THE IMPACT OF PHYSICAL DISTANCING HEALTH POLICY IN REDUCING COVID-19 INCIDENCE IN THE WORLD IN 2020: LITERATURE REVIEW STUDY

***** Nunik Nurbaiti, **Dumilah Ayuningtyas

*Master Program in Public Health, Health Policy and Administration, Faculty of Public Health, Universitas Indonesia, Kampus Depok, Jawa Barat, 16425, Indonesia
**Health Policy and Administration, Faculty of Public Health, Universitas Indonesia, Kampus Depok, Jawa Barat, 16425, Indonesia

Email: nunik_nurbaiti@yahoo.com

Abstract. To reduce and slow the spread of COVID-19, many countries in the world have adopted physical distancing helath policy, which have never happened before. This study aims to get an overview of the impact of physical distancing helath policy to reduce of COVID-19 incidence in the world at 2020. The research design used was a descriptive qualitative with a narrative literature review method, while the research source came from international journal channels Google Scholar, ProQuest, PubMed, Science Direct, and Scopus with search data for the past five years. The approach used is the input, process, and output (IPO). From the journal search results, there are 10 scientific articles obtained in accordance with the inclusion and exclusion criteria of the search. While the overall results of the study show that the impact of physical distancing health policy can reduce of COVID-19 incidence in the world in 2020. In addition, the decline in the incidence of COVID-19 according to the study is also due to other health interventions carried out simultaneously. The suggestion of this research needs further research with the same topic related to physical distancing health policy. Especially regarding the factors that determine the success of this policy.

Keywords: Health Policy, Physical Distancing, COVID-19, Literature Review

Abstrak. *Dalam rangka mengurangi dan memperlambat penyebaran COVID-19, banyak negara di dunia telah mengadopsi kebijakan kesehatan physical distancing, dimana belum pernah terjadi sebelumnya. Penelitian ini bertujuan untuk mendapatkan gambaran umum dampak kebijakan kesehatan physical distancing terhadap penurunan kejadian COVID-19 di dunia tahun 2020. Desain penelitian yang digunakan adalah deskriptif kualitatif dengan metode narrative literature review, sedangkan sumber penelitian berasal dari kanal jurnal internasional Google Scholar, ProQuest, PubMed, Science Direct, dan Scopus dengan data pencarian selama lima tahun terakhir. Adapun pendekatan yang digunakan adalah pendekatan input, process, dan output (IPO). Dari hasil penelusuran jurnal, terdapat 10 artikel ilmiah yang didapatkan sesuai dengan kriteria inklusi dan eksklusi pencarian. Sedangkan hasil penelitian keseluruhan menunjukkan bahwa adanya dampak kebijakan kesehatan physical distancing terhadap penurunan jumlah kejadian COVID-19 di dunia tahun 2020. Selain itu, terjadinya penurunan kejadian COVID-19 ini menurut penelitian juga dikarenakan adanya intervensi kesehatan lain yang dilakukan secara bersamaan. Saran penelitian ini yaitu, perlu adanya penelitian lanjutan dengan topik yang sama terkait kebijakan kesehatan physical distancing. Khususnya tentang faktor-faktor apa saja yang menjadi penentu keberhasilan kebijakan ini.*

Kata kunci: *Kebijakan Kesehatan, Physical Distancing, COVID-19, Literature Review*

INTRODUCTION

Corona Virus Disease 2019 (COVID-19) is a type of infectious disease caused by a new type of corona virus. This disease was discovered for the first time in the Wuhan area, China in December 2019. (1) The virus that causes COVID-19 is named the Sars-Cov-2 virus, a zoonotic virus or transmitted to humans through animals. However, until now the type of animal source of transmission is still not known with certainty. (2) This disease attacks the respiratory system, ranging from minor disorders such as flu, severe lung infections, to death. COVID-19 is a pandemic that is happening very quickly in almost all countries in the world. (1)

The World Health Organization (WHO) reports that globally, in August 2021, there were 209,876,613 confirmed cases of COVID-19, including 4,400,284 deaths, reported to WHO. The Americas region topped the number of positive cases of COVID-19 in the world, with 81,226,913 cases. Then followed by the European region with 63,296,202 positive cases of COVID-19. (1) As of August 18, 2021, the Government of the Republic of Indonesia has reported 3,908,247 confirmed positive cases of COVID-19. There have been 121,141 COVID-19 related deaths reported and 3,443,903 patients have recovered from COVID-19.

