

## A Bibliometric Analysis of Studies Concerning Policy Issues in Covid-19 Pandemic

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### ABSTRACT

*This research analysed the studies of policy on issues related to COVID-19. The results show the most productive countries, the most frequently cited sources, the most co-occurred topics of studies concerning policy issues since the epidemic was a breakout at the beginning. The data in this research were collected from the Scopus database with two search terms, "COVID-19" and "policy" of the social science domain, and published from the first day of 2020 to the search time (September 10, 2020). The final dataset consists of 384 valid documents analysed by descriptive statistics, and co-occurrence analysis was applied in R. Among 46 countries, the United States, the United Kingdom, Australia, China, India, and Italy are the leading countries that published these studies. Almost all the funded scholars focused on Europe, the Americas, and Asia. The main topics of the articles are "working in COVID-19 period", "community health and social support," "using ICT in teaching and learning," "human rights." Within funded studies, four interesting topics are "social well-being," "ICT infrastructure," "agricultural policy," and "born-digital." This study presents the current situation of how studies concerning policy issues have been issued to respond to the COVID-19 pandemic.*

### Keywords:

Bibliometric Analysis; COVID-19; Policy Studies; Research Themes.

### ABSTRAK

*Penelitian ini menganalisis kajian kebijakan terhadap isu-isu terkait COVID-19. Hasilnya menunjukkan negara-negara yang paling produktif, sumber yang paling sering dikutip, topik studi yang paling sering muncul terkait isu-isu kebijakan sejak epidemi merebak di awal. Data dalam*

*penelitian ini dikumpulkan dari database Scopus dengan dua istilah pencarian, "COVID-19" dan "kebijakan" dari domain ilmu sosial dan diterbitkan mulai hari pertama tahun 2020 hingga waktu pencarian (10 September 2020). Dataset akhir terdiri dari 384 dokumen valid yang dianalisis dengan statistik deskriptif, dan analisis co-occurrence diterapkan di R. Di antara 46 negara, Amerika Serikat, Inggris, Australia, Cina, India, dan Italia adalah negara-negara terkemuka yang menerbitkannya. Hampir semua cendekiawan yang didanai berfokus pada Eropa, Amerika, dan Asia. Topik utama artikel adalah "bekerja di masa COVID-19", "kesehatan masyarakat dan dukungan sosial", "menggunakan TIK dalam proses belajar mengajar", "hak asasi manusia". Dalam studi yang didanai, empat topik menarik adalah "kesejahteraan sosial", "infrastruktur TIK", "kebijakan pertanian", dan "born-digital". Studi ini menyajikan situasi terkini tentang bagaimana studi tentang isu-isu kebijakan telah dikeluarkan untuk merespons pandemi COVID-19.*

**Kata Kunci:**

Analisis Bibliometrik; COVID-19; Studi Kebijakan; Tema Penelitian.

## 1. Introduction

The first case of COVID-19 was reported in Wuhan City, Hubei province, China, then spread out to the whole world (The New York Times, 2019). The pandemic has affected everyone's day-to-day life, especially older persons, persons with disabilities, youth, and indigenous peoples. (United Nations, 2020). Consequently, inequality will be increased if not correctly addressed through policies. In this context, Elsevier had called for papers to collect relevant contributions for supporting policy and helped decision-makers with the most appropriate strategies for managing the Covid-19 crisis from a safety perspective (Elsevier, 2020a). Moreover, these works aim to explore differences applied to control the spread of COVID-19 and evaluate policies' efficacy (Elsevier, 2020b).

