Mitigation analysis of Covid-19 pandemic on the medical sector in Indonesia

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Abstract In carrying out their duties, medical personnel have a high risk of being exposed to COVID-19, primarily if they are not supported by the Standard Operation Procedure (SOP) and well-planned mitigation scenarios from the Government. The large number of medical personnel affected by COVID-19 in Indonesia is evidence of the mitigation process's failure, even though the medical personnel's role in suppressing the outbreak's spread is vital and significant. Through the mixed exploratory method, there is a relationship or influence in the moderate category between the number of medical personnel in one province and the number of medical personnel infected with the coronavirus. However, the relationship is not too significant. There is a unidirectional relationship, which means the higher the ratio of medical personnel in an area, the lower the ratio of medical personnel infected with the coronavirus. Meanwhile, from the factor of lack of Personal Protective Equipment (PPE), it was found that there was a significant difference between WHO and government steps in optimizing the availability of PPE for medical personnel.

1. Introduction

Since the determination of the Coronavirus disease (COVID-19) outbreak as a pandemic global by the World Health Organization (WHO) on March 11, 2020, practically nothing medical advances indicating the end time for the pandemic. The spread of the plague epidemic has even reached all parts of the world and has infected more than 213 countries, with a total of 7.3 million cases [1]. Among these numbers, the International Council of Nurses (ICN) estimates more out of 210,000 medical personnel infected due to carrying out their duties [2], both those directly or indirectly dealing with COVID-19 patients. This condition explains that medical personnel have the highest risk and are vulnerably exposed to COVID-19, mostly if it is not supported by the Standard Operation Procedure (SOP) and mitigation scenarios in the medical sector planned by the Government and stakeholders involved.

The potential for mitigation failure in the medical sector occurs in almost all countries, including Indonesia. The large number of sectors affected by COVID-19, such as the economic, labor, and social sectors, has made the health sector not a top priority to mitigate the COVID-19 pandemic outbreak. This is evident that the Government is not ready to prepare medical personnel, isolation rooms, houses referral illness, Personal Protection Tool (PPE), and medical personnel incentives. The bad of mitigation
in the medical sector is proven by the number of medical personnel infected or even died from COVID-19. Although The COVID-19 Response Task Force stated at least 55 health workers has died due to COVID-19 in Indonesia until mid-May 2020 [3] until now, there are no specific studies that show the impact of the coronavirus on medical personnel in Indonesia or open data containing reports on the number of health workers infected with COVID-19. Other countries such as the United States, Italy, Spain, and even Malaysia have always reported the number of COVID-19 infections against medical personnel, the average age at death, sex, and the percentage of those who died in contact patients in the hospital. Common symptoms of a coronavirus infection befall health workers [4].

This condition is inversely proportional to the risk faced by personnel medical due to close interactions with COVID patients and potential patients seek treatment who may carry the coronavirus (carrier). Without being supported by Personal Protection Equipment (PPE), medical personnel is very at risk of contracting the virus from the patient or vice versa transmit the virus to the person in the hospital. This is quite risky because of approximately 70% of people who are not infected with the coronavirus show general symptoms [5]. This paper will examine the main factors behind the insufficient mitigation of the COVID-19 pandemic in Indonesia and the significance of these factors for the number of medical personnel infected with COVID-19.

This study examines whether the medical sector is adversely affected by the mitigation of the COVID-19 pandemic disaster in Indonesia. Based on data from affected medical personnel, then look for the factors that cause the failure of COVID-19 mitigation efforts in the medical field. Is this research to determine the relationship between the shortage of medical personnel and personnel safety in response to COVID-19? Occurring in Indonesia and the lack of medical facilities, infrastructure, and equipment affect medical personnel's safety in response to COVID-19.

1.1 Mitigation of COVID-19 in the medical sector
The spread of COVID-19 occurs so fast, and it is difficult to prevent. To reduce and even avoid casualties, risk reduction efforts must be made through prevention, preparedness, and mitigation. Law Number 24 of 2007 concerning Disaster Management describes mitigation as “a series of measures to reduce disaster risk both through physical development as well as awareness and capacity building facing the threat of disaster". Mitigation objectives in society with the existence of transmission of COVID-19 are to slow down the transmission of the disease, specifically to protect individuals at higher risk, such as the elderly who have an underlying medical history and medical personnel face to face with COVID-19 patients.