In terms of dealing with this new disease, every country in the world makes health policies to reduce and stop the spread of COVID-19. The health policies usually made constantly adapting to changing situations and current conditions. For example, New Zealand, Singapore, Korea, China, and Taiwan, tend to move quickly. Meanwhile, other countries prefer to wait and see. Countries that are members of the OECD are implementing national and subnational measures to respond to the COVID-19 crisis with a lockdown policy and masks in the health sector. (4) One prevention effort widely carried out in various countries is health policies to maintain physical distance. These measures include instructions for social distancing when in public, school closures, restrictions on gatherings and work activities, and instructions for staying at home. (5)

The Indonesian government has also implemented a physical distancing policy on a broader scale, known as PSBB (Large-Scale Social Restrictions). (6) To implement this policy, local governments must seek approval from the central government, namely through the Ministry of Health. In addition, regions implementing this policy must also meet requirements, such as increasing COVID-19 cases in the area. (7) The other problem is 33% of COVID-19 cases in Indonesia, compared to the Philippines with 22.18% and Malaysia with 7.13% of the total confirmed cases of COVID-19 as many as 119,069 in mid-June 2020 for the Southeast Asia region. As for the number of deaths caused by COVID-19, Indonesia ranks first with 62.63% of the total 3,509 deaths caused by COVID-19 in mid-June 2020 for the Southeast Asia region. (1)

If this COVID-19 disease is not handled seriously and quickly, it will result in even more deaths, especially in Indonesia. So far, no definite cure or vaccine has been found for the healing process. For this reason, the government in each of the affected countries has taken various policy steps, especially in the health sector, to prevent the spread of COVID-19 from developing more widely. One of them is to maintain physical distance (physical distancing). The general objective of this research is to get an overview of the impact of physical distancing health policies on reducing the incidence of COVID-19 in the world in 2020. Simultaneously, the specific objectives of this study are to find out how to implement physical distancing health policies and the impact of their policies on reducing the number of COVID-19 cases.

METHODS

Data Collection

This type of research uses a descriptive research design with a narrative literature review method. While the approach used is IPO (Input, Process, Output). This study aims to obtain in-depth data on the impact of implementing physical distancing health policies on reducing the number of COVID-19 cases in the world in 2020. The journals used are journals available on Google Scholar, ProQuest, PubMed, Science Direct, and Scopus. For the independent variable of this study, namely the implementation of physical distancing health policies. Meanwhile, the study's dependent variable is a decrease in COVID-19 cases in the country.

The search for research journal articles starts from May to July 2020 by looking at the year of publication from 2015 to 2020. The inclusion criteria are the research that can answer the topic, use all types of research methods-both quantitative and qualitative, from the countries with health policies or special regulations regarding physical distancing, use Indonesian or English, and research for the last five years. The research exclusion criteria were research journal articles that were more than five years old, unable to answer research questions, gray literature such as theses, theses, or dissertations, and not in Indonesian or English.

Data Analysis

The approach used is to use a literature review (LR) with the type of narrative literature review, which is modified to suit the needs of writing this research. Meanwhile, the data collection method collects published information on the impact of physical

distancing health policies in countries with these regulations. After that, the list of reference documents in the selected study is then checked, and a substance review is carried out. Below is table 1 of the search strategy based on keywords in the retrieved database.

Tabel 1. Search Strategy on the Database Used

Search Strategy Steps	Search Terms
1 (Policy)	*Physical Distancing* OR *Social Distancing*
2 (COVID-19)	COVID-19 OR *Corona Virus Disease*
3 (Result)	*Effect* OR *Impact* OR *Reduced*

The keywords used are "physical distancing AND COVID-19 AND reduced" for research in English and "physical distancing AND COVID-19 AND decreased" in the search for journals in Indonesian.

Data Quality Assessment

Each research obtained is then assessed using a checklist. This data quality assessment was adopted from the Critical Appraisal Skills Program (CASP). This checklist is also designed to be used as a research tool in randomized controlled trials and systematic reviews. (8)

RESULTS

The total number of articles obtained based on the search results of the Google Scholar, ProQuest, PubMed, Science Direct, and Scopus search channels has 2891 article publications that match the keywords. Then as many as 2812 data were recorded after deleting duplicate data. The 2762 data were excluded from the existing data because the articles were not full text and matched the topic. Those are also applied non-English or Bahasa language, the gray literature, namely dissertations, theses, or theses, as well as publications that were more than five years. Then from the results of the title and abstract sorting process, 50 full-text articles were found. The 50 articles were filtered by reading the entire article according to the relevance of the study objectives and research questions.

