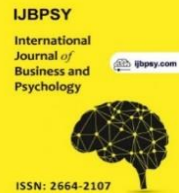


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## Covid-19 and the State of Research from the Perspective of Psychology

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### Abstract

This study aims to identify the current psychological research status from the perspective of COVID-19; for so doing, we extracted the data from the Scopus database. In order to outline the trends in terms of the number of publications, bibliographic coupling, and co-authorships, we used the constructed intellectual structure of the research with the help of VoS Viewer of Software. Besides, based on our understating of the content of published literature, we also presented some suggestions for practitioners and future researchers.

**Keywords:** COVID-19; Bibliometric Analysis; Bibliographic Coupling; Psychological Interventions

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## INTRODUCTION

Covid-19, originated from Wuhan, China, in December 2019, has become one of the most significant health and economic challenges for governments all around the world. The world health organizations have confirmed that the global epidemic in January 2020, and to deterrent the spread of Covid-19, most countries have already announced a complete lockdown (Jiloha, 2020). Besides, the government, research institutes, and funding agencies are spending a huge some to find a cure for Covid-19. In connection to this, world health organization, in February 2020, assessed the existing level of research and information on COVID-19. Resultantly, the WHO issued a call to global research communities to prioritize the funding on Covid-19 that can help to cure this pandemic. World health organization in a meeting (Organization, 2020) held in its headquarter in February 2020 identified the following area of the focus for research.

- 1) "Mobilize study on the rapid evaluation of treatment for use at the Community level

- 2) Evaluate the available data immediately to find out what level of treatment strategies are most effective from China and elsewhere
- 3) Evaluate the impact of adjunctive and supportive therapies as fast as possible
- 4) Optimize the use of protective equipment and other interventions to avoid and manage infections in the healthcare and community environments
- 5) Review the current information to classify animal host(s), to avoid continued spillover and better understand the transmissibility of the virus in various contexts over time, disease frequency and who is more vulnerable to infection
- 6) Review all evidence available to identify animal host(s), to prevent continued spillover and to better understand the virus transmissibility in different contexts over time, the severity of disease and who is more susceptible to infection
- 7) Accelerate the evaluation of investigational therapeutics and vaccines by using "Master Protocols
- 8) Maintain a high degree of communication and interaction among funders so that critical research is implemented
- 9) Broadly and rapidly share virus materials, clinical samples, and data for immediate public health purposes".

Our study aims at supporting the 8th research agenda regarding sharing the current and emerging trends in research on Covid-19. Numerous studies have been published on COVID-19 covering different aspects such as medications, Immunology and Microbiology, Biochemistry, Genetics, and Molecular Biology, Pharmacology, Toxicology, and Pharmaceutics. However, very less is research about the psychological aspect and the consequences of Covid-19. On the early basis COVID-19 data, we conclude that it connects to psychiatric and neuropsychiatric conditions such as fatigue, stress, feeling of loneliness, sleep disorders, depression, anxiety, psychological distress, (Mazza et al., 2020), post-traumatic stress disorder, cognitive impairment, altered consciousness, delirium. (Rogers et al., 2020). Therefore, this study aims to review and analyze the bibliometric data on the research related to the psychological aspect to support the WHO initiative to curb and cure the aftermath of this pandemic.

Bibliometric is the quantitative study of investigating the trends and trajectories in scientific communication, we believe, our analysis of the research on COVID-19 can help the researchers to appreciate the existing research and prepare the future research design and directions.

First, the work presents a trend of publication and citation relating December 2019-May 2020. Secondly, analyze the worldwide perception of the countries with the maximum number of articles and citations. Third, the top productive universities and institutes are enlisted. Fourth, the leading journals are identified. Fifth, the most prolific authors are identified based on the numeral publications and citations in terms of COVID-19 research. The study did bibliometric coupling and co-citation analysis to see how these journals, countries, and authors related to each other. Lastly, based on the reviews of the data obtained, we also suggest some future research agenda for COVID-19 research from the perspective of psychology.