Weak implementation of health mitigation will force things to change from pre-disaster becomes an emergency response. In an emergency response, medical personnel must obtain their rights as health workers as regulated in Law Number 36 of 2014 [6], such as; obtain legal protection as long as they carry out their duties by Professional Standards, Professional Service Standards, and Standard Operating Procedures; obtain complete and correct information from the Service Recipient Health or family; receiving fees for services; receive protection for occupational safety and health, treatment that is by human dignity, morals, and values religion; get the opportunity to develop his profession; refusing the wishes of the Health Service Recipients or other parties contrary to Professional Standards, code of ethics, service standards, standards. The loss of one of the health workers' rights can be dangerous to their safety, for example, providing false information from visiting patients health facilities by mentioning that they have never interacted with COVID-19 patients 19, or provide false information regarding overseas travel history, etc.

1.2. Ideal medical personnel ratio
The real shortage of doctors does not only appear during the outbreak or pandemic strikes. Many countries in the world are short of doctors and personnel medical. According to data from the World Health Organization (WHO), the US only has 26.12 doctors per 10,000 population as a developed country. Britain also only has 26.12 doctors per 10,000 population. As a developing country, Indonesia only has 4.27 doctors per 10,000 population. The number of doctors in Indonesia is less than that of
Malaysia (15.36 doctors per 10,000 population), Singapore (22.94), Philippines (6), Vietnam (8.28), Thailand (8.05), Myanmar (6.77), and even countries that were colonized Indonesia, Timor Leste with 7.22 doctors for every 10,000 population [7].

The research publications by Misnaniarti et al. (2017) in the Research Journal and Service Development related to the Availability of Facilities and Health Workers In Supporting Universal Coverage. The National Health Insurance stated that the availability of supply factors (FKTL, TT, and specialist doctors) supporting the JKN policy is still insufficient. The distribution is not evenly distributed in every district/city [8]. There are several criteria for the ideal conditions for the needs of medical personnel. According to the World Health Organization, the World Health Organization (WHO) states that the ideal doctor in providing services is 1: 2,500 inhabitants. While according to the Social Security Administering Body (BPJS) for Health, it is 1: 3,000 population [9].

1.3. WHO recommendations in optimizing personal protection tools

To carry out their functions, medical personnel must be equipped with Personal protection Tools (PPT) to prevent disease transmission or other workplace accidents. According to research conducted by Siti Dessy Setyowati (2010), there is a significant relationship between the use of PPE against efforts to protect workers from accidents and occupational diseases [10]. Associated with medical personnel who must face the COVID-19 pandemic outbreak which is highly contagious, the World Health Organization (WHO) has provided guidance and recommendations for the use of PPE in the handling of COVID-19 patients. PPE includes gloves, medical masks, goggles or face shields, gowns, and special procedures such as respirators and aprons. The guide is intended, so government authorities can supply, distribute, manage, and provide information on PPE’s proper use [11].

Guidelines created as a mitigation measure for COVID-19 Optimizing the availability of PPE provides three recommendations (Figure 2), namely: First, minimizing the need for PPE by intensifying telemedicine and glass / plastic bulkheads; Second, ensure the use of the PPE rational and appropriate for medical personnel and the general public; and Third, coordinate the PPE supply chain management mechanism. These three factors it is important to analyze because it is believed to be a determinant of successful mitigation of COVID-19 in the medical personnel sector.

