

**ORIGINAL ARTICLE**

**The Impact of the COVID-19 Pandemic on the Number of Blood Donors in the Blood Transfusion Unit of the Indonesian Red Cross of Banda Aceh City**

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**Abstract:** The implementation of COVID-19 protocols by staying away from crowded places has a negative impact on the world of health, especially blood services. The decrease in the number of blood donors affected many patients who may have died or suffered as a result of blood delivery to the hospital not being reached. This study looked at how much influence the COVID-19 pandemic had on the number of blood donors at the Blood Transfusion Unit, Indonesian Red Cross of Banda Aceh City. This type of research is a descriptive study with a *cross sectional survey* design. For the interpretation of the results using a degree of meaningfulness with a significant degree, namely  $\alpha$  of 5% with a note of  $P < \alpha$  (0.05) then  $H_0$  is rejected, while if  $P > \alpha$  (0.05) then  $H_0$  is accepted. Results and Discussion. In this study, the data compared was the number of blood donors for the periods 2019 and 2020. The results showed that there was a decrease in the number of blood donors, reaching 12.7% in the 2020 period compared to the 2019 period. The Mann Whitney test showed a P-value of 0.038 ( $P < 0.05$ ), which means that  $H_0$  was accepted or there was a relationship between the COVID-19 pandemic and the decrease in the number of donors at the Blood Transfusion Unit of Indonesian Red Cross of Banda Aceh City in 2020. The decline in the number of donors occurred due to the large number of donor activities that were canceled, and many people were worried about being exposed to COVID-19 when donating blood.

**Keywords:** Pandemic, COVID-19, Blood donation

## INTRODUCTION

In early 2020, in March, Indonesia was surprised by the first case of Corona Virus-19 (COVID-19) originating from Depok. In Indonesia itself, the spread of

COVID-19 has occurred very quickly since the government announced the first positive case in March 2020. The spread of COVID-19 in Indonesia is very fast. It can be seen that in August, the number of positive

confirmed cases reached more than 165 thousand people. Meanwhile, the death rate due to COVID-19 has reached more than 7,000 people, with a CFR of 4.3%. Based on this data, Indonesia is ranked second as the country with the most confirmed cases in ASEAN after the Philippines.<sup>1</sup>

It is known that the transmission of the virus can occur between humans to humans through *droplets*, contacts, and *fomites*. Most of these viruses are transmitted through indirect or direct contact with the membrane mucosa in the mouth, eyes, or nose of an infected person.<sup>2</sup> Therefore, this type of virus can spread very quickly. The government took action to break the chain of spread of COVID 19 by enforcing health protocols, namely social distancing and physical distancing, wearing masks every time they leave the house, and washing hands. These rules are fundamental control mechanisms for controlling the spread of infectious diseases, especially respiratory infections, associated with the gathering of large numbers of people.<sup>3</sup>

The implementation of staying away from crowds is carried out by means of *Work from Home* (WfH). This has a negative impact on the education, economy, and health sectors.<sup>4</sup> The impacts that can be felt in the health sector include delays in health services for other diseases, the large number of health workers who have died in charge of handling COVID-19 cases; and the reduction in blood supply in blood banks due to the drastically decreased

number of donors. The closure of public places and social distancing during the COVID-19 pandemic have also caused blood donation activities to decrease drastically. This decrease is due to public concerns about exposure to the *severe acute respiratory syndrome coronavirus 2* (SARS-CoV-2) when conducting blood donation activities. This has led to many cancellations and unwillingness to donate blood in various countries.<sup>5</sup>

The decline in blood supply does not only occur abroad but also in Indonesia. Salimar Salim, Head of the Blood Transfusion Unit of the Indonesian Red Cross of Jakarta, said that there was a 54% decrease in the number of donors during the pandemic. Where blood is drawn or tapped, which usually in a day can collect 1100 bags, currently only 300-400 bags are successfully obtained per day.<sup>6</sup>

The Indonesian Red Cross requires a strategy to deal with the lack of blood availability in hospitals during the COVID-19 pandemic, because without the right strategy, it will result in many patients who may die or suffer as a result of the lack of blood delivery to the hospital. The results of this study are expected to provide information on how to increase the number of donors who donate their blood during the COVID-19 pandemic and how to donate blood during the COVID-19 pandemic.