The critical participation of this research is that it offers a general idea of the famous countries, journals, most occurring keywords, and future research agendas for COVID-19 research from the perspective of psychology. This study can assist the editorial team of the journals to recognize the probable area of growth for future research..

## **METHOD**

Scopus database was used to search the research publications on Covid-19. Scopus Database is one of the most extensive peer-reviewed research repositories in the Social Sciences. The

repository is also accessed and acknowledged for empirical and quantitative research (Donthu et al., 2020). The following criteria of research consist of these entitle: “COVID-19”, “SARS-CoV-2”, “severe acute respiratory syndrome coronavirus 2, “2019-nCoV,” and “2019 new coronavirus, and searched for it in the “Title, abstract, keywords” option the search results showed 674 publications since December 2019.

The bibliometric technique is used to evaluate the collected statistics. Bibliometric is a research field of library and information science (Bar-Ilan, 2008) that studies the bibliometric stuff with a quantitative method (Broadus, 1987). This technique is instrumental in classifying and analyzing the general trend of a specific issue, such as journal, research area, or a country (Bonilla et al., 2015; Martínez-López et al., 2018). In literature, bibliometric studies have been used to determine the significance of a subject (Laengle et al., 2017) the role of journals (Amiguet et al., 2017) educational institutes (Martínez-López et al., 2018) and country (Bonilla et al., 2015).

This work uses the VOS Viewer to map the bibliographical material graphically (Van Eck and Waltman, 2010). The VOS viewer takes the bibliographic data as input and converts it as output into the form graphs. The research uses other bibliometric methods, including the BC and co-citing of the author's keywords. BC (Kessler, 1963) happens when two documents discuss the same third document (i.e., Studies A and B, usually known as Studies C). Co-citation takes place when the same three texts cite two publications (studies A and B of the C study).

Moreover, the concurrence of keywords analyses the keywords that appear more frequently in the same papers. The following prominent bibliographic studies (e.g., Donthu et al., 2020), this study uses BC for authors and institutions and co-citation for documents and journals. The co-occurrence of keywords is used to classify the keywords under general topics.

## **RESULTS**

The search in the Scopus database showed that there are a total of 674 documents related to COVID-19 and psychology. A brief content analysis of these articles revealed that most of the publications were focused on the impact of COVID-19 on psychological issues. However, very rare studies have discussed the suggestions or interventions to cope with this pandemic. Thus, in this study, we endeavor to address this issue while providing a holistic view of the psychological research till 26<sup>th</sup> July 2020.

### **Leading Countries in COVID-19**

Since the COVID-19 affected almost all of the countries in the world, thus, to cope up with this pandemic, several countries from around the globe contributed to spread awareness through publication of their research work. In the following table we categorized the countries with the greatest number of. These results might help the future researchers to see what the most productive and impactful countries in terms of psychological research in the perspective of COVID-19 are. Following table presents the results of the countries that have contributed more than 10 publications till July 26, 2020.

**Table 1: The most productive countries**

Rank	Country	Publications
1.	United States	196
2.	United Kingdom	84
3.	China	51
4.	Canada	36
5.	Australia	32
6.	Italy	31
7.	Ireland	27
8.	Spain	27
9.	France	25
10.	India	22

It is of great interest to understand what the networking connection among the countries is publishing research on COVID-19. For so doing, we utilized VoS Viewer of Software and constructed the networking structure in terms of bibliometric coupling. Bibliographic coupling occurs when two documents cite a third study commonly. Regarding countries, bibliometric coupling occurs when a document from two different countries cite the third document in their publications. This shows how other countries use similar literature in their publications.