Many studies were published in different aspects of society in this period. Mahomed F. (2020) showed the implication of the COVID-19 to the mental health of a community that had barriers in barriers on social, economic, political issues. This study recommended that the voices of those affected must be centralized in policymaking and resource allocation decisions. Hoffman G.J. et al. (2020) discussed health and social services for older adults in COVID-19. According to this study, this situation was the chance to improve strengthening person-centered services and supports for older adults based on in-home acute and primary medical care, aggressive using video telehealth and social interaction, and implementation of volunteer or paid intergenerational service. Thompson J.R. and Nygren M.A.(2020) researched the effects of COVID-19 in every aspect of the intellectual and developmental disabilities (IDD) community. Following the results, they recommended the policies for IDD people with the broader field during the pandemic and more vital health services. Concerning persons with disabilities (PWDs) living in cities, their impacted health could be avoided

by inclusive community planning of their government (Pineda V.S. & Corburn J., 2020). This research suggested urban health reforms and governance reforms for urban pandemics as COVID-19. The COVID-19 impact on indigenous people was reported in the research of Carr A. (2020), which was predicted to be a long-lasting effect. The results showed that indigenous tourism operators could plan for the future welfare of their businesses, local environment, and affected communities. Governments need to support policies and supply resources at local and national levels to ensure that Indigenous communities can transition tourism values in a post-COVID future.

Among many methods, bibliometric analysis, proposed by Pritchard A. (1969), was adopted to review papers. Phillips and Turney J. (1988) used bibliometric techniques to outline the United Kingdom Advisory Board's tasks for the Research Councils in the context of the country's science policy. Yang C. et al. (2020) adopt a bibliometrics-based research framework to explore the information technology policy evolution in China Sullivan et al. conducted bibliometrics to inform cancer research policies in the research volume, funding for cancer research, and identifying amounts of support for cancer research. In the period of the COVID-19 pandemic, many published articles used bibliometric analysis. In the period of the COVID-19 pandemic, many published articles used bibliometric analysis. Sa'ed H.Z. and Al-Jabi S.W (2020), and Lou J. et al. (2020) presented the situation of research on coronavirus disease-19 during the early stage. Darsono D. (2020) presented the information and knowledge of international scholarly publications about the Covid-19 epidemic. According to Yang K.L. et al. (2020), the role of traditional Chinese medicine for coronavirus disease in 2019 was addressed. Shamsi A. (2020) pointed out a significant scientific contribution in various areas of the disease in Iran. Fan J. et al. (2020) explored the difference of the literature published between China and English in management outcomes and characterization of COVID-19 at the beginning stage of the pandemic. Verma S. and Gustafsson A. (2020) addressed four main research themes in the business and management fields in the COVID-19 pandemic. Fonkou M.D.M and Yacouba A. (2020) identified global research trends in the field of therapeutics and vaccines to cure patients with COVID-19 since the beginning of the pandemic

However, no previous research has been applied to this method to picture studies concerning policy issues in the pandemic. Thus, the purpose of this paper is to address the following research questions (RQs):

*RQ1: Which country has led in SCPIs in COVID-19, and how was geography distribution of scientific output?*

*RQ2: Which were the most frequently cited sources of studies concerning policy issues in COVID-19?*

*RQ3: What were the frequently co-occurred topics in studies concerning policy issues in COVID-19?*

*RQ4: What were The frequently co-occurred topics in studies concerning policy issues with funding in COVID-19?*

## 2. Methods

### 2.1. Ethics statement

This research did not involve human subjects, so neither institutional review board approval nor informed consent was required.

### 2.2. Study design

It is a literature database-based descriptive study. A bibliometric approach was conducted to analyze the dataset, which was extracted from Scopus.

### 2.3. Data collection

Bibliometric methods need a dataset to analyze, collected from at least a database, e.g., Scopus, Web of Science, Google Scholar, PubMed. Scopus was the selected source for a search and extract meta-data. There was a reason for this choice. First, this paper focused on social science research which Scopus has more comprehensive coverage than Web of Science, except medicine and the physical sciences (Mogenon P. & Paul-Hus A., 2016). Moreover, Google Scholar is a source that clinicians should use, and PubMed is the most frequently used source in the biomedical field (Falagas M.E. et al., 2008).

