarding the correctness of the effectiveness of a test material that is scientifically proven using the methodology and parameters determined based on the intended use of the test material to be used in clinical trials. In phase III, the clinical trial evaluates the drug/vaccine compared to existing treatments. This phase is carried out to ensure that new drugs/vaccines are truly efficacious by comparing them with standard drugs/vaccines proven useful (Manoppo, 2020).

Clinical trials are carried out based on the International Conference on Harmonization (ICH) principles, namely following the ethical principles of the Declaration of Helsinki. Research subjects are given informed consent to explain the basic elements and additional elements that include an explanation of research activities, research objectives, potential risks and unpleasant feelings that the prospective subject will experience, direct benefits to the subject, alternative procedures, and data confidentiality. A statement that the subject can be excluded from the research, intensive for the subject (if any), the possibility that unknown risks may arise, the potential danger that will occur if the subject resigns, and so on (CIOMS, 2016).

3.2.7 Resource allocation

In the statement S16, "New patients who are not COVID-19 patients should not be treated in the hospital because the hospital prioritizes a place to treat COVID-19 patients". In the statement S17, "Patients who are not COVID-19 patients who have been hospitalized but have not fully recovered are discharged because the hospital needs a place to treat COVID-19 patients". Statement S16 and S17 are related to justice principle. Everyone has the right to obtain health services under their medical needs (Wasisto *et al.*, 2020).

The statement S18 reads "All rapid tests or COVID-19 swab tests should be free so that all people can be examined". Statement S18 is related to justice principle. Based on the principle of justice, everyone must be treated fairly. If we comply to the principle of justice equality, everyone receives the available resources in the same proportion (Papanikitas, 2013).

In statement S20, "Allocation of funding to health services should be prioritized for COVID-19 patients". Based on the principle of justice need, everyone receives appropriate resources based on how much someone needs these resources (Papanikitas, 2013).

3.2.8 Respecting individual right

The statement S22 states that "Citizens with a high risk of contracting COVID-19 have the right to refuse the COVID-19 rapid test". Although individuals have their respective autonomous rights, mutual safety is much more important (Papanikitas, 2013; Law of Republic of Indonesia No. 6, 2018).

In the statement S25, "Every person has the right to use or not use a mask because this is an individual autonomous right. Autonomy (self-determination) can decide how individuals behave without hindrance to others, even though the choice will be detrimental to their health (Papanikitas, 2013; Manoppo, 2020).

In statement S27, "The lockdown of the territory during the pandemic violates individual rights." Considering Law No. 6 of 2018 concerning health quarantine letter c "... Indonesia must fully respect the dignity, human rights, the basics of freedom of a person, and its universal application" and article 2 states that its implementation is carried out based on humanity, benefits, protection, justice, non-discrimination, public interest, cohesiveness, legal awareness, and state sovereignty. The public interest in question is to

prioritize the public interest over individuals or certain groups (Law of Republic of Indonesia No. 6, 2018). Quarantine is carried out to limit the movement of the community; however, this is done to ensure the health of all citizens so as not to become infected.

Thus, quarantine cannot be categorized as a violation of human rights. In Law No. 39 of 1999 concerning human rights, article 73 regarding restrictions and prohibitions, "the rights and freedoms outlined in this law can only be limited by and based on law, solely to guarantee recognition and respect for human rights and basic freedoms of people, morality, public order, and the interests of the nation" (Law of Republic of Indonesia No. 39, 1999).

In the statement S28, "Families have the right to bring COVID-19 patients home." In the statement S29, "Families have the right take the dead bodies of COVID-19 patients". In handling a pandemic, people must follow government regulations. In Law No. 4 of 1984 concerning Communicable Disease Outbreaks article 5 paragraph 1 of the handling of bodies due to outbreaks is regulated by government regulations (Law of Republic of Indonesia No. 4, 1984). In addition, if a body is taken, it will endanger the health of the person who takes the body because he or she could be infected with the SARS-CoV-2 virus from liquid or aerosol from the body.