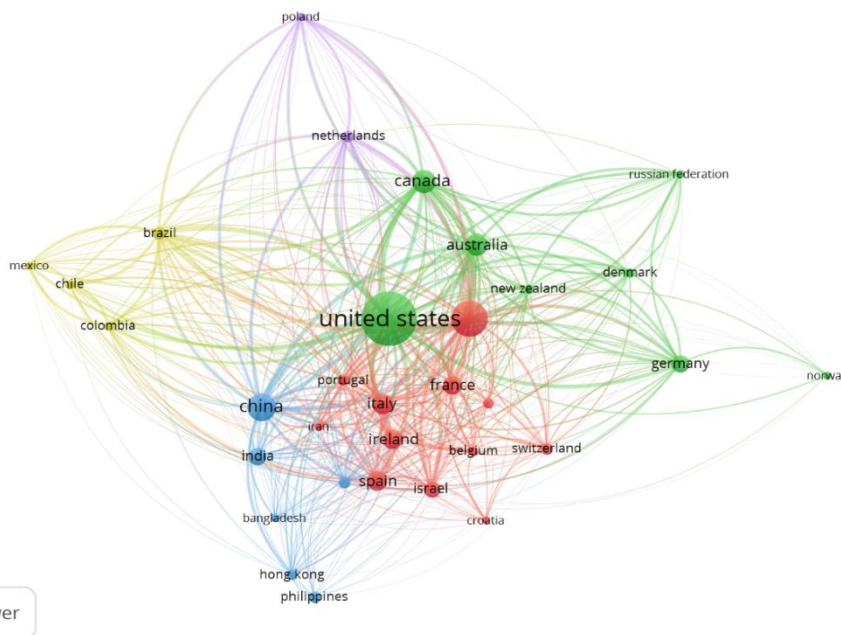


Figure 1: BC of countries

Figure 1 represents bibliographic coupling among the countries based on five clusters represented with different colors (Green, red, blue, yellow, and purple). The US has strong bibliographic coupling. The bigger circle in size shows the stronger bibliographic coupling. The countries in green color clusters tend to have strong bibliographic coupling, and the same is the case with other color clusters.

While having bibliographic coupling on the country level, this question might loom around how are the authors from different countries networked in terms of co-authorship? We address this issue by developing the networking diagram of co-authorship at the country level

While having the bibliographic coupling on the country level, this question might loom around how the authors from different countries networked in terms of co-authorship are? We address this issue by developing the networking diagram of co-authorship at the country level.

**Table 2: Co-Authorship among Countries**

No	Country	Documents	Citations	Total Link Strength
1.	United States	196	177	14557
2.	United Kingdom	84	186	12166
3.	China	51	176	7396
4.	Canada	37	74	7630
5.	Australia	33	104	6369
6.	Italy	31	57	4410
7.	Ireland	27	7	1927
8.	Spain	27	31	3623
9.	France	25	14	1632
10.	India	22	128	1299

Table 2 shows the co-authorship among Top 10 countries. It indicates that two similar documents are bibliographically coupled for the common one or more documents. There are twelve clusters found in different colors. The biggest circle in size showed the strongest co-authorship with the respective countries.

Cluster 1 is represented with blue color, and It shows a strong co-authorship among Argentina, Botswana, Brazil, Chile, Colombia, Cuba, Dominican Republic, Guatemala, Mexico, Panama, Paraguay, Peru, Puerto Rico, Uruguay. Cluster 2 is represented with Maroon color, and It comprises of India, Indonesia, Iran, Lebanon, News Zealand, Nigeria, Pakistan, Portugal, Serbia, Singapore, Tunisia. The blue color cluster encompasses Australia, Bangladesh, Canada, China, Finland, Hong Kong, Japan, Macau, Philippines, Russia federation. The countries present in similar clusters tend to have strong co-authorships.