![Figure 1. Guidelines for Optimizing PPE Availability](image)

2. Method

This study used an exploratory mixed-method consisting of two research phases, intending to explain the analysis of outbreak mitigation failures in the COVID-19 pandemic against Indonesia's medical sector. The first phase was research qualitative research exploring the negative impacts of mitigating the COVID-19 pandemic outbreak 19 in Indonesia on the medical sector, including its factors. The first phase of research was carried out using the descriptive analysis method from open sources citing digital media coverage and the expert's opinions. Two of the most fundamental actors resulting from the failure
of disaster mitigation in the medical sector are obtained from the first phase of research will be explored and validated by the research phase, the second consisting of two sub-studies. The first sub-research in the second phase used quantitative methods with the Pearson Correlation test to examine and objectively determine how the effect or the relationship between the number of health workers and the number of infected medical personnel COVID-19 in several provinces in Indonesia.

The testing using the Pearson Correlation method in its implementation was used to determine whether there was a relationship between 2 variables, namely variables independent and dependent variables with resonant interval or ratio scales (parametric) SPSS was called scale. The assumption in the Pearson correlation, data should be normally distributed. The correlation could produce positive (+) and negative (-) numbers if the correlation figure-flattering meant that the relationship is unidirectional. Unidirectional meant that if the independent variable was large, the dependent variable was getting bigger. If it produced a negative number, it meant a relationship was not unidirectional. Not unidirectional meant if the value of the independent variable was immense, the variable getting smaller. Correlation rates ranged from 0-1. The normality test used the Shapiro Wilk method because the data used less than 30 entities. Researchers took data from 10 provinces in Indonesia, which has the highest and lowest total medical personnel ratio. So the hypothesis taken were:

a. Ho: The number of medical personnel in a region had a significant relationship with medical personnel affected by handling the coronavirus
b. H1: The number of medical personnel in an area had no relationship Significant for medical personnel affected by a treatment coronavirus.
c. Criteria: Ho was accepted if the Significance value is less than 0.05

The data used comes from the Ministry of Health's data release and collection from online publication media. The data that has been processed by researchers are as follows:

| Region       | Total Population | Number of Medical Personnel | Infected Medical Personnel | Infected Patient | The Ratio Number of Medical Personnel per Region |
|--------------|------------------|------------------------------|----------------------------|------------------|-----------------------------------------------|
| Jakarta      | 10.467.629       | 16.520                       | 150                        | 7348             | 1: 633                                        |
| East Java    | 39.500.851       | 14.258                       | 135                        | 4857             | 1: 2770                                       |
| NTB          | 5.013.687        | 1.457                        | 152                        | 636              | 1: 3441                                       |
| Central Java | 34.490.835       | 12.985                       | 60                         | 1403             | 1: 2656                                       |
| West Borneo  | 5.001.664        | 1.138                        | 40                         | 189              | 1: 4395                                       |
| East Borneo  | 5.371.519        | 1.673                        | 30                         | 295              | 1: 3210                                       |
| South Sulawesi| 8.771.970     | 3.419                        | 38                         | 1541             | 1: 2565                                       |
| North Sulawesi| 2.484.392   | 1.632                        | 25                         | 339              | 1: 1522                                       |
| Bengkulu     | 1.963.300        | 803                          | 37                         | 91               | 1: 2444                                       |
| Papua        | 3.322.526        | 804                          | 22                         | 675              | 1: 4132                                       |

*Data processed by researchers

While the second sub research used a qualitative descriptive method to verify the three-step recommendation to optimize the use of Personal Protective Equipment (PPE) against policies that have been carried out by the Government of Indonesia to mitigate COVID-19 in medical vector. The second phase of research results are expected to strengthen the research findings in the first phase regarding the fundamental factors that resulted in the medical sector has had a significant negative impact due to insufficient mitigation of a pandemic outbreak COVID-19 in Indonesia.
3. Results and discussion

3.1. The condition of medical personnel in mitigating the covid-19 pandemic outbreak in Indonesia

Health workers had a significant role in dealing with COVID-19. President of Indonesia, Ir. Joko Widodo, called health workers a line front to get maximum protection in running its job to serve patients, so they cannot be exposed to Covid-19 (Suara.com, March 19, 2020) [12]. Maximum protection for health workers can be done by fulfilling the need for Personal Protective Equipment (PPE) such as masks, hand sanitizers, hazmat suits, the hand gloves, so the risk of contracting when dealing with COVID-19 patients can be minimized.