This research aimed to address all articles associated with SCPIs in pandemic; thus, all documents in Scopus were referred to at search time (11:30 AM September 10, 2020). "COVID-19", "policy," and "policies" were three keywords to filter information in title, abstract, and keywords of each publication in the Scopus database. The parameter set was used in the Scopus search engine to select documents as follows:

Inclusion: Document type: Article

Inclusion: Subject area: Social sciences

Inclusion: Language: English

The string query in the Scopus search engine was: TITLE-ABS-KEY ( "COVID-19" AND (policy OR policies) ) AND ( LIMIT-TO ( SUBJAREA , "SOCI" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )

This scholar was guided by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to conduct systematic reviews of research (Moher D. et al., 2009). This search yielded a total of 480 English articles published in social sciences until September 10, 2020. The

initial dataset was downloaded in an Excel file which was used in the PRISMA guideline. At the screening stage of PRISMA, information of each record's published year and review article was checked. All documents were published in 2020, and there were no "overview" or "review" words in any article title. Thus, no article has excluded this stage. In the next stage, all records were in the eligibility process. Every document's title, abstract, and full-text were read to determine their eligibility (White et al, 1998). A total of 94 articles were excluded, and their content had no associated SCPIs in COVID-19. The final dataset for analysis consists of 384 valid documents.

#### *2.4. Data analysis*

Two primary analyses, including descriptive statistics and co-occurrence keywords, were adopted in this paper. Descriptive statistics were applied to the final dataset to explore basic features of studies concerning policy issues during the COVID-19 pandemic (e.g., number of publications of sources, number of citations of sources) (see Table 1). Descriptive analyses were examined using R with the *bibliometrics* package, a free software environment for statistical computing and graphics (available at <https://www.r-project.org/>). Core journals were identified by Bradford's Law, based on the most frequently published journals. (Venable G.T. et al., 2014).

Keyword co-occurrences analysis was conducted in R software to picture all the main groups (clusters). This method presented the relationship between author keywords in each document (Van Eck N.J. & Waltman L., 2014). Clusters were identified and mapped in the strategic diagram based on the keyword co-occurrence frequency. The diagram shows four themes of studies concerning policy issues in COVID-19. The themes in the upper-right quadrant address important and developed topics. The themes in the upper-left quadrant presented developed and unimportant topics. The themes in the lower-left quadrant pointed out weakly developed and unimportant topics. The lower-right quadrant themes indicated important and weakly developed topics (Lee M.R. & Chen T.T., 2012 ) (Figures 3, 4).