At the end of the data search, 10 articles were produced that met the research requirements. The research article comes from: Hungary (9); Germany and England (10); USA (11); Indonesia and Irak (12); United Kingdom (UK) (13); Canada (14); Indonesia (15); Australia (16); Jepang and Vietnam (17); and Myanmar and UK (18). All selected state research articles have implemented health policies regarding physical distancing. The implementation of physical distancing in the country still adheres to the rules of the World Health Organization.

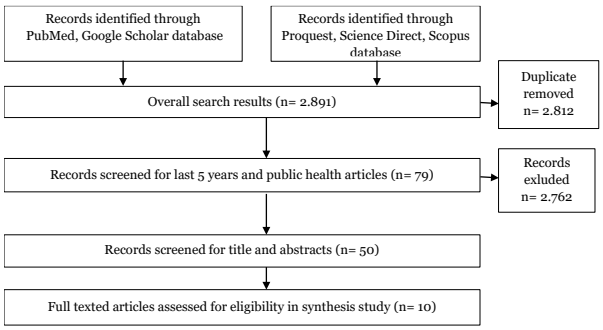

Figure 1. Literature Review Flow Diagram

DISCUSSION

Input: Health Policy about Physical Distancing

World Health Organization (WHO) recommends maintaining a physical distance of at least one meter between people. This set distance is a general measure of the extent to which everyone must be able to maintain physical distance from each other, even though the person is in good health without COVID-19 symptoms. (1) The policy aims to change the magnitude of the pattern of social mix. (10)

In Singapore, Taiwan, and South Korea, after local cases of COVID-19, the local government immediately issued policies related to cross-border social restrictions accompanied by legal sanctions/fines. (18) On March 2020, the British government implemented strict physical distancing measures, includes closing sporting events, schools, and other entertainment businesses. (13)

In addition, national policies to stay at home are also implemented in most European countries, according to European Center for Disease Prevention and Control 2020. (9) As for New York state, from March 12-22, 2020, there were mass collection limitation, business premises, educational facilities, and non-essential services closure. (11)

Indonesia itself first confirmed the occurrence of COVID-19 on March 2, 2020, at which time there were only two positive cases. Due to the increasing number of incidents every day, the government has made physical distancing health policies and Large-Scale Social Restrictions (PSBB) one health prevention efforts. (15) It implemented the policies for the first time in Jakarta on April 10, 2020.

Process: Implementation of Physical Distancing

After enforcing the physical distancing health policy, the next step is to see how a person or group of people responds to this intervention. The measures for physical distance include 4 (four) steps including (17) Level 1, which is the lightest and only announced in specific

areas; Level 2, which is a warning not to go out on a national scale; Level 3, which prevent people in heavily affected areas from going outside with few exceptions; Level 4, which is home action on a national scale, where everyone in the country is required to stay at home unless they need to go out. This measure is like level 3, but on a larger scale in response to a national emergency.

Large-Scale Social Restrictions (PSBB) in Indonesia are stated in PP No. 21 of 2020 regarding the acceleration of handling COVID-19. The implementation of physical distancing in Jakarta, Indonesia, is also not too strict since June 2020, where the implementation consists of five stages. The first stage will take place on June 1-8, 2020, where all industries and public services can operate according to the COVID-19 health protocol. The second stage occurs on June 8-15, 2020, where shopping centers can operate but must be under the supervision of the COVID-19 health protocol. The third stage will take place from June 15-July 6, 2020, when all schools will not be open at the same time. The fourth stage occurs on 6-20 July 2020, where economic activities can be evaluated, for example, in restaurants and travel. Furthermore, the fifth stage will take place on 20-27 July 2020, where a large-scale social activity evaluation will be carried out. (12) Referring a study from (15), although the Indonesian government has issued this regulation, many people have not done it in a disciplined manner.

In dealing with COVID-19, the Singapore government also uses a technology-based detection system, which uses a mobile phone application called TraceTogether to make it easier to track individual interactions. The Taiwanese government also operates a digital fence-based COVID-19 surveillance system. (18)

Output: The Impact of Physical Distancing on the Decline of COVID-19

A total of ten studies showed that there was an impact of physical distancing health policies on reducing the incidence of COVID-19. The findings (9) identified that there were turning points for COVID-19 cases in 28 European countries. Prior to the physical distancing health policy, the incidence of new COVID-19 cases grew by an average of 24% per day. Then after the policy implemention, the incidence rate gradually changed according to the four stages of the study; there was a decrease of 0.9%, an increase of 0.3%, an increase of 0.7%, and in the fourth research stage, there was a significant decline of 1.7% due to the increase in implementation of physical distance or physical distancing.