3.2.9 Basic principles of ethics

Not many previous studies have discussed resident doctors' knowledge of medical ethics issues (especially those related to the basic principles of ethics) in handling the COVID-19. A similar study conducted by Adhikari *et al.* found that two-third of physicians were aware of the contents of the Hippocratic oath. The Hippocratic oath is the initial foundation for the formation of basic principles of ethics. In this study, there were also differences of opinion between doctors and nurses regarding the importance of including medical ethics in the undergraduate curriculum and the paternalistic attitudes of doctors. Differences influenced differences in opinion among health providers in the intensity of professional training. This research is limited to assessing the code of ethics and has not analyzed knowledge of the basic principles of ethics (Adhikari *et al.*, 2020).

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 (Kemparaj

and Kadalur, 2018). Likewise, it was evident in this study. Many resident doctors had different opinions in determining ethical issues that arose in handling the COVID-19 pandemic. In this study, it was most difficult to distinguish between beneficence and non-maleficence and justice from autonomy and beneficence from justice. In practice, no one principle is higher than another. The principles are applied depending on the situation at hand. Four basic ethical principles need to be fulfilled, unless there is a conflict in certain conditions with the same or stronger principles (Kirchhoffer, 2020).

In a study conducted by Singh *et al.* it was stated that 75% of doctors had good knowledge and attitudes towards medical ethics (Singh *et al.*, 2016). However, resident doctors were advised to gain more understanding by attending symposiums, conferences, and training. In contrast to this study, it was found that only 27.5% (about one-third) had adequate knowledge and attitudes about ethical issues. This result is expected because the knowledge tested in research was very specific regarding the basic principles of ethics, which are certainly not easy to identify because they depend on the situation and conditions in the medical practice.

The results of the research by Al-Shehri *et al.*, with the characteristics of resident doctor respondents in Aseer Province, Saudi Arabia, most of the respondents had sufficient knowledge (44.1% of respondents), followed by 35.6% of respondents having limited knowledge, and 20.3% of respondents having good knowledge (Al Shehri *et al.*, 2020).

A research study was conducted by Ranasinghe *et al.* regarding doctors' knowledge of medical ethics in three teaching hospitals in Sri Lanka. It was found that 81.2% of participating doctors had limited knowledge with postgraduate trainees having a higher level of knowledge (60.7%) than other doctors (44.4 %) (Ranasinghe *et al.*, 2020).

However, there is a research study on medical ethics knowledge of pre-clinical and clinical students. The research results by Manurung *et al.* (2019) show that the pre-clinic and clinical student respondents at the University of Lampung having a mean value of 3 with a maximum score of 8 indicate that the students' knowledge is still not adequate (Manurung *et al.*, 2019).

As with knowledge, we have not found an adequate number of studies examining the attitudes of resident doctors regarding the issue of

medical ethics in handling COVID-19 pandemic. However, there were several studies related to attitudes such as research conducted by Jatana *et al.* who examined the attitudes of preclinical students towards medical ethics. In this study, 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 (Jatana *et al.*, 2018). Research conducted by Ranasinghe *et al.* on doctors' attitudes towards medical ethics in three teaching hospitals in Sri Lanka found that most respondents (95%) showed good attitudes towards gaining knowledge and the need for training (Ranasinghe *et al.*, 2020).

Until this research report was written, we had not found other studies examining the relationship of knowledge to resident doctors' attitudes regarding medical ethics in handling the COVID-19 pandemic. However, based on the research results conducted by Manurung *et al.*, there is a relationship between knowledge of basic principles of ethics on the moral assessment of pre-clinical and clinical students at the Faculty of Medicine, University of Medicine Lampung (Manurung *et al.*, 2019).

The theory of Beauchamp and Childress states that the basic principles of ethics include specific rules that can influence concrete actions and one judgment on the analysis of problems in the biomedical field (Beauchamp and Childress, 2013). Knowledge of bioethical principles is related to the cognitive abilities possessed by respondents to increase the ability to think critically and logically (Manurung *et al.*, 2019). In this study, respondents were exposed to medical ethics events, but respondents did not understand or forgot the basic principles of medical ethics. This is caused by many factors, such as lack of opportunity to read books or journals related to medical ethics.