#### *2.5. Statistical methods*

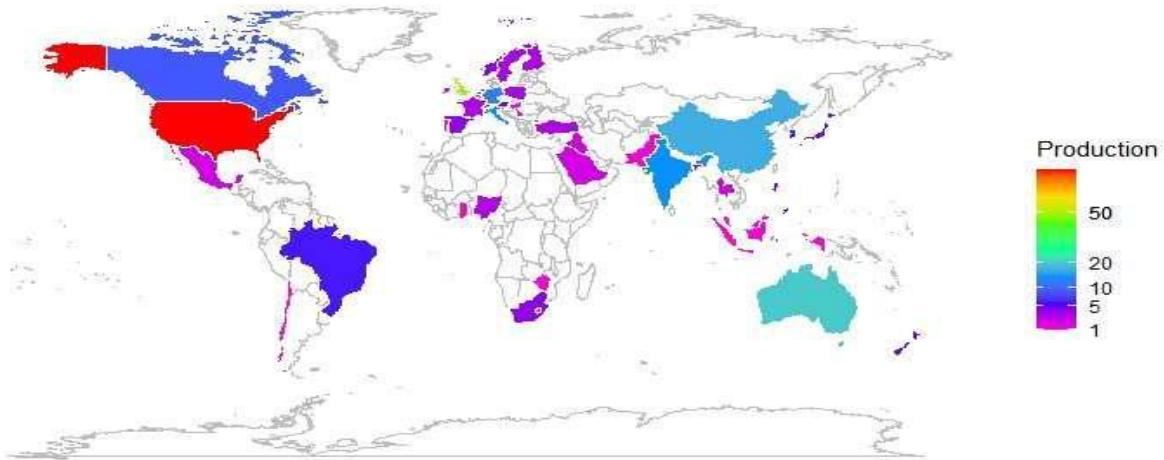
Descriptive statistics

### **3. Results and Discussion**

#### *3.1. The leading countries and their geographical distribution in SCPIs in COVID-19*

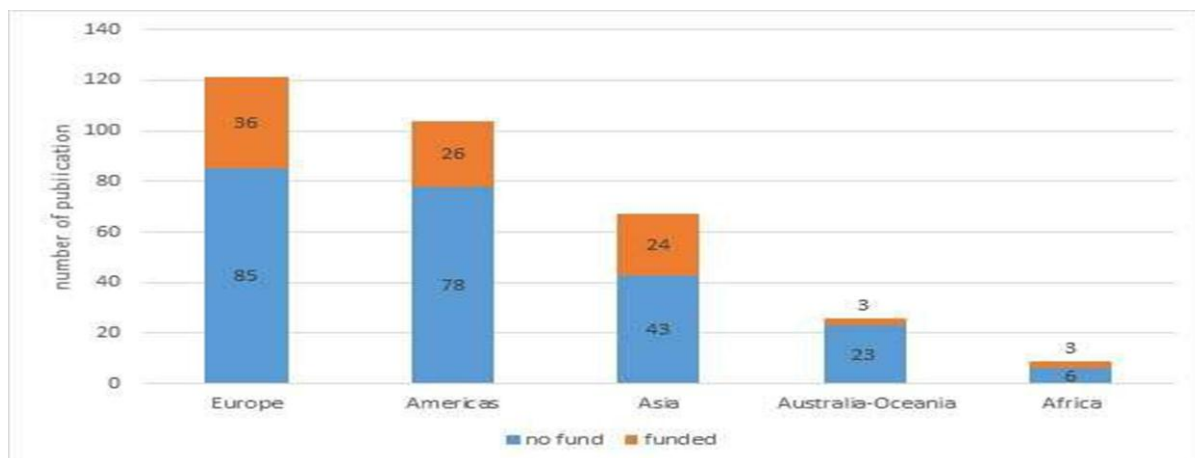
Figure. 1 provides an overview of the geographic distributions related to scientific policy output in COVID-19. In this figure, 46 countries are mapped, of which colors present the numbers of scientific output. The United States is the lead of studies concerning policy issues in the pandemic with the first ranking, 86 publications, approximately 22.40% of the total. The five following countries are the United Kingdom (second, 48, 12.50%), Australia (third, 20, 5.20%),

China (fourth, 17, 4.42%), India, and Italy (both at fifth, 14, 3.64%). The top six productive countries have 199 publications, 51.82% of the total.



**Figure. 1. Geographic distributions related to scientific policy output in COVID-19**

Besides, a visual representation of the scientific output group by continent can be seen in Fig. 2, in which the numbers of funded articles were shown. The chart shows that Europe is the most published continent (121 publications). The following areas are Americas (104 publications), Asia (67 publications), Australia-Oceania (26 publications), and Africa (9 publications). Based on the numbers of funded publications, the rankings of areas are the same above rankings. However, based on the number of funded publications to total publication, Asia has the highest ratio (0.36). The following areas are Africa (0.33), Europe (0.30), the Americas (0.25), and Australia-Oceania (0.11).



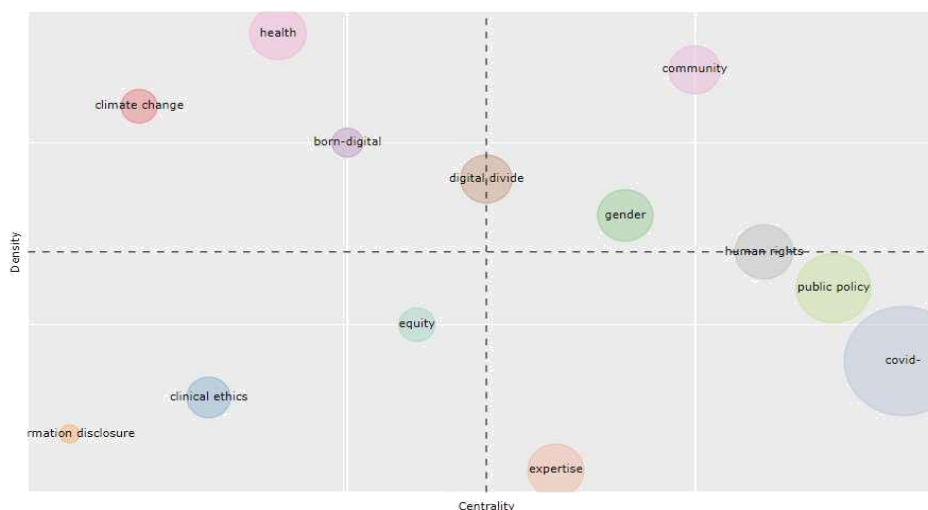
**Figure. 2. Scientific output with funded and no fund group by areas**

