

Has it done properly? The Difference between Before and After Social Distancing's Policy Implementation in Controlling Covid-19 in Jakarta, Indonesia

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Abstract. Social distancing shall be effective to control Covid-19 spread. However, its effectiveness is doubtfully due to late response of authority in a low-resource setting such as Indonesia. This study aims to present the effectiveness of large-sale social restriction (LSSR) as the social distancing policy by analyze the chronological as well as the difference between before and after LSSR implementation in Jakarta, Indonesia. The secondary data analysis was derived from surveillance data for Covid-19 from government authorities, including the Ministry of Health and the local government of Jakarta. Two statuses related to Covid-19 were examined in the study: incidence and suspect. These Covid-19 statuses were presented in daily rates with pre and post of LSSR policy in Jakarta, Indonesia. LSSR policy had just implemented over a month after the first multiple cases found. The number of positive confirmed patients increased significantly after the LSSR (p-value = 0.000; mean difference = -70.532). This study's findings showed that social distancing was not effective to control Covid-19 incidence which indicates the late response of the authorities.

Keywords. coronavirus, social distancing, before after, Indonesia

1. Introduction

Since Covid-19 firstly attacked Wuhan on last 2019, the infectious disease analysts around the world had suggest every national government authority to early prepare in mitigating the spread of this disease in community at large. The first-attacked group of countries, including China as the epicenter of disease, introduced several approaches in controlling the spreading of Covid-19 as soon as possible that included massive rapid test, social distancing, and lockdown.

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Learn from its culture, Indonesia government decides to designate large-scale social distancing that combined with the massive rapid test to screen as well as to mitigate the pandemic disease. The application of large-scale social restriction (LSSR) has been regulated in Government Regulation Number 21 of 2020 signed by Jokowi on Tuesday (3/31/2020) [1]. Meanwhile, details including the requirements regarding large-scale social restriction (LSSR) are set forth in the Republic of Indonesia's Minister of Health Regulation (Permenkes) number 9 of 2020 concerning Large-Scale Social Limitation Guidelines in the framework of Accelerating Handling of Corona Virus Disease 2019 (Covid-19) [2]. PMK No. 9 of 2020 was signed by the Indonesian Minister of Health Terawan Agus Putranto.

Minister of Health (Menkes) Terawan Agus Putranto approved the DKI Jakarta Provincial Government's proposal to apply the status of large-scale social restrictions (LSSR) in Jakarta. Terawan signed a PSBB approval letter to deal with the Covid-19 pandemic caused by corona virus type 2 (SARS-CoV-2) on Monday (6/4/2020) night.

However, when positive Covid-19 cases were multiply confirmed on 2nd March 2020, LSSR as the social distancing measures in Indonesia had just legally arranged by 31st March 2020 as the Government Act No 21 of 2020 signed by Indonesia President, Joko Widodo. According to this regulation, its partially implementation is not necessarily implemented nationally. Since it proposes by every region of local government to the Ministry of Health for applied to, there must be prerequisite conditions considered by multiple terms until it can be implemented in a regency. Before LSSR has a mandate to constitutionally applied in a region. These comprised of political, economy, social, culture, religion, defense, dan security. In this term, Jakarta, as capital of Indonesia, had just started to implement LSSR by 10th April 2020 or more than a month later after the first case was found.

Thus, evidence for the effectiveness of social distancing's environmental policy on Covid-19 is needed as the difference between the two is still not assessed in low-resource environmental settings yet.

2. Methods

2.1 Study area

Jakarta is the capital city and business center of Indonesia. It is geographically located within the range of 5° 19' 12" south latitude to 6° 23' 54" south latitude and 106° 22' 42" east longitude to 106° 58' 18" east longitude, with an average altitude of ±7 meters above the sea surface. The situation in Jakarta is generally hot with a maximum temperature of 32.7 ° C - 34, ° C during the day, and a minimum air temperature of 23.8 ° C -25.4 ° C at night⁽³⁾. Jakarta, which has started to apply the large-scale social restriction (LSSR) as the social distancing's environmental policy on April 10, 2020. This policy defined as activities to limiting certain residents in an area suspected of being infected with Covid-19 in such a way as to prevent the possibility of spreading covid-19.