Resident doctors lack of ability to identify ethical issues that arise when dealing with the COVID-19 pandemic is influenced by the lack of exposure to ethical issues in their education. In this study, respondents were less able to identify the basic principles of ethics on the ethical issue of the COVID-19 pandemic. This can be explained by the fact that when undergoing education for resident doctors, the emphasis is more on the technical side of medicine (medical skills) and clinical facts that must be studied continuously. However, it turns out that every medical action and decision-making was strongly influenced by ethical decisions (Hébert, 2009; Muhaimin *et al.*, 2019).

3.2.10 Advantage and limitation of the study

The strength of this study is that it used a questionnaire that the researchers constructed and the content validity has been tested by experts who assessed the relevance of the contents of the questionnaire. Therefore, much information was generated from this study so that it can be re-explored into several quantitative and qualitative studies.

As for the limitations of this study, the researcher did not investigate the practice directly in the field for the attitude item, but instead asked what attitude the respondent would take due to the impossible situation in the field. In addition, the results of the study could not be generalized without caution to the context outside the resident doctors at ZAH because the sample was drawn from the resident doctors at ZAH as the population of this study.

4. CONCLUSIONS:

Resident doctor knowledge about ethical and medicolegal issues is needed in dealing with the COVID-19 pandemic. In this study, it was found that resident doctor knowledge regarding ethical and medicolegal issues in handling the COVID-19 pandemic by using the basic principles of bioethics was not satisfactory, so it is necessary to increase their competence through continuous professional development such as seminars, workshops or case studies.

Adequate ethical and medicolegal decision making is very helpful in making medical decisions. This study found that ethical and medicolegal decision making through resident doctor attitudes regarding ethical and medicolegal issues in handling the COVID-19 pandemic was adequate. Still, it is necessary to raise their awareness of specific ethical and medicolegal issues through a joint conference to discuss difficult cases.

The relationship between knowledge and attitude was not significantly based on our analysis. Education of health care professionals is needed, especially to discuss ethical issues following basic ethical principles. There is also a need for intensive programs such as bioethics courses. A consultative committee will also be helpful to discuss cases of ethical dilemmas and to continuously discuss the ethical perspectives of patients in various clinical situations.

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6. COMPETING INTEREST

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

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Table 2. Distribution of respondent answers regarding knowledge related to issues of ethics and medicolegal in handling the COVID-19 pandemic