PPT's need in health facilities has not been maximally fulfilled until health workers innovate using raincoats as a substitute for PPE [13]. Professional organizations engaged in the health sector, namely the Indonesian Doctors Association (IDI), Indonesian Dentists Association (PDGI), Indonesian National Nurses Association (PPNI), the Indonesian Midwives Association, and the Indonesian Pharmacists Association (IAI) on March 27, 2020, issued a joint statement with professional organizations which essentially stated, 1) In the current state of the outbreak it is likely that every patient we examine is Person Under Monitoring (ODP) or Patient Under Monitoring (PDP), or patient COVID-19, 2) The number of health workers who have contracted COVID-19 is increasing increased even some died. As of May 7, worldwide, data recorded that 989 health workers died from COVID-19 or 0.37% (989/270,426). There were around 12,400 positive cases in Indonesia, with 895 deaths in the same period, including 55 health workers or 6.14% (theconversation.com, 2020).

3.2. Factors causing failure of mitigation in the medical sector

The high mortality rate for health workers was 6.14% of the total deaths as a result of COVID-19 shows insufficient mitigation of the spread of COVID-19 in the sector medical. The implementation of health services should be in every health care facility implements a Prevention and Control Strategy Infection (PPI) [14], which regulates, among others: first, implement standard precautions for all patients. The standard precautions consist of hand and respiratory hygiene, PPE use according to risk, prevention of wounds caused by sharp objects and needles, safe waste management, environmental cleaning, and sterilization of linen and patient care equipment. Second, ensure early identification and control of sources. Use of clinical triage in a healthcare facility to identify the affected patient ARDs to prevent pathogens' transmission to health professionals and other patients. Third, implement administrative controls. Performed from the anticipation of the patient's flow from the time they first arrived until it leaves the service facility. Administrative controls and policies. The policies implemented include the provision of infrastructure and activities of the PPI continuously, providing knowledge to health workers, preventing the density of visitors in the waiting room, providing a particular waiting room for sick people and inpatient placement, organizing health services so that supplies are appropriately used, etc. Fourth, using environmental and engineering controls. This activity, including the infrastructure for health service necessary facilities and households treating patients with mild and non-symptomatic, requires treatment at the hospital. Fifth, apply additional empirical preventive measures to a patient under surveillance and confirmation of Covid-19. The preventive measure consists of contact and droplet precautions and airborne precautions for aerosol-generating procedures.

In its implementation, not all of the PPI Strategies were implemented by the medical personnel, so some personnel was still exposed to COVID-19. Doctor's Association Indonesia (IDI), in an internal investigation, found several factors health workers exposed to COVID-19, ranging from a shortage of PPE to a lack of numbers medical personnel, false information by patients, to negligence by health workers alone. Of these factors, PPE deficiency and lack of workforce health were the most significant factors that cause it medical personnel exposed to COVID-19.

3.3. Lack of medical personnel

The number of patients exposed to COVID-19 increases every day since President Joko Widodo announced the case on March 2, 2020. The number of patients confirmed positive for COVID-19 as of
June 10, 2020 (101st day) as many as 34,316 patients, so an average of 336 positive patients per day. That figure not including People Under Monitoring (ODP) and Patients Under Supervision (PDP). The rapid increase in the number of COVID-19 patients has not been matched with a sufficient number of health personnel. Based on Ministry Health data (the ratio of the number of medical personnel in Jakarta is 1: 663, which is this means that one medical personnel handles 663 people. The number of medical personnel in Jakarta is the smallest compared to other provinces, for example, the ratio of medical personnel in Central Java, namely 1: 2656, in East Java 1: 2770, and NTB 1: 3441. The lack of medical personnel accompanied by an increase in the number of Covid-19 every day, resulting in exhausted medical personnel.