There are six points of regulations available to set LSSR in controlling Covid-19 incidence in Jakarta, Indonesia [2]. These consisted of:

- a) Entertaining schools and workplace s
Entertainment is excluded for offices / strategic agencies that provide related services: defense and security, public order, food nee ds, fuel oil and gas, health services, economy, finance, communication, industry, exports and imports, distribution, logistics, and basic needs the other.

- b) Restrictions on religious activities
Restrictions are religious activities carried out at home, attended by limited families by keeping everyone away. Restrictions are carried out based on laws and regulations and fatwas or views of official religious institutions recognized by the government.
- c) Limitation of activities in public places or facilities
This means that what is meant is done in the form of limiting the number of people and setting the distance of people. This restriction is excluded for: Supermarkets, minimarkets, markets, shops or places for the sale of medicines and medical equipment for food, basic goods, essential goods, fuel oil, gas, and energy. In addition, health service facilities or other facilities in the context of fulfilling health services and public places or facilities to fulfill the basic needs of other residents, including sports activities.
- d) Limitation of social and cultural activities
The restriction is carried out in the form of a ban on the crowd of people in social and cultural activities and is guided by the views of official customary institutions recognized by the government and legislation.
- e) Limitation of transportation modes
This restriction is excluded for public and private passenger transportation modes by taking into account the number of passengers and maintaining the distance between passengers, as well as the mode of transportation of goods by taking into account the fulfillment of the basic needs of the population.
- f) Restrictions on other activities specifically related to defense and security aspects
Excluded for the activities of the defense and security aspects in the context of upholding the sovereignty of the country, maintaining the integrity of the territory, and protecting the whole nation and all spilled blood by paying attention to crowd restrictions.

2.2 Data collection

All of relevant dataset, ranging from 2nd March to 2nd May 2020, was obtained from the Indonesian government authorities. The daily confirmed cases of Covid-19 incidence and suspect were derived from the Jakarta local government [4]. This data was also made available by the Indonesian Ministry of Health as well as the Indonesian National Task Force Team for Covid-19. These Covid-19 statuses were presented in daily rates of these cases according to LSRR started on 10th April 2020. This means that pre LSRR was ranging from 27th March to 9th April 2020, while post LSRR was designating from 10th April to 23rd April 2020 of the dataset.

2.3 Data analysis

An Independent sample t-test was performed to analyze the mean difference and determine whether significance existed. This statistical analysis was used to determine the difference between the pre and post LSRR implemented. These variables were the number of Covid-19 positive cases and suspects.

3. Results

Overview of Covid-19 Case between before and after LSRR implementation in Jakarta presented in figure 1:

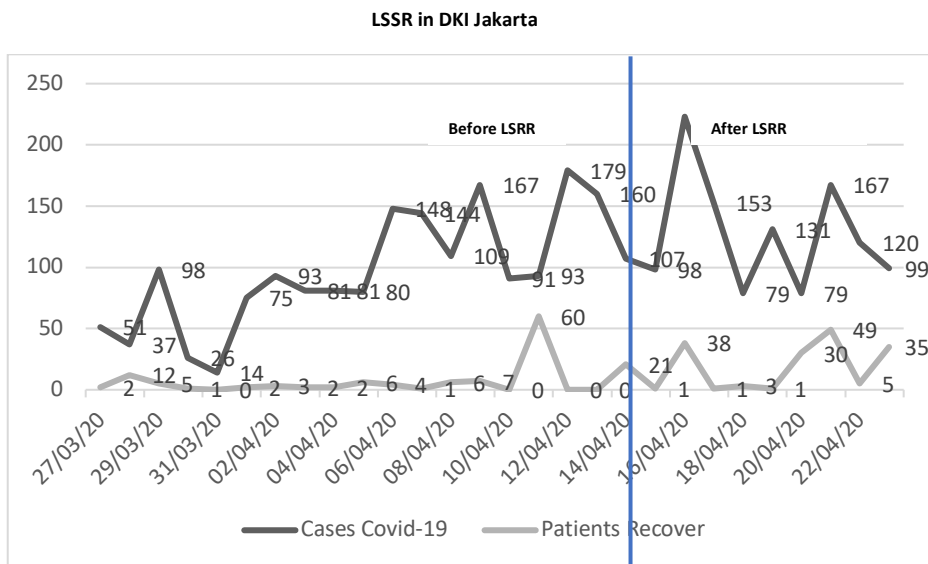


Fig. 1. Covid-19 status at before and after LSSR implementation

Based on the regulation, LSSR is limiting certain activities of residents in an area suspected of being infected with corona virus disease 2019 (Covid-19) in such a way as to prevent possible spread. In order to determine the CBDR, each region must meet the following criteria: The number of cases and / or the number of deaths due to disease increased and spread significantly and quickly to several regions. There are epidemiological links with similar events in other regions or countries. The application for the determination was submitted by the governor/mayor/regent. Request from the governor for the scope of a particular province or regency/city. Meanwhile, requests from regents / mayors for the scope of one regency/city.