## METHOD

This research is planned to be conducted at the Blood Transfusion Unit of

the Indonesian Red Cross of Banda Aceh City. The study collected data on donors who donated blood at the Blood Transfusion Unit of the Indonesian Red Cross building in Banda City and *the mobile* activities of the blood donation unit for the 2019 and 2020 periods. This type of research is a *descriptive study* with a *cross sectional survey* design. An analysis will be carried out in this study using SPSS 23. The analysis used a non-parametric method with the *Man Whitney*-test to see a comparison of the two population *mean*. This research has passed the ethical review No: 706KEP / FKUMSU / 2021.

For the interpretation of the results using a degree of meaningfulness with a significant degree, namely  $\alpha$  of 5% with a note of  $p < \alpha$  (0.05) then  $H_0$  is rejected (there is a relationship between independent variables and dependent variables), while if  $p > \alpha$  (0.05) then  $H_0$  is accepted (there is no relationship between independent variables and dependent variables).

The population in this study was all donors who were declared eligible to donate blood at the Blood Transfusion Unit of the Indonesian Red Cross of Banda Aceh City in the periods 2019 and 2020. The sampling technique uses a total sampling technique. The data source in this study was obtained from secondary data derived from the data system at the Blood Transfusion Unit of the Indonesian Red Cross of Banda Aceh City.

## RESULT

This type of research is a descriptive study with a *cross-sectional survey* design. This study used secondary data taken from the Blood Transfusion Unit of the Indonesian Red Cross database in Banda Aceh City. Researchers took the donor database at the Blood Transfusion Unit of the Indonesian Red Cross of Banda Aceh City for the period January 2019–December 2020. From the data obtained, 49,855 bags of blood were collected, with 26,635 in 2019 and 23,250 in 2020. From the results of this picture, it will be known the percentage of blood donors decreased during COVID-19 by comparing the percentage of blood donors in 2019 with 2020.

**Table 1. A Comparative Overview of Blood Donors at Blood Transfusion Unit Indonesian Red Cross of Banda Aceh City for the Period 2019 - 2020.**

No	Moon	2019		2020		%
		Car unit s	Buildi ng	Car Unit	Buildi ng	
1	Jan	1.244	854	1,498	900	↑ 12.5
2	Feb	1.244	741	1,186	751	↓ 16.3
3	Mar	1.574	827	1,145	886	↓ 20.1
4	Apr	1.715	930	987	692	↓ 18.6
5	May	1.135	561	522	887	↓ 40
6	Jun	1.789	1.339	1,737	1,200	↓ 23.3
7	Jul	911	675	1,236	855	↓ 6.94
8	Aug	1.572	923	627	950	↓ 17.6
9	Sep	991	1,040	1,212	1,132	↓ 4.2



10	Oct	1.40 8	696	564	808	↓ 35
11	Nov	1.41 8	704	658	975	↓ 26
12	Des	1.52 2	734	887	955	↓ 10.8
Total			26.635		23.250	↓ 12.7

Table 1 shows a comparative picture of blood donors in the Blood Transfusion Unit of the Indonesian Red Cross of Banda Aceh City for the 2019-2020 period. A comparison of blood donors for the period 2019 with 2020 showed a decrease in the number of donors, reaching 12.7% in the 2020 period compared to the 2019 period.

**Table 2. A Comparative Overview of Blood Donors at Blood Transfusion Unit Indonesian Red Cross of Banda Aceh City for the 2019-2020 Period, Mann Whitney -Test**

Number of Donors	Mean Rank	N	P- value
2019	15.50	12	
2020	9.50	12	0,038

Based on table 2 above, the results of the Mann Whitney-test show a *P* value of 0.038 ( $p < 0.05$ ) which means that  $H_0$  was accepted or there was a relationship between the COVID-19 pandemic and a decrease in the number of donors at the Blood Transfusion Unit Indonesian Red Cross of Banda Aceh City in 2020.

## DISCUSSION

The Blood Transfusion Unit is responsible for meeting the needs of the hospital by finding as many blood donors as possible. In table 1, there is a comparative

picture of blood donors at Blood Transfusion Unit Indonesian Red Cross of Banda Aceh City from the 2019 to 2020 period where the total number of blood donors in the 2019 period amounted to 26,635 blood bags and the 2020 period amounted to 23,250 blood bags. This shows a decrease in the number of blood donors in the 2020 period with a percentage of 12.7% during the COVID-19 pandemic. This is in accordance with a study conducted by Wang Y in the Blood Service Unit in Zhejiang Province in China, where during the COVID-19 pandemic there was a 60% decrease in the number of donors.<sup>7</sup>

The existence of a blood donor is the most important factor in ensuring the availability of blood. According to WHO, the need for blood must be guaranteed by 100% of voluntary blood donations. According to WHO, the number of blood donors every day must reach 2% of the total population in a country. If Indonesia has a population of around 230-240 million people, then the blood donation target that must be met is 4.5 million units of blood bags. Things are much different from what happens in the daily life of blood donation activities, where the number of blood donations in Indonesia every day is only around 250 thousand units of blood bags.<sup>8</sup>