3.4. Lack of Personal Protective Equipment (PPE)

The use of PPE when treating patients in every health facility is a preventive effort so that health workers avoid the spread of Covid-19. In a COVID-19 pandemic situation, health workers must assume that every patient who comes to a health care facility is a carrier of COVID-19, so it must be handled with the SOP for handling COVID-19 patients, namely use PPE such as masks, hand scoops, dresses, etc. Offers from PPE manufacturers did not follow the significant increase in demand for PPE. The medical personnel in the hospital, especially many referral hospitals for handling COVID-19, do not use PPE according to the standard. The number of health workers affected by COVID-19 starting from the scarcity of PPE. Amnesty International Indonesia was very concerned about reports that Indonesia's health workers do not have access to adequate personal protective equipment (PPE). It urged that we provide the PPE that meets the standard with a sufficient amount [15].

3.5. False information from patients

Health workers have the right to obtain complete information and correct from the Health Service Recipient (patient) or their family. Question basics provided by medical personnel, such as travel history, physical condition Current was the initial attempt to detect or provide a diagnosis of disease suffered by the patient so that appropriate treatment could be given. In practice, some patients provided false information resulting in the transmission of COVID-19 to medical personnel. For example, in Karangyung District, Grobongan, Central Java, some patients have had a history of traveling from Jakarta but did not explain the travel history of the COVID-19 red zone [16]. So that 20 officers at Purwodadi Hospital should be examined using a rapid test for checking COVID-19. In Pelalawan Regency, Riau, two dishonest patients had a history of traveling to Jakarta, the red zone COVID-19. In the end, it was discovered that the patient's test results positive for COVID-19, so medical personnel who interacted closely with the patient co-contracting COVID-19 [17].

3.6. The effect of lack of medical personnel factors

Lack of medical personnel was considered one of the other factors causing disaster mitigation failure, causing the medical sector to be considered the most affected in the failure. This was then necessary proven by statistical testing to determine whether there was a relationship between the lack of medical personnel using ratio data medical personnel per province (x) to the ratio of medical personnel infected with the virus corona per province (y), then how was the relationship between the two variables. From the results of the table below, it could be seen that the significance value of the two variables was more than 0.05, so it could be concluded that the data were normally distributed and could be done next stage testing.

| Data Normality Test | Kolmogorov-Smirnov\(^2\) | Shapiro-Wilk | Tests of Normality |
|---------------------|--------------------------|--------------|-------------------|
| Statistic df Sig.   | Statistic df Sig.        |              |                   |
### Pearson Correlation Analysis Test Correlations

| Correlations                                      | The ratio of Medical Personnel per Population Number | The ratio of Medical Personnel per Infected Patient |
|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|
| The ratio of Medical Personnel per Population Number Pearson Correlation (N=10) | .184 | -.458 |
| Sig. (2-tailed)                                  | .180 | .183 |
| The ratio of Medical Personnel per Infected Patient Pearson Correlation (N=10) | .200* | .962 |
| Sig. (2-tailed)                                  | .910 | .803 |

* This is a lower bound of real significance.
a. Lilliefors Significance Correction

From the Pearson correlation test results using the SPSS 26 program, the results Pearson correlation got the result -0.458, which means the degree of the relationship between both variables were in the medium category. In contrast, the significant result was more remarkable than 0.183 of 0.05, which meant that the two variables' relationship was not too significant. From the results, It could also be seen that the value of the relationship is negative at -0.458, which is meant that the relationship between the two variables was not unidirectional.

So it could be concluded that there was a relationship or influence within the medium category between the ratio of the number of medical personnel in one province to the number of personnel medical infected with corona. However, the relationship was not very significant, or Ho rejected by the form of non-unidirectional relationships, which meant the higher the power ratio of medical personnel in an area, the lower the ratio of medical personnel infected with coronavirus. This also proved that the lack of medical personnel was a factor that caused the medical sector most affected in the failure of disaster mitigation; however, it could not be categorized as a significant factor or a decisive factor.

### 3.7. The influence of lack of Personal Protective Equipment (PPE) factors

Among the many needs for medical facilities and infrastructure in handling COVID-19 in Indonesia, the availability of Personal Protective Equipment (PPE) for medical personnel, it is crucial that must be analyzed. Refer to the results of the first phase of research, the lack of PPE was the primary determining factor of insufficient disaster mitigation of the COVID-19 outbreak carried out by the Government. These factors will be thoroughly validated through verification steps that have been done by the Indonesian Government, compared with three steps recommendations that have been made by WHO in optimizing the use of PPE for personnel medical.