Statement	Key answers	Autonomy N(%)	Beneficence N(%)	Nonmalaficence N(%)	Justice N(%)
S1	Beneficence	24 (30%)	21 (26,3%)	25 (31,3%)	10 (12,5%)
S2	Beneficence	24 (30%)	19 (23,8%)	22 (27,5%)	15 (18,8%)
S3	Autonomy	21 (26,3%)	25 (31,3%)	24 (30%)	10 (12,5%)
S4	Beneficence	14 (17,5%)	45 (56,3%)	32 (40%)	9 (11,3%)
S5	Beneficence	5 (6,3%)	32 (40%)	38 (47,5%)	5 (6,3%)
S6	Beneficence	14 (17,5%)	18 (22,5%)	40 (50%)	8 (10%)
S7	Beneficence	14 (17,5%)	17 (21,3%)	10 (12,5%)	39 (48,8%)
S8	Non maleficence	13 (16,3%)	31 (38,8%)	18 (22,5%)	18 (22,5%)
S9	Autonomy	39 (48,8%)	8 (10%)	22 (27,5%)	11 (13,8%)
S10	Justice	11 (13,8%)	29 (36,3%)	22 (27,5%)	18 (22,5%)
S11	Justice	13 (16,3%)	24 (30%)	23(28,8%)	20 (25%)
S12	Non maleficence	9 (11,3%)	35 (43,8%)	29 (36,3%)	7 (8,8%)
S13	Justice	17 (21,3%)	12 (15%)	12 (15%)	39 (48,8%)
S14	Justice	16 (20%)	9 (11,3%)	8 (10%)	47 (58,8%)
S15	Non maleficence	19 (23,8%)	18 (22,5%)	33 (41,3%)	10 (12,5%)
S16	Justice	10 (12,5%)	20 (25%)	23 (28,8%)	27 (33,8%)
S17	Justice	9 (11,3%)	20 (25%)	20 (25%)	31 (38,8%)
S18	Justice	11 (13,8%)	24 (30%)	6 (7,5%)	39 (48,8%)
S19	Justice	9 (11,3%)	25 (31,3%)	6 (7,5%)	40 (50%)
S20	Justice	7 (8,8%)	25 (31,3%)	14 (17,5%)	34 (42,5%)
S21	Justice	4 (5%)	17 (21,3%)	32 (40%)	27 (33,8%)
S22	Autonomy	37 (46,3%)	7 (8,8%)	24 (30%)	12 (15%)
S23	Justice	8 (10%)	39 (48,8%)	17 (21,3%)	16 (20%)
S24	Justice	3 (3,75%)	45 (56,3%)	11 (13,8%)	21 (26,3%)
S25	Autonomy	40 (50%)	8 (10%)	16 (20%)	16 (20%)
S26	Autonomy	27 (33,8%)	10 (12,5%)	21 (26,3%)	22 (27,5%)
S27	Justice	15 (18,8%)	21 (26,3%)	25 (31,3%)	19 (23,8%)
S28	Autonomy	41 (51,3%)	5 (6,3%)	22 (27,5%)	12 (15%)
S29	Autonomy	38 (47,5%)	6 (7,5%)	23 (28,8%)	13 (16,3%)

Table 4. Distribution of respondent answers regarding doctors attitudes towards ethical and medicolegal issues in handling the COVID-19 pandemic

No	Statements	Key answers	Strongly Disagree	Disagree	Doubtful	Agree	Strongly Agree
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			N (%)	N (%)	N (%)	N (%)	N (%)
1	S1	Agree	2 (2,5%)	3 (3,8%)	1 (1,3%)	21 (26,3%)	53 (66,3%)
2	S2	Agree	3 (3,8%)	3 (3,8%)	5 (6,3%)	20 (25%)	49 (61,3%)
3	S3	Disagree	14 (17,5%)	9 (11,3%)	22 (27,5%)	9 (11,3%)	26 (32,5%)
4	S4	Agree	1 (1,3%)	0(0%)	5 (6,3%)	12 (15%)	62 (77,5%)
5	S5	Agree	15 (18,8%)	16 (20%)	25 (31,3%)	15 (18,8%)	9 (11,3%)
6	S6	Disagree	17 (21,3%)	17 (21,3%)	25 (31,3%)	12 (15%)	9 (11,3%)
7	S7	Agree	1 (1,3%)	1 (1,3%)	5 (6,3%)	10 (12,5%)	63 (78,8%)
8	S8	Agree	2 (2,5%)	2 (2,5%)	13(16,3%)	30 (37,5%)	33 (41,3%)
9	S9	Disagree	25 (31,3%)	19 (23,8%)	7 (8,8%)	15 (18,8%)	14 (17,5%)
10	S10	Agree	2 (2,5%)	6 (7,5%)	19 (23,8%)	22 (27,5%)	31 (38,8%)
11	S11	Agree	0(0%)	4 (5%)	17 (21,3%)	25 (31,3%)	34 (42,5%)
12	S12	Disagree	3 (3,8%)	7 (8,8%)	29 (36,3%)	29 (36,3%)	12 (15%)
13	S13	Agree	4 (5%)	1 (1,3%)	12 (15%)	24 (30%)	39 (48%)
14	S14	Agree	5 (6,3%)	2 (2,5%)	11 (13,8%)	23 (28,8%)	39 (48,8%)
15	S15	Disagree	12 (15%)	13 (16,3%)	20 (37,5%)	14 (17,5%)	11 (13,8%)
16	S16	Disagree	11 (13,8%)	25 (31,3%)	15 (18,8%)	19 (23,8%)	10 (12,5%)
17	S17	Disagree	9 (11,3%)	15 (18,8%)	23 (28,8%)	16 (20%)	17 (21,3%)
18	S18	Agree	2 (2,5%)	0(0%)	13 (16,3%)	19 (23,8%)	46 (57,5%)
19	S19	Agree	1 (1,3%)	0(0%)	7 (8,8%)	20 (25%)	52 (65%)
20	S20	Agree	0(0%)	9 (11,3%)	34 (42,5%)	18 (22,5%)	19 (23,8%)
21	S21	Agree	1 (1,3%)	0(0%)	10 (12,5%)	27 (33,8%)	42 (52,5%)
22	S22	Disagree	22 (27,5%)	23 (28,8%)	13 (16,3%)	10 (12,5%)	12 (15%)
23	S23	Disagree	1 (1,3%)	2 (2,5%)	9 (11,3%)	29 (36,3%)	39 (48,8%)
24	S24	Disagree	1 (1,3%)	1 (1,3%)	13 (16,3%)	30 (37,5%)	35 (43,8%)
25	S25	Agree	36 (45%)	18 (22,5%)	10 (12,5%)	8 (10%)	8 (10%)
26	S26	Disagree	16 (20%)	24 (30%)	20 (25%)	8 (10%)	12 (15%)
27	S27	Disagree	20 (25%)	20 (25%)	22 (27,5%)	11 (13,8%)	7 (8,8%)
28	S28	Disagree	20 (25%)	16 (20%)	27 (33,8%)	11 (13,8)	6 (7,5%)
29	S29	Disagree	25 (31,3%)	14 (17,5%)	20 (25%)	11 (13,8)	10 (12,5%)