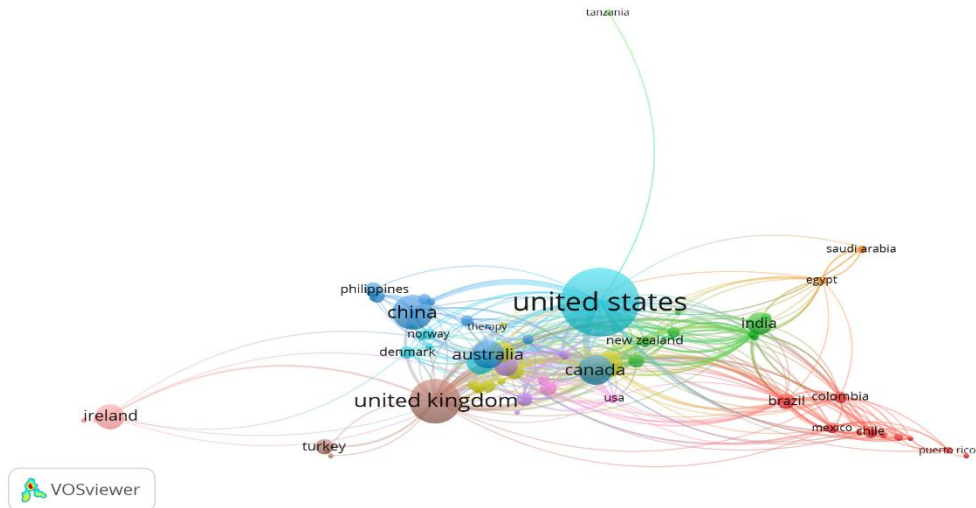


Figure 3: Co-Authorship among Countries

### Top Journals

One of the other important aspects of bibliographic coupling is to find out the journals that publish most frequently on Psychology research from the perspective of COVID-19. Following table 3 represented the journal that has published 10 or more than 10 papers on COVID-19 in the first seven months, i.e., 26<sup>th</sup> July 2020. Psychological Trauma Theory Research Practice and Policy remains the most productive journal in terms of a number of 139 publications on COVID-19 and in the aspects of Psychology while the Irish Journal of Psychological Medicine remains the 2<sup>nd</sup> most productive with 32 publications. We can suggest from these facts that future researchers should consult these journals for their seminal work.

**Table 3: Top Journals**

No	Journal Title	Publication
1.	Psychological Trauma Theory Research Practice And Policy	139
2.	Irish Journal Of Psychological Medicine	32
3.	Social Anthropology	30
4.	Asian Journal Of Psychiatry	26
5.	Counselling Psychology Quarterly	25
6.	Journal Of Loss And Trauma	17
7.	Journal Of Humanistic Psychology	15
8.	Journal Of Affective Disorders	14
9.	Nature Human Behaviour	14
10.	Journal Of Psychotherapy Integration	13