#### 3.7.1. Minimizing the need for PPE

One of the WHO recommendations for optimizing the use of PPE is by minimizing its use. One of the recommendations is to intensify the use of hospitals without walls or so-called telemedicine. This system is useful for evaluating suspected cases of COVID-19 without having to come face to face with the patient so that medical personnel does not need PPE to protect themselves. These recommendations have at least been try to be done by the Government of Indonesia, in collaboration with application companies health technology. Until now, there had been 12 company services digital Health who are members of the Indonesian Telemedicine Association for Attention and cooperate with the COVID-19 Handling Task Force for providing consulting services and remote drug
purchase [18], among others Alodokter, Halodoc, SehatQ, Klikdokter, Yesdok, Doktersehat, Dokterpedia, and Maudok. Furthermore, the Task Force also claimed that as many as 320 thousand, the community has already utilized the telemedicine service related to symptoms of COVID-19 [19].

In mitigating the COVID-19 pandemic, telemedicine was one of the essential tools, especially about the demand for hospital isolation room that already overcapacity. Apart from that, patients with other diseases too. It will be helpful to anticipate the spread of COVID-19 if the patient gets homesick. However, this appeal has not applied a protocol for handling COVID-19. In that case, seriousness the Government was being questioned because there were no clear technical instructions related to telemedicine schemes, especially those connected to referral hospitals COVID-19. Also, telemedicine financing mechanism, adequate consultation, and medication were obstacles because it has not been guaranteed by the Healthcare and Social Security Agency [20]. The impression is to hand over the payment scheme to the private sector. This condition illustrated that the Government intends to maximize telemedicine services to minimize the need for PPE for personnel health, has not been matched by soft advocates to maximize effort. As a result, many people, especially those who rely on it financing through the Healthcare and Social Security Agency scheme, still have to go to health facilities to receive service.

3.7.2. Ensuring rational and appropriate use of PPE. WHO has published comprehensive guidance on personnel management, facilities, and medical personnel activities and the general public with the type of PPE just right to use. The arrangement even explains different types of PPE for medical personnel in various parts of the hospital, such as inpatient facilities, isolation rooms, triage areas, ambulances, administrative services, the laboratory, ICU, and the living area. The purpose of these guidelines is to make the use of PPE more rational to avoid improper use [21].

Responding to these recommendations, since early April 2020, the Government has been actively campaigning for the use of cloth masks for people who are at low risk against the transmission of COVID-19 [22]. These measures are believed to be quite useful in maintaining the availability of surgical masks needed by medical personnel. Besides that, through the Ministry of Health, the Government of Indonesia has also issued Personal Protective Equipment (PPE) Technical Instructions in the face of the COVID-19 outbreak on April 8, 2020. The technical instruction explains alternative PPE if PPE is standard, not available, such as goggles, replaceable swimming goggles, or changeable coverall robes with disposable raincoats.

This condition illustrates that the Ministry of Health has understood PPE's importance in protecting medical personnel from infection COVID-19. The description of WHO's recommendations is outlined in technical guidelines is even more complete because it includes instructions for use, disposal, reuse, and disposal of PPE that has been used. In these technical guidelines, the Ministry of Health also understands the potential lack of PPE to prepare alternative PPE that can be used in urgency. However, PPE alternatives were suggested by the Ministry of Health. This has drawn much criticism because it is not under existing standards set by WHO. Amnesty International Indonesia in its report in April 2020. It even quoted the news [23] that using a raincoat to wear as the protective gear was a violation of health worker's rights [24]. The condition for using this alternative PPE is even called a suicide [25] by a health worker. The alternative PPE is dangerous for medical personnel because they continue to provide services as if they are safe, whereas, on the contrary, COVID-19 infection can still penetrate the alternative PPE used [26].