Table 6. Recapitulation of correct answers about respondent knowledge and attitudes

No	Statements	Knowledge		Attitude	
		Key answer	Correct answers n (%)	Key answer	Correct answers n (%)

1	S1	Beneficence	21 (26,3%)	Agree	74 (92.5%)
2	S2	Beneficence	19 (23,8%)	Agree	69 (86.3%)
3	S3	Autonomy	21 (26,3%)	Disagree	45 (56.3%)
4	S4	Beneficence	45 (56,3%)	Agree	74 (92.5%)
5	S5	Beneficence	32 (40.0%)	Agree	24 (30.0%)
6	S6	Beneficence	18 (22,5%)	Disagree	59 (73.8%)
7	S7	Beneficence	17 (21,3%)	Agree	73 (91.3%)
8	S8	Non maleficence	18 (22,5%)	Agree	63 (78.8%)
9	S9	Autonomy	39 (48,8%)	Disagree	49 (61.3%)
10	S10	Justice	18 (22,5%)	Agree	53 (66.3%)
11	S11	Justice	20 (25.0%)	Agree	59 (73.8%)
12	S12	Non maleficence	29 (36,3%)	Disagree	39 (48.7%)
13	S13	Justice	39 (48,8%)	Agree	63 (78.8%)
14	S14	Justice	47 (58,8%)	Agree	62 (77.5%)
15	S15	Non maleficence	33 (41,3%)	Disagree	45 (56.3%)
16	S16	Justice	27 (33,8%)	Disagree	51 (63.8%)
17	S17	Justice	31 (38,8%)	Disagree	47 (58.8%)
18	S18	Justice	39 (48,8%)	Agree	65 (81.3%)
19	S19	Justice	40 (50.0%)	Agree	72 (90.0%)
20	S20	Justice	34 (42,5%)	Agree	37 (46.3%)
21	S21	Justice	27 (33,8%)	Agree	69 (86.3%)
22	S22	Autonomy	37 (46,3%)	Disagree	58 (72.5%)
23	S23	Justice	16 (20.0%)	Disagree	12 (15.0%)
24	S24	Justice	21 (26,3%)	Disagree	15 (18.8%)
25	S25	Autonomy	40 (50.0%)	Agree	16 (20.0%)
26	S26	Autonomy	27 (33,8%)	Disagree	60 (75.0%)
27	S27	Justice	19 (23,8%)	Disagree	62 (77.5%)
28	S28	Autonomy	41 (51,3%)	Disagree	63 (78.8%)
29	S29	Autonomy	38 (47,5%)	Disagree	59 (73.8%)