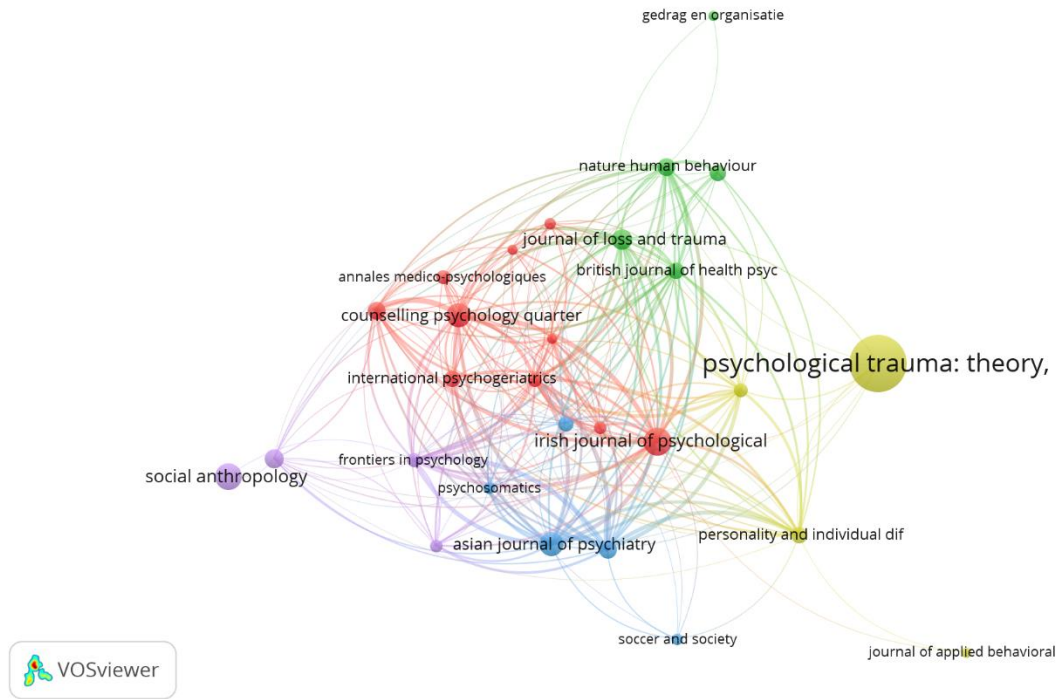


Figure 3: Bibliographic coupling of journals

**Co-Occurrence of keywords**

Table 4 and figure 4 display the most occurring keywords using till July 26, 2020, in published documents. Co-Occurrence of keywords that frequently occur in the studied documents. Given the psychological aspect, an infectious covid-19 virus causes mental health problems such as depression, anxiety, stress, and post-traumatic stress disorder. The future research trends around in these most co-occurring words to explore more about this phenomenon.

**Table 4: Most occurring Keywords**

No	Keywords	occurrences	Total link strength
1	Covid-19	365	475
2	Pandemic	94	187
3	Coronavirus	88	163
4	Mental health	83	155
5	Anxiety	40	109
6	Trauma	34	56
7	Depression	27	80
8	Stress	25	72
9	Covid-19 pandemic	16	16
10	PTSD	16	30