In addition, the Chairperson of the Task Force for the Acceleration of Corona Virus Disease 2019 can also propose the Minister of Health to establish a LSSR. Later, those who apply for LSSR must be accompanied by data: An increase in the number of cases over time accompanied by an epidemiological curve. Spread of cases by time accompanied by a map of spread by time. Local transmission events accompanied by the results of epidemiological investigations that mention the transmission of second and third generation transmission. In addition, it must also be accompanied by the delivery of regional preparedness information regarding the basic needs of the people, health facilities and infrastructure, budgeting and operationalization of social safety nets and security aspects.

The process of determining the LSSR

To determine LSSR, the minister will form a team to conduct an epidemiological review of the political, economic, social, cultural, religious, defense and security aspects. The next team will coordinate with the task force to accelerate the corona virus. Then, the team will give approval to the minister for determining the LSSR regarding the results of the assessment obtained no later than one day after being received by the determination. After that, the minister will determine the regional PSBB within two days of receiving the stipulation. If the requirements of an area do not meet the criteria, the minister can revoke the LSRR determination.

Table 1. Independent-t-test’s mean difference between before and after LSSR implementation in Jakarta, Indonesia

Covid-19 status	Independent-t-test’s mean difference
Incidence	-70.532 ^a *
Suspect	-1.224

^a Equal variance assumed

*Correlation is significant at the 0.01 level (2-tailed)

Table 1 shows that pre and post LSSR did not different significantly with suspect cases of Covid-19. Pre and post LSSR differed significantly with cases of incidence from Covid-19.

4. Discussion

In this study, we found that LSSR implementation was related to more cases of Covid-19 among this population (negative mean difference). This difference is in line with previous evidence that social distancing was influenced by what terms including when this policy measure was taken in terminating the spread of Covid-19, so it might be too late to design it to controlling the incidence cases. Conversely, early social distancing in developed countries can maintain the low spreading of Covid-19 incidence so they have opportunity to control the disease.

Being in a region with a low-resource setting, Jakarta of Indonesia stated as the one potential region that can became as the new center of the Covid-19 pandemic. In this study, it reveals that due to late response of environmental health risk preparedness increased the number of Covid-19 incidence rates.

Most countries around the world, including Indonesia, are selecting several options due to the control Covid-19 pandemic. While, China with regional Quarantine/lockdown [5] and South Korea with massive Covid-19 tests [6]. In reminding of other countries whether activated partial/fully lockdown or massive diagnostic test, the chosen social distancing measure with LSSR was firstly considering effective to mitigate the Covid-19 transmission in Indonesia. Previous evidence reported that social distancing boosts to break chain of local transmission. Social distancing limits the physical contact, which functions to block the spreading pattern in the population [7]. However, in late response, this approach cannot be effectively happened.

Despite this study’s significant finding of the ineffectiveness of social distancing to control the Covid-19 incidence due to late response in Jakarta, this research has limitations. Although it is essential to conduct the prompt policy to control Covid-19 incidence, the proper time as to late response for implementing social distancing in this study needs to be overlooked for further. Also, the rate of Covid-19 incidence not only influenced by the government policy but also could be affected by community behaviors and perceptions about Covid-19, including residents’ health behavior to prevent the transmission of the disease as well as compliance for this policy’s law enforcement in detail [7]. Additionally, the social distancing policy’s implemented in Indonesia did not finish recorded yet so the difference could be different with this study’s results, however, this preliminary research concludes about lives that should be paid when the policy is inappropriate to held particularly in slow response that proceed to bureaucratic as well as long political evaluation.

5. Conclusion

This study shows that social distancing was not effective in control Covid-19 incidence which indicates late response of the authorities. The study’s result that is reflected by LSSR

implementation was related to more cases of Covid-19 among this population in Jakarta of Indonesia. This preliminary study needs to be developed further as late response as policy toward Covid-19 mitigation can potentially bring more lives in danger.

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