The other research (10), using an online survey on the incidence of COVID-19 from 8 countries studied, including Belgium, France, Germany, Italy, the Netherlands, Spain, the UK, and the United States, showed that the countries with the highest number of physical contacts were the countries with the highest number of physical contacts. In the results of the study, it was found that the overall number of physical contacts in the eight countries decreased much more sharply. This also affects the decrease in the number of cases of COVID-19.

Table 2. The findings of literature

Title	Author	Methods	Result
Factors impacting social distancing measures for preventing coronavirus disease 2019 [COVID-19]: A systematic review	Regmi, Krishna dan Mar, Cho Lwin	Systematic Review	Social restrictions such as school closures, physical distancing in public places can suppress and effectively reduce transmission.
Estimating the impact of COVID-19 control measures using a Bayesian model of physical distancing	Anderson, Sean C et.al	Observational Models	The results of research in British Columbia show that physical distancing is effective if done consistently, there is support from the government for public compliance in implementing the policy.
The differential impact of physical distancing strategies on social contacts relevant for the spread of COVID-19: Evidence from a multi-country survey	Del Fava, Emanuele et.al	Health Behaviour Survey	British and American countries that implement physical distancing policies and create guidelines for physical distancing show a sharp decline in COVID-19 cases.
Effect of the social distancing measures on the spread of COVID-19 in 10 highly infected countries	Phuoc, Tran Bao Thu et.al		Most of the 10 countries (The U.K., France, Germany, Russia, Turkey, Iran and China) with social distancing measures are very effective in reducing COVID-19 cases meskipun although the policy in each country is different because the number of confirmed cases is adjusted to the country. Therefore, social distancing must still be enforced because
Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK	Jarvis, Christopher et.al	Survey	With the steps in reducing COVID-19 cases with physical distancing, it has a big impact in reducing cases.

Effective government policies in reducing the transmission of COVID-19 with physical distancing in various countries according to the findings in the journal

The physical distancing measures adopted by the UK government have significantly reduced contact rates and the likelihood of a decline in COVID-19 cases in the coming weeks. (13) Research from (15) shows that when there are no rules regarding physical distancing or partial physical distancing, the number of cases infected with COVID-19 can reach 43% of the total vulnerable individuals. Meanwhile, when there is a partial physical distancing or physical distancing, the number of infected cases can reach 32% of the total number of susceptible individuals.

In addition, if large-scale physical activity restrictions are carried out, the decrease in the number of cases infected with COVID-19 could be below 20% of the total number of susceptible individuals. It can be concluded that limiting physical distance activities or physical distancing can reduce the number of cases infected with COVID-19 to below 0.01% of the vulnerable individual population, and during the virus pandemic with an interval of 60-90 days.

The level of effectiveness of the research results (17) shows that physical distancing health policies in order to reduce the spread of COVID-19 vary among the ten research focus countries (America, Spain, Italy, England, France, Germany, Russia, Turkey, Iran, and China). The variation is caused by different timing of the policies and differences in the spread of COVID-19 at the time it was implemented in these countries. In addition, the average research results also show that it takes 1-4 weeks from the implementation of the physical distancing health policy until there is decreased confirmed cases and deaths due to COVID-19. Based on ten research journals, the level of effectiveness of implementing physical distancing health policies is maintained strictly, disciplined, firm, and pays attention to WHO rules.

CONCLUSION

The occurrence of COVID-19 had a major impact, especially in the health sector. Various efforts have been made to reduce or stop the spreading COVID-19. Because there were no vaccines and drugs have been found until now, the government in some countries has taken non-pharmaceutical preventive or preventive measures. One of them is making health policy rules to maintain physical distance or physical distancing.

The method of implementing physical distancing health policy can be modified and varies depending on the policies implemented by the governments of each country in the world. Examples include restricting vehicles, closing schools, closing entertainment venues, etcetera. Based on the research obtained, the policies for locking down, physical distancing, and masks play an important role in reducing the spread of COVID-19. The regions and the center should synchronize in implementing this policy to avoid overlap and improve its effectiveness.

In addition, a comprehensive policy should be applied to cut the transmission rate of COVID-19. According to research, COVID-19 is not entirely due to physical or physical distancing but also because of other health interventions that are carried out simultaneously. Such as using masks when leaving the house, diligently washing hands, using Personal Protective Equipment (PPE), conducting rapid tests, conducting isolation or self-quarantine, tracing contacts, disinfection, and others.