### 3.2. *The most frequently cited sources of studies concerning policy issues in COVID-19*

Table 1 lists the top 25 relevant journals in studies concerning policy issues, sorted by their numbers of publications. All the sources in the table have at last four papers on this pandemic. *Sustainability* is the most published source: the first ranking with 17 papers and 21 citations. The following sources are the American Review of Public Administration (second, 16, 2), Public Administration Review (third, 13, 39), Journal of Aging and Social Policy (fourth, 13, 22), Policy and Society (fifth, 10, 6). All the sources in Table 2 have published 164 papers, approximately 42.7% of the total documents in studies concerning policy issues. Based on Bradford's Law, the 16 journals at the top of the list are the core sources of studies concerning policy issues in this period, marked with the \* symbol (Mongeon & Paul-Hus, 2016).

### 3.3. *The frequently co-occurred topics in studies concerning policy issues in COVID-19*

The strategic diagram in Fig. 3 shows all the topics in studies concerning policy issues in COVID-19, based on the co-occurrence analysis of 200 author keywords. There are 13 clusters with at least five occurrences of its keywords. In the upper-right quadrant, the "community health and social support" topic was shown by the "community" node, and the "working in COVID-19" topic was shown by the "gender" one. In the upper-left quadrant, there were three topics, including "healthcare policy," "agricultural policy," and "born-digital." They were presented by "health," "climate change," and "born-digital" nodes. Located in both upper-right and lower-right quadrants is the "Using ICT in teaching and learning" cluster, labeled "digital divide." In the lower-right quadrant, two topics were "common issues in the covid-19 period" and "health care policy," which were labeled in "covid-" and "public policy." The "human rights" topic was a cluster in both upper- and lower-right quadrants.



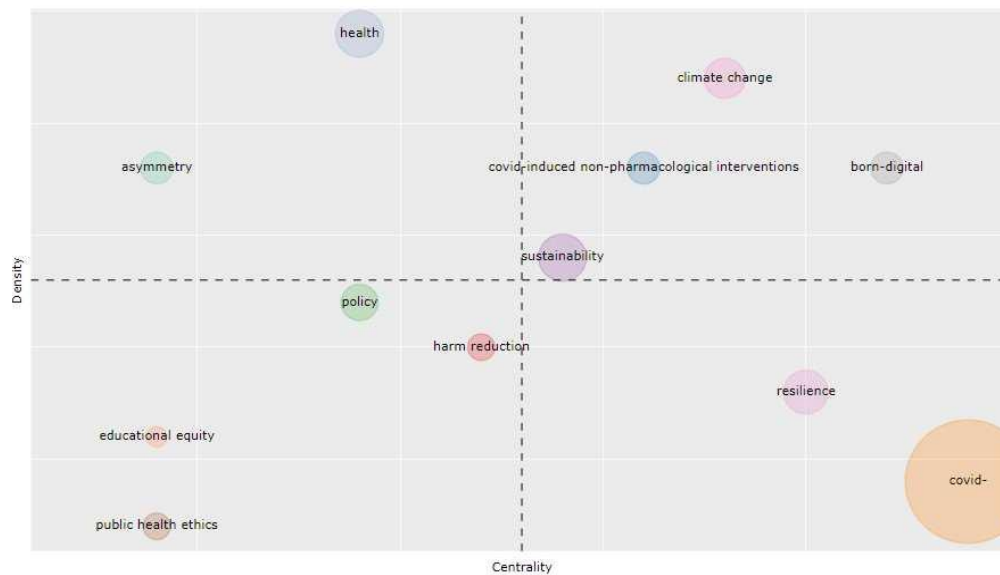
**Figure. 3. The strategic diagram of research topics in studies concerning policy issues in COVID-19 (threshold: 200 authors keywords, min cluster frequency threshold: 5)**