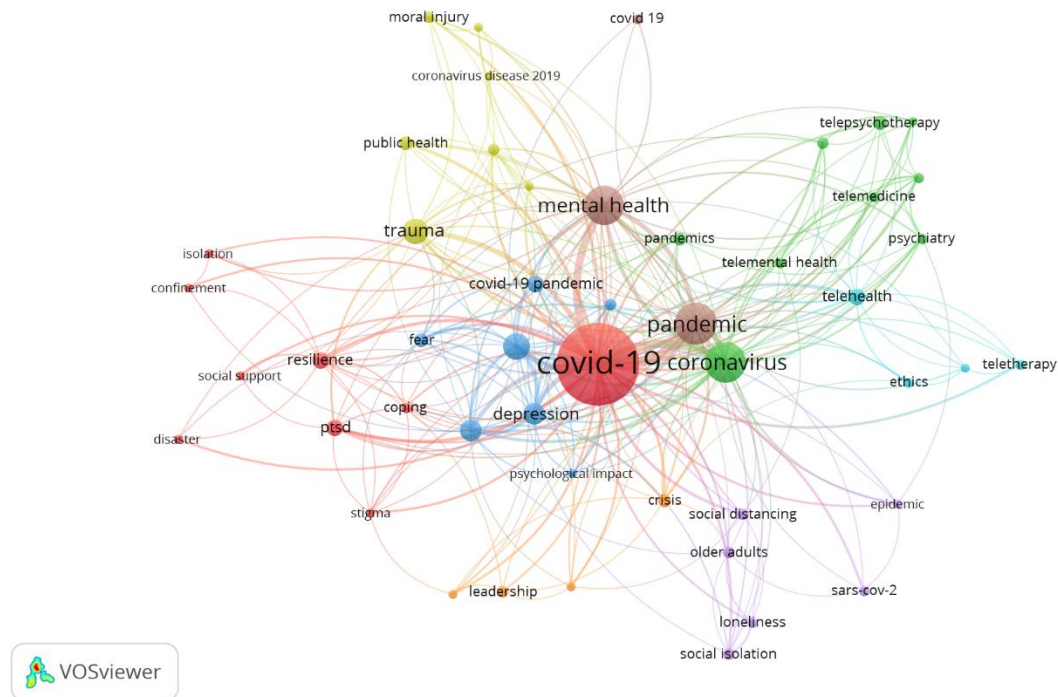


Figure 4: Occurrence of Keywords

## DISCUSSION AND PSYCHOLOGICAL INTERVENTIONS

Evidence suggests that COVID-19 has consequences for the patient, families, and society. The scientist and biologist are continuing their efforts to find the cure to this pandemic; the social and psychological aspects should also be not ignored. However, since most of the resources are devoted and occupied for biomedical research, hence; the current state of psychology research is not up to the mark. Our bibliometric analysis on the psychological research in the first seven months of this pandemic substantiated this claim. This bibliometric analysis showed that there are very few studies on the psychological consequences of COVID-19. In keeping this view, researchers should come forward to help formulate the interventions. Practical and theoretical research should be initiated to cope with the crisis and to strengthen the mental and psychological health. Psychological crises should be taken as public health emergencies. The cooperation between community health services and mental-health-care institutions should be decoupled. Some studies from the past on SARS have confirmed that individuals who have experienced public health emergencies still have varying degrees of stress disorders, even after the event is over, or they have been cured and discharged from hospital, indicating these individuals should not be ignored (Cheng et al., 2004). There is a dire need for systematic studies on the



interventions to cope up the psychological problems. Hence, here we present some suggestions for the practitioners and researchers to consider formulating psychological intervention or conducting psychological research.

The immediate support system should be established in the early weeks of the novel coronavirus. Awareness programs should be conducted through devices such as television, radio, mobile phone and internet resources. There should be audio, video highlighted message that attracts the attention of the community. Programs based on psycho-education of covid-19, disease course, precautionary measures, symptoms, and management. All programs telecast with the healthcare and mental health professionals' team, expert's interviews, or messages regarding disease course, the severity of clinical symptoms, place of treatment and other factors to classify individuals who need management. Interventions should be addressed to most venerable groups of communities such as children, elderly and immigrant workers.

Universities and institutes should have some online courses and platforms to provide counseling services to the patients and their family members. The people with a suspected infection disease who are underneath isolation or at home, community psychological health services should give primary mental health concerned. Although, in any case, since of complicated work strategies, the heavy burden of workloads, and insufficient training in psychiatry or clinical psychology, community health services do not always know how to diminish the psychological distress of patients. A specialized team is comprising mental health services in dealing with emotional distress and other psychological disorders caused by epidemics and further public health emergencies.

Our experience is that some of the COVID-19 survivors will be prone to bear negative behavioral and emotional responses such as grievance, bitterness, anger and fear that needed to be dealt in a sensitive way. For instance, tailor-made psychological screening, such as a personal inquiry and invitation for the need for psychological consultation rather than arbitrarily distributing the postal questionnaires, would be much appropriate and receptive for counseling. In addition, when facing a possible future outbreak, psychological preparation such as stress inoculation (Meichenbaum, 1993) may be needed to strengthen the sense of social support, reduce the associated social discrimination, facilitate the use of socially endorsed communication channels without reducing the amount of contact, brainstorm and share the possible coping, educate and adopt some realistic threat appraisal and booster the morale among the staff.

Second, in the psychological assessment for the COVID-19 survivors, clinicians should include social support, negative appraisal (perceived impacts), positive appraisal (post-traumatic growth) and self-efficacy, which may be essential parameters for monitoring the ongoing psychological and perceived physical health of COVID-19 survivors.

Third, these significant psychosocial correlates may embed essential values in the clinical intervention for the COVID-19 survivors. For instance, given the significant role of negative appraisal in the outcomes, cognitive techniques such as comparing with the disadvantages and reappraising the disastrous fears might be appropriate when particular

maladaptive thinking or beliefs are elicited. Further, the clinicians should not only actively inquire about the impacts of COVID-19 but also elicit and educate various coping efforts that may booster the coping confidence and reinforce their perceived ability to cope with the impacts. Also, allowing the survivors to review or reiterate the personal gain and growth from the traumatic experience may create positive meaning, reframe the impacts and possibly alleviate their distress

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