

# The Tradition of Mass Homecoming in Indonesia during the COVID-19 Outbreak

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**Abstract.** One of the traditions in Indonesia during Eid al-Fitr is traveling back to their hometown despite the COVID-19 pandemic in 2020. This study aimed to analyze the mass homecoming activities and their potential impact on the transmission and spread of COVID-19. Secondary data were mainly obtained from the Central Java Provincial Health Service and the Transportation Service. This study was quantitative research with a time series design. It only addressed the COVID-19 cases and the travelers entered Central Java Province. Data were analyzed using chi-square. The research results showed that mass homecoming was an extreme trend during the outbreak even though the government launched a prohibition order. Homecoming was indicated resulting in a low risk of transmitting COVID-19. There was a difference in people who used combined transportations before and after the appeal of homecoming restriction. The percentage of COVID-19 cases attributed to the homecoming activities was 0.008%. The number of patients under surveillance attributed to homecoming activities was higher by 0.039%. Therefore, the government needs to continue monitoring and implementing strategies to anticipate bigger risks of homecoming during the COVID-19 period.

## 1 Introduction

The World Health Organization (WHO) declared a COVID-19 pandemic on 12th March 2020. The infection of COVID-19 primarily spreads from person to person by inhaling droplets from the nose or mouth of an infected individual who coughs, sneezes, or talks [1]. These droplets stay in the air and quickly settle on surfaces. This outbreak has caused high numbers of deaths which have had an impact on the economy and increased poverty [2]. Global data as of 2nd June 2020, showed that 6,140,934 people from 216 countries in the world were confirmed to have been infected by COVID-19, and 373,548 of them died [3]. Indonesia reported 2 confirmed positive cases of COVID-19 at the first period of the outbreak. The Indonesian government declared a national disaster three months after COVID-19 spread in China. The provinces that experienced the highest spread of COVID-19 cases were Jakarta (675 cases), West Java (149 cases), Banten (106 cases), East Java (90 cases), and Central Java (63 cases) [4]. Data showed that 27,549 people spread across 34 provinces tested positive for COVID-19 as of 2nd June 2020, and 1,663 of them died [3].

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To respond to the COVID-19 pandemic, the government of Republic of Indonesia has developed a regulation related to mobilization restrictions. The Presidential Decree and Government regulation on large-scale social restrictions and public health emergency declaration were issued on 31st March 2020. The government has set strategies to prevent the spread of COVID-19 through mobilization restrictions [4].

Homecoming for Indonesians is a cultural way of life during Eid al-Fitr celebrations [5]. The homecoming trends during Eid always increased. The estimated number of travelers in 2015 reached 31.9 million, which increased to 32.3 million in 2016, and around 33 million people in 2017 [6]. Eid homecoming tradition can be categorized as spontaneous and temporary migration to show gratitude and happiness for completing the fast in Ramadhan and celebrating the Eid with the family. Meanwhile, Eid homecoming provides a source of regional financial income due to a large number of inter-city transportation means and trading activities in the area [1].

Despite being an annual tradition in Indonesia, homecoming had been restricted since 2020 as the transmission of COVID-19 was widely occurring. The homecoming restriction was regulated by the Ministry of Transportation which stated that returning to hometown during COVID-19 pandemic was prohibited and this regulation effective from 24th March 2020. Homecoming was reported to increase the daily cases up to 93% in 2020 and weekly cases to 66% [7].

Besides health effects, COVID-19 results in a high economic burden [8]. To eliminate the burden, the government anticipates the limited number of health facilities by restricting people to mobile. This effort aims to reduce person-to-person contact and direct transmission of COVID-19 virus [9]. The social movement due to country-specific socio-economic or cultural factors may influence mobility levels in response to the disease outbreak [10]. Homecoming also continued during the period of the third wave of COVID-19 in 2021 [5]. To further explore the issue, this study explored the association between homecoming tradition and COVID-19 in Central Java Province, Indonesia.

## **2 Method**

This study was quantitative research using a time series design. It involved the COVID-19 cases and the travelers entered Central Java Province. This study used a secondary data analysis, and collected data during the mobilization restriction period. The period was divided into three terms: “before” appeal of homecoming restriction on March 27 – April 5, 2020; “after” appeal of homecoming on April 6 – 12, 2020; “before” Eid al Fitr on May 15-23, 2020; and “after” Eid al Fitr on May 26 - 6, 2020. Although the official restriction was appealed on 6th April, this study started to collect data on March 27, 2020 when the official appeal was published.