**Table 1. Top 25 impact sources concerning policy studies in COVID-19 (ordered by NP index)**

SJR	Sources	Publishers	H-index	TC	NP
0.581	<i>Sustainability (Switzerland) *</i>	MDPI AG	2	21	17
1.304	<i>American Review of Public Administration *</i>	SAGE Publications Inc.	1	2	16
2.867	<i>Public Administration Review *</i>	Wiley-Blackwell	3	39	13
0.596	<i>Journal of Aging and Social Policy *</i>	Routledge	2	22	13
1.194	<i>Policy and Society *</i>	Elsevier Ltd.	1	6	10
0.846	<i>Journal of Medical Ethics *</i>	BMJ Publishing Group	2	17	9
0.206	<i>Journal of Public Affairs *</i>	Wiley-Blackwell	1	5	9
6.942	<i>Morbidity and Mortality Weekly Report *</i>	Department of Health and Human Services	2	19	5
0.548	<i>Environment, Development, and Sustainability *</i>	Springer Netherlands	3	13	5
0.608	<i>American Journal of Criminal Justice *</i>	Springer New York	1	5	5
0.903	<i>Food Security *</i>	Springer Netherlands	1	1	5
0.360	<i>Journal of Professional Capital and Community *</i>	Emerald Group Publishing Ltd.	1	1	5
0.170	<i>Administrative Theory and Praxis *</i>	Taylor and Francis Ltd.	3	15	4
1.069	<i>Tourism Geographies *</i>	Routledge	3	14	4
NA	<i>Journal of Chinese Governance *</i>	Zhejiang University, and Taylor and Francis Ltd.	2	11	4
0.838	<i>Sustainability: Science, Practice, and Policy *</i>	Taylor and Francis Ltd.	1	6	4
0.447	<i>Canadian Journal of Political Science</i>	Cambridge University Press	1	2	4
0.252	<i>International Journal of Sociology and Social Policy</i>	Emerald Group Publishing Ltd.	1	1	4
1.107	<i>Politics &amp; Gender</i>	Cambridge University Press	1	1	4
0.445	<i>International Social Work</i>	SAGE Publications Ltd	0	0	4
0.465	<i>Journal of Bioethical Inquiry</i>	Springer Netherlands	0	0	4
0.927	<i>Political Quarterly</i>	Wiley-Blackwell Publishing Ltd	0	0	4
0.863	<i>Survey Research Methods</i>	European Survey Research Association	0	0	4
0.120	<i>Theory and Practice of Legislation</i>	Taylor and Francis Ltd.	0	0	4
NA	<i>Transportation Research Interdisciplinary Perspectives</i>	Elsevier Ltd.	0	0	4

Note: \*: core sources based on Bradford's Law; TC: total citation; NP: number of publications; SJR was referred to Scimagojr.com on September 10, 2020.





**Figure. 4. The strategic diagram of research topics in funded SCPIs in COVID-19 (threshold: 100 authors keywords, cluster frequency threshold: 5)**

### 3.4. *The frequently co-occurred topics in studies concerning policy issues with funding in COVID-19*

Figure. 4 represents the strategic diagram of research topics in funded studies concerning policy issues in COVID-19. One hundred author keywords were addressed in four themes. The motor theme, there were four main clusters in this quadrant, including "social well-being," "ICT infrastructure," "agricultural policy," and "born-digital." They were labelled by "covid-induced non-pharmacological interventions", "sustainability", "climate change", and "born-digital" nodes. The upper-left theme with the "health" and "asymmetry" nodes represented "economy and welfare" and "Europe economy in COVID-19 period". The lower-right theme, "COVID-19" and "resilience" node, showed "common issues in the COVID-19 period" and "pandemic plan" topics. The lower-right theme, there were four clusters, including "policy," "harm reduction," "educational equity," and "public health ethics," which related to "harm reduction," "educational equity," "healthcare policy," and "public health policy" topics.