3.7.3. PPE Chain Coordination and Management. Based on WHO recommendations, government stakeholders should coordinate and manage the PPE supply chain that includes demand forecasts, monitoring, controlling demand, and distribution centrally. These steps were intended for supply PPE is always maintained and prioritized for medical personnel who need it more. This step was also felt to be linear with the lack of PPE around the world, especially during the initial period of the spread of COVID-19 in the first quarter of 2020, mainly due to inadequate supply due to lack of materials raw materials, production capacity issues, industry consolidation, marketing practices,
as well as low procurement and supply chain management [27]. On April 29, 2020, an institution called Center for Indonesia's Strategic Development Initiatives (CISDI) even noted that Indonesia still needed an additional 3.8 million PPE, resulting in the COVID-19 Task Force [28]. Therefore, government intervention to improve the PPE supply chain's efficiency to be must be done to mitigate the COVID-19 pandemic outbreak.

Understanding these conditions, the Indonesian Government has encouraged entrepreneurs to produce PPE locally so that it does not depend on imports from the country other. The local PPE is claimed to have international standards, so it is safe to use medical personnel in dealing with COVID-19. By giving relaxation of special permits for PPE that have been carried out, the Government even projects that local entrepreneurs will produce 17 million sets of PPE at a much cheaper price than imports [29]. Apart from production problems, the distribution of PPE was also one of them the focus of problems in the supply chain that must be resolved. Corresponding to WHO recommendation, the distribution must be centralized to ensure equitable distribution of PPE income in all regions, adjusted to needs each area is different. This is different from what was done by the Government of Indonesia, which, although doing the main distribution through the Task Force, provides discretion to Ministries / State agencies or the private sector to do the distribution independently. These conditions make it possible distribution is not evenly distributed, so some areas still permanently lack PPE.

Observing the comparison of WHO recommendations and government steps in optimizing PPE availability for medical personnel, there are several significant differences. Among them is the absence of a written policy regarding optimizing telemedicine services to minimize the need for PPE and guidelines for using alternative PPE that do not comply with WHO standards. The lack of management in the distribution of PPE is also a dominant factor that causes a shortage of PPE in certain areas.

4. Conclusion
Health workers had a higher risk of contracting COVID-19 than other communities, as they consciously interact with patients COVID-19 in these health facilities. In this study, mitigation efforts the spread of COVID-19 to the medical sector is considered harmful because health workers many had been exposed to death due to COVID-19. Found at least 2 (two) determinants that indicated insufficient mitigation in the medical sector, namely lack of PPE provision in every health service facility and insufficient health workers.

In terms of the lack of health personnel, it could indirectly affect the increasing shift of medical personnel. The immunity power decreased, and more comfortable to catch a virus. This assumption was evidenced by the quantitative calculation of the power ratio per population linked to the number of medical personnel exposed. Data processing and quantitative tests using the Pearson Correlation method result in the ratio of the number of medical personnel per region having a moderate degree of correlation and not in the same direction (negative). This meant that the higher the number of medical personnel per region, the lower the number of medical personnel infected with COVID-19.

However, the relationship in the medium category (not very significant) indicates that the number of Regional medical personnel was not the most substantial factor causing medical personnel infected with COVID-19. Meanwhile, the lack of Personal Protective Equipment (PPE) factors found that there are some quite significant differences between WHO and government steps in optimizing the availability of PPE for medical personnel. Several things were reflected in the absence of a written policy regarding telemedicine services' optimization to minimize the need for PPE. Also, there were guidelines for using alternative PPE from the Indonesian Ministry of Health that did not comply with WHO standards and could have negative consequences. Another difference is also seen in the lack of PPE distribution management, where WHO recommends the distribution of PPE implemented centrally so that it was evenly distributed. However, the Government of Indonesia frees distribution PPE was carried out by all sectors, both Government and private.

In overcoming these problems, the Government needed to make special regulations that were emergency in nature to be implemented immediately full control in overcoming COVID-19 in the health sector, especially in the factor of equal distribution of medical personnel and distribution of PPE
according to the priority scale. Not only that, but the Government should also redistribute and evaluate the need for medical personnel, as well as the need for adequate health facilities and infrastructures such as hospitals and superior isolation rooms for COVID-19.

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