This study analyzed data obtained from daily reports that went to the Central Java Province, as well as the data of patients under surveillance (those who showed COVID-19 symptoms but had not been stated COVID-19 positive). The population of this study was all of the travelers who went home to Central Java Province according to reports from the Central Java Province Department of Transportation. The reports covered travelers who used various modes of transportations: personal vehicles, public buses, trains, ships, and airplanes.

However, data on travelers by ships from May 15 to June 6, 2020, were incomplete. Thus, this study did not include the data.

To analyze the daily variations in the number of COVID-19 cases and those under observation (after 5th April), the data were presented descriptively in a graph. Homecoming trends by villages, bus stations, and all transportation modes were totaled and divided by 400 from March 27th to April 12th, 2020, and the total was divided by 100 from May 15th to June 6th, 2020 to simplify the chart. The data that include the results from chi-square analysis, odds ratio, and a 95% confidence interval were also displayed in a table.

The total number of cases was divided by the total travelers before Eid Al-Fitr or before the restriction policy issued. The number of both the cases and travelers was compared. The attributable risk (risk difference) was also calculated by subtracting the risk from the non-exposed group (after the appeal of homecoming restriction) with the exposed group (before the appeal).

As no personal data from the respondents were gathered, ethical approval and individual consent were not required.

3 Results and discussion

The government officially announced travel restrictions on March 27, 2020. Some people traveled by personal vehicles to their respective villages. Homecoming also entered Central Java through bus stations, railway stations, ports, and airports.

**Table 1.** Comparison of COVID-19 and patients under surveillance before and after homecoming appeal in Central Java Province from 27th March to 12th April 2020.

Homecoming Travelers	COVID-19 Cases		P- value	Risk Ratio (95%CI)	Attributable Risk Ratio	Patients under Surveillance		P- value	Risk Ratio (95%CI)	Attributable Risk Ratio
	Positive	Negative				Positive	Negative			
	All modes of transportation									
Before	115	670,6	0.00	0.680	0.008%	136	670,63	<0.0	0.338	0.039%
		35	7				5	01		
After	61	241,91		(0.499		145	241,918		(0.223 -	
		8		-					0.355)	
				0.928)						

Table 1 shows the number of COVID-19 cases and the number of patients under surveillance. There was a difference in people who used combined transportations before and after the appeal of homecoming restriction. The percentage of COVID-19 cases attributed to the homecoming activities was 0.008%. The number of patients under surveillance attributed to homecoming activities was higher by 0.039%. The number of COVID-19 cases decreased after the appeal, but it inclined at the end of the observation.

Being in the middle of public transportations makes people vulnerable to the human-to-human transmission of infectious diseases. Several countries have reported multiple clusters of cases transmitted through public transportations. The crowd leads to a higher rise in COVID-19 transmission [11]. Likewise, Wuhan Zhao et al. identified a statistically significant positive correlation between the product of passenger volume and local infections in Wuhan and the number of cases reported outside the city [12]. Similar research in

Bangladesh discovered that the COVID-19 infection rate gradually increased during the Eid Al-Adha events (in August 2020) [13].

For people who returned to their homes, they had to follow health protocols to avoid close contacts with infected individuals The health protocols implemented include wearing masks inside and outside the vehicles, maintaining distance, washing hands, filling out only a half of both private and public vehicle capacity according to regulations. Such protocols are expected to protect them from COVID-19 infections [14].

**Table 2.** COVID-19 trends before and after Eid al-Fitr from 15th May 15 to 6th June 2020

Period	COVID-19 cases		p-values	Risk Ratio (95%CI)	Attributable Risk Ratio
	Positive	Negative			
All modes of transportation					
Before	218	12,757	0.251	1.062	- 0.101%
After	275	17,108		(0.890 - 1.267)	

Table 2 shows the difference in COVID-19 cases before and after the Eid al-Fitr. There was no difference in the number of COVID-19 cases by modes of transportations before and after the Eid al-Fitr ( $p = 0.251$ ).