RECOMMENDATION

For other researchers, there is a need for further research related to the impact of health policies on physical distancing. Meanwhile, the health policymakers in Indonesia should continue to develop research to reduce the incidence of COVID-19 and implement health policies to maintain adequate physical distancing. In addition, it is also necessary to conduct in-depth evaluations related to implementing this policy, continuous collaboration with many parties, disseminate information in the community, pay attention to other health intervention actions in the community, and provide strict sanctions for those who violate them.

REFERENCES

1. WHO. Novel Coronavirus [Internet]. World Health Organization. 2020 [cited 2020 Augut 21]. Available from: https://covid19.who.int/
2. Kemenkes. Pedoman Kesiapsiagaan Menghadapi Coronavirus Disease (COVID-19) [Internet]. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit (P2P). 2020 [cited 2020 Jun 15]. Available from: https://www.kemkes.go.id/resources/download/info-terkini/COVID-19 dokumen resmi/2 Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19).pdf
3. Gugus Tugas COVID-19. Peta Kasus Sebaran Covid di Indonesia [Internet]. Gugus Tugas COVID-19 Indonesia. 2020 [cited 2020 Jun 14]. Available from: https://covid19.go.id/peta-sebaran
4. Mas'udi W. Tata Kelola Penanganan COVID-19 di Indonesia [Internet]. Gadjah Mada University Press. 2020 [cited 2020 Jun 15]. p. 46–64. Available from: https://digitalpress.ugm.ac.id/book/257
5. Mohler G, Bertozzi AL, Carter J, Short MB, Sledge D, Tita GE, et al. Impact of social distancing during COVID-19 pandemic on crime in Los Angeles and Indianapolis. J Crim Justice. 2020;68:101692.
6. Heru A dkk. Jokowi Orders "Large-Scale" Social Distancing But Still No Lockdown. Jakarta Globe News [Internet]. 2020 [cited 2020 Jun 18]; Available from: https://jakartaglobe.id/news/jokowi-orders-largescale-social-distancingbut-still-no-lockdown
7. Permenkes. Peraturan Menteri Kesehatan Republik Indonesia Nomor 9 Tahun 2020 [Internet]. Kementerian Kesehatan Republik Indonesia; 2020. Available from: https://covid19.go.id/p/regulasi/permenkes-no-9-tahun-2020-tentang-pedoman-psbb-dalam-rangka-percepatan-penanganan-COVID-19
8. CASP Programme. CASP checklist: 10 questions to help you make sense of a Qualitative research. 2018; Available from: https://casp-uk.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-

2018.pdf
9. Vokó Z, Pitter JG. The effect of social distance measures on COVID-19 epidemics in Europe: an interrupted time series analysis. GeroScience. 2020;1–8.
10. Del Fava E, Cimentada J, Perrotta D, Grow A, Rampazzo F, Gil-Clavel S, et al. The differential impact of physical distancing strategies on social contacts relevant for the spread of COVID-19. medRxiv. 2020;
11. Alagoz O, Sethi A, Patterson B, Churpek M, Safdar N. Impact of Timing of and Adherence to Social Distancing Measures on COVID-19 Burden in the US: A Simulation Modeling Approach. medRxiv. 2020;
12. Aldila D, Khoshnaw SHA, Safitri E, Anwar YR, Bakry ARQ, Samiadji BM, et al. A mathematical study on the spread of COVID-19 considering social distancing and rapid assessment: The case of Jakarta, Indonesia. Chaos, Solitons & Fractals. 2020;110042.
13. Jarvis CI, Van Zandvoort K, Gimma A, Prem K, Auzenbergs M, O'Reilly K, et al. Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. BMC Med [Internet]. 2020 May;18(1):124. Available from: https://pubmed.ncbi.nlm.nih.gov/32375776/
14. Anderson SC, Edwards AM, Yerlanov M, Mulberry N, Stockdale J, Iyaniwura SA, et al. Estimating the impact of COVID-19 control measures using a Bayesian model of physical distancing. medRxiv [Internet]. 2020; Available from: https://www.medrxiv.org/content/10.1101/2020.04.17.20070086v1.full.pdf
15. Huda AF, Wulan ER, Ilahi F, Khumaeroh MS. Analisis pengaruh social distancing pada transmisi COVID-19 dengan menggunakan model SIR. 2020;
16. Moosa IA. The effectiveness of social distancing in containing COVID-19. Appl Econ. 2020;1–14.
17. Thu TPB, Ngoc PNH, Hai NM. Effect of the social distancing measures on the spread of COVID-19 in 10 highly infected countries. Sci Total Environ. 2020;140430.
18. Regmi K, Lwin CM. Factors impacting social distancing measures for preventing coronavirus disease 2019 [COVID-19]: A systematic review. 2020;