The blood supply in Indonesia has decreased due to the COVID-19 pandemic. Table 1 also shows that the number of donors took place most in *mobile unit* activities and amounted to 16,611, compared to blood donation activities at the

Blood Transfusion Unit Indonesian Red Cross building, which amounted to 10,024 donors. From data from the Data and Information Center of the Ministry of Indonesia, it shows that in the last 10 years the number of blood donors has continued to increase. In 2016, out of 421 blood transfusion units in Indonesia, 281 blood transfusion units provided their annual reports to the Ministry of Health. Blood donations from the 281 blood transfusion units reached 3,252,077 bags of blood. From the blood donations, 92% of blood donations came from the Blood Transfusion Unit of the Indonesian Red Cross, and 8% from the Blood Transfusion Unit, of the Government/Local Government. Based on the place where blood is collected by the directorate of blood services, the most blood donations obtained from Mobil Unit/*outdoor* activities reached 62.0%, compared to in the building/*in-house* only 38.0%. This shows that the blood donation activities of Mobil Unit /*outdoor blood Transfusion Unit* raise a large amount of blood for blood services and during COVID-19. <sup>8</sup> The implementation of health protocols in the form of closing public places and social restrictions during the COVID-19 pandemic has caused many delays and cancellations, especially in mobile unit/blood transfusion unit or blood donation activities. The cancellation of blood donation activities carried out by the unit car/*outdoor Blood Transfusion Unit* is mostly caused by anxiety from the

community about contracting COVID-19 when carrying out blood donation activities. Research in Hong Kong shows that since January 2020, there has been a decrease in the number of blood donors by 40% from the usual blood donation activities due to the cancellation of blood donation activities. <sup>5</sup>

In table 2, a comparison of blood donors in the Blood Transfusion Unit of the Indonesian Red Cross Banda Aceh City for the 2019-2020 period, Mann Whitney-test. The results of the analysis using the *Mann Whitney-test* showed a *P-value* of 0.038 ( $P < 0.05$ ), which stated that there was a significant decrease in the number of blood donors in 2020 with the COVID-19 pandemic. Several studies have shown that several countries, including Indonesia, have experienced a shortage of blood supply since the COVID-19 pandemic. This is because many people are worried about being exposed to the COVID-19 virus when they donate blood. In fact, until now, there have been no reports of transmission of COVID-19 through the blood. <sup>9</sup>

In Aceh, especially the Indonesian Red Cross of Banda Aceh City, to overcome the lack of blood during the COVID-19 pandemic. In collaboration with the Government of Aceh, through the Acting Governor of Aceh, launched the ASN (State Civil Apparatus) movement to donate on May 27, 2020. This movement aims to overcome the problem of blood donors during COVID-19. <sup>10</sup> In addition, according to the direction of the Chairman

of the Indonesian Red Cross, Jusuf Kalla, education is needed for the public so that the public does not need to worry about blood donation while practicing aspects of vigilance and prevention of the spread of COVID-19, Indonesian Red Cross also implements health protocols that are in accordance with WHO standards to prevent the transmission of COVID-19.<sup>11</sup>

The provision of education and the implementation of sting health protocols are important, so that the public understands that blood donation can still be done safely without the need to panic and worry, even during the COVID-19 pandemic. Education on the importance of delaying blood donation for donors who feel unwell or are showing symptoms of COVID-19 is considered necessary. Then donor delays also need to be done for donors who are at risk, such as people who have just fully recovered from COVID-19, people under supervision, patients under supervision, and people who have just traveled to COVID-19 red zone areas. These people can temporarily delay blood donations for a minimum of up to 28 days.<sup>12-14</sup> Thus, healthy people can continue to donate blood safely even during the COVID-19 pandemic.

## CONCLUSION

The COVID-19 pandemic has had a negative impact on reduced blood supply. Meanwhile, the demand for blood that remained high during the pandemic caused an imbalance between the amount of

demand that was higher than the blood supply in various countries, including Indonesia, especially the Banda Aceh region. This happened because many donor activities were delayed and many people were worried about being exposed to COVID-19 when donating blood.

However, to increase the blood supply again, the Indonesian Red Cross assured the public they would still be able to donate blood during the pandemic because the Indonesian Red Cross has implemented protocols that are in accordance with WHO standards in all blood transfusions in Indonesia.

## ACKNOWLEDGMENTS

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