Most studies concerning policy issues were published in Europe, the Americas, and Asia. The United States, the United Kingdom, China, India, and Italy are the countries which most concentrating on this issue with the participation of not only research communities but also the sponsors, the universities (e.g., Harvard University, Beijing Normal University), and government agencies (e.g., Japan Society for the Promotion of Science, United States of America. These countries prove how active and rapid they are to respond to urgent situations by publishing scientific results that can help the scientific community in the world realize and may lead to necessary actions to prevent this disease.

Department of Health and Human Services, National Research Foundation of Korea, European Commission, United States Agency for International Development). This finding can be explained that these countries have the number of people influenced by novel coronavirus much larger than others; their economic and social activities are also seriously damaged. (ESCAP U. et al., 2020). Also, the United States, the United Kingdom, and Europe are countries and regions which have offered the most COVID-19 research funding opportunities. (Science Business, 2020). Moreover, this implies some actions that could be taken to the scale of the whole continent or even global.

The results show the top 25 frequently cited sources in studies concerning policy issues. In this list, there are seven journals tie the policy issues (*Journal of Aging and Social Policy; Policy and Society; International Journal of Sociology and Social Policy; Canadian Journal of Political Science; Political Quarterly; Politics & Gender; and Sustainability: Science, Practice, and Policy*), and others relate to many aspects of social issues (e.g., International Social Work, Transportation Research Interdisciplinary Perspectives). It means many articles in studies concerning policy issues concern policies and various domains. (e.g., Buheji M. et al., 2020).

Moreover, this study shows the most interesting topics in studies concerning policy issues in the COVID-19 pandemic, which are in the motor theme in Fig 3. The number of articles relevant to "Working in COVID-19" is the largest because the keywords related to this topic are the most occurrence. For example, these keywords are "work" (Autin K. et al., 2020; Bahn K. et al., 2020), "productive work," "reproductive work" (McLaren H. J. et al., 2020), and "activism" (Abdoul-Azize H.T. & El Gamil R., 2020; Jelilov G. et al., 2020). In this topic, the working issues link to "gender." Women commonly face more difficulties keeping their jobs stable and well paid (McLaren H.J. et al., 2020), especially in this pandemic. Besides, another interesting topic in this theme is "Community health and social support," which represent in the research of Head M.G. (2020), Kunzmann K.R. (2020), Maine L.L. (2020), Marcum C.D. (2020), Zhao T., and Wu Z. (2020).

According to Fig 3, there are two topics in the middle of two themes: "using ICT in teaching and learning" (labeled "digital divide") and "human rights." "Using ICT in teaching and learning" is between motor theme and highly developed and isolated theme. This topic might be a topic in the motto theme if governments and research communities continued studying and proposing policies related to distance and online learning and teaching in the COVID context (e.g., Ali W., 2020). "Human rights" is located between motor and basic, transversal themes, an important topic, but not many articles mentioned this. According to the United Nations report, this topic could become a part of the motto theme if it has had more funding from the governments or more interest in the research communities, according to the United Nations report. (United Nations, 2020)

"Common issues in COVID-19 period" and "healthcare policy "are two clusters of basic themes and have a closed relationship to this research topic. Although these topics are crucial ones, not many articles directly mention them. Comparing clusters between Figure 3 and Figure 4, there are different topics in the motor themes (the upper-right quadrant). The funding topics in the motor

theme, including "social well-being," "ICT Infrastructure," "agricultural policy," and "born-digital," are the same as the topics in the moto theme. About two research topics, COVID-19 and policy issues, their distribution in these figures are different. The topic of COVID-19 is in the same themes: the primary and transversal theme. However, policy topics are in two different themes. In studies concerning policy issues, "policy" is a highly developed and isolated theme. However, it is an emerging or declining theme in the diagram of publications having funds (Figures 3, 4).

#### **4. Conclusion**

This study has its limitations; that dataset focuses on only English articles. The collected publications are mainly in the continents and countries that have been researched and published in English. Therefore, it needs further research with varied sources published in other languages. There are four developed and essential topics in studies concerning policy issues seemly showing that how this pandemic has changed our lifestyles with more assistance from technology. Still, we should have more sense of community.

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