Table 7. Statistical analysis

Knowledge	Attitude		Total	p-value
	Positive	Negative		
Good	22	2	24	0,077
Limited	40	16	56	
Total	62	18	80	

APPENDIX. 1. Original online questionnaire in Indonesian

QUESTIONNAIRE SHEET

Knowledge and attitudes regarding ethical and medicolegal issues in handling the COVID-19 pandemic among resident doctors at Zainoel Abidin Hospital, Aceh, Indonesia

1. Respondent data

- a. Serial number :
- b. Place of duty :
- c. Gender :
- d. Age :

2. Questionnaires

Choose the answer that suits your opinion by clicking on the available answer choices.

Item No.	Statement Items	Knowledge What ethical principles are contained in the statement?	Attitudes What is your attitude towards that statement?
S1	Doctors who are not equipped with complete personal protective equipment (PPE) have the right to refuse to examine patients suspected of having COVID-19.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S2	Doctors who are not equipped with personal protective equipment (PPE) have the right to refuse to treat patients suspected of having COVID-19.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S3	Doctors may notify patient data to the general public to prevent the spread of COVID-19.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S4	The doctor has the right to ask about the patient's travel history for tracking purposes	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S5	During a pandemic, using drugs on the market to treat COVID -19 patients is allowed even without going through the clinical trial stage.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree

S6	During a pandemic, taking drugs on the market to treat COVID -19 patients isolated independently in their homes is allowed even without a doctor's prescription.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S7	Doctors have the right to receive protection while working during the COVID-19 pandemic	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S8	The doctor has the right to ask someone who is categorized as a suspect or close contact with a probable/confirmed COVID-19 person to self-isolate.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S9	A person categorized as a suspect or in close contact with a probable/confirmed COVID -19 person has the right to refuse self-isolation.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S10	A person categorized as a suspect or in close contact with a probable/confirmed COVID -19 person who does not want to perform self-isolation may be forcibly picked up.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S11	A person who has been confirmed as COVID-19 and refuses to be treated can be forced into isolation.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S12	Someone who has symptoms similar to COVID-19 but there is no result of the swab being treated for COVID-19	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S13	People who reject COVID-19 patients in their environment are violating social ethics	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S14	People who reject the dead bodies of COVID-19 patients are violating social ethics	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree

S15	COVID-19 vaccine trials can be carried out directly on humans.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S16	New non- COVID-19 patients should not be hospitalized because hospitals need a place to treat COVID-19 patients	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S17	Non- COVID-19 patients who have been hospitalized should be discharged because hospitals need a place to treat COVID-19 patients	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S18	All rapid tests / RT-PCR should be made free so that all people can be examined for COVID-19 detection	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S19	COVID-19 and non- COVID-19 patients deserve the same treatment	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S20	Allocation of funding for health services is prioritized for COVID-19 patients	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S21	Changes in professional care providers such as doctors, nurses and other health workers for COVID-19 patients are carried out regularly according to needs	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S22	Residents with a high risk of contracting COVID-19 have the right to refuse the rapid test / RT-PCR.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S23	COVID-19 patients who have a history of comorbid diseases are prioritized for hospitalization.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree

S24	COVID-19 patients who are elderly are prioritized for getting treatment at the hospital.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S25	Each person has the right to use or not use masks during a COVID-19 pandemic because this is an individual's autonomous right.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S26	Personal data of COVID-19 patients may be published.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S27	Lockdowns during a COVID-19 pandemic violate the rights of individual freedoms.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S28	Families of COVID-19 patients can forcibly bring COVID-19 patients home.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree
S29	Families of COVID-19 patients can forcibly take the dead bodies of COVID-19 patients.	☐ Beneficence ☐ Nonmaleficence ☐ Justice ☐ Autonomy	☐ Strongly disagree ☐ Disagree ☐ Doubtful ☐ Agree ☐ Strongly agree