COVID-19 transmits from person to person through respiratory droplets and direct contact. Droplet transmission occurs when someone is in close contact (one meter) with an infected person, for example because of coughing, sneezing, or close-eyes sight [15]. The distance where people sit from each other, particularly in public transportation, influences the likelihood of transmission [16]. Thus, contact tracing should be conducted with enough resources due to the increased potential of contacts among infected patients [17].

Ventilation and air filtration are two facilities to reduce the risk of COVID-19 transmission. The results of this study suggest that increasing outdoor air ventilation rates and air filtration is necessary to lower the virus transmission. Airborne virus concentrations are generally lower when air exchange rates are high [16].

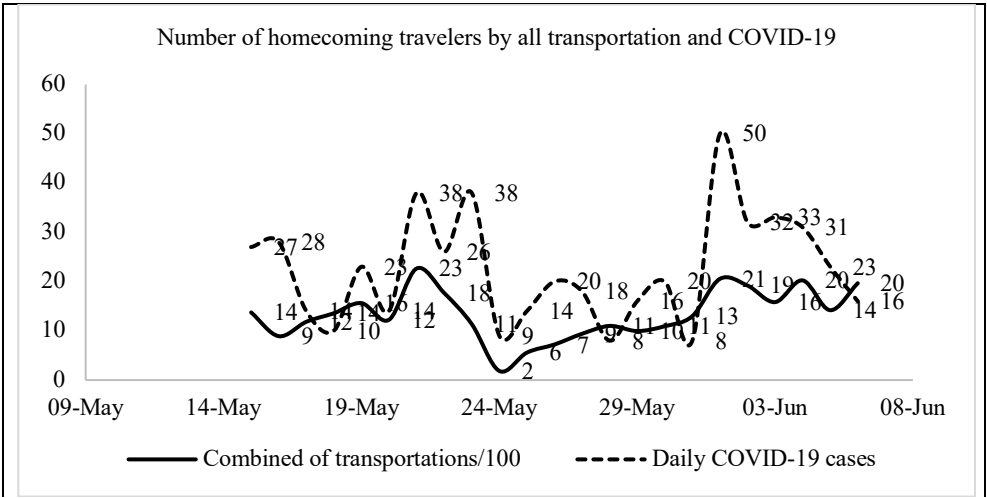


Figure 1. COVID-19 trends before and after Eid al-Fitr in Central Java from 15th May – 6th June 2020

Observed from all modes of transportation, the number of people homecoming had decreased since May 15th, 2020 (Figure 1). It sharply dropped on May 24, 2024, but the number increased again afterwards.

Homecoming is usually associated with Eid al-Fitr traditions, the restrictions on going home during the COVID-19 pandemic ignites various reactions from the public. Analysis on social media sentiment related to the restrictions showed more negative labels than the positive labels from the public [18]. A lot of people in Indonesia migrate from their hometown to other areas to get a better job. Those people usually will return to their hometown at least once a year on a special occasion such as Eid-Al Fitr. Besides, a lot of people in Indonesia lose their job or went bankrupt during pandemic, this cause higher mobility rates of people returning to their hometown [7]. The United Nations highlighted that migrant, especially those in lower-paid jobs, are more likely to be affected by and vulnerable to the spread of COVID-19 across the world [19].

A prior study showed that large-scale population movement has been a major factor in driving the global spread of the outbreak [20]. The World Health Organization (WHO) stated as of 22nd April 2020, migrants accounted for at least 10 percent of the population in 10 of the 15 countries with the highest number of COVID-19 cases [21]. The travel quarantine in Wuhan, China was proven to delay the overall epidemic progression by only 3 to 5 days [22]. Human mobility allows a greater risk of COVID-19 transmission [23]. Globally, there was a relationship between levels of social activities and social movement, like homecoming, with the disease incidence [10].

Despite emphasizing the key findings, this study has several limitations. The aggregate data may not accurately reflect risk factors at the individual level. COVID-19 cases were not based on direct diagnoses of individuals passing through bus stations, railway stations, ports, or airports. Additionally, other factors that may be directly or indirectly related to COVID-19 transmission were not explored.

## 4 Conclusion

This study suggests that homecoming restrictions during the Eid days could significantly help prevent the spread of COVID-19. Individuals returning to their hometown for long holidays during Eid al-Fitr, especially those using public transportation, pose a risk of transmitting the virus. Monitoring and travel restrictions should be two focuses during the outbreak. Overall, the research findings can be used for evaluation for the future measures.

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