Effect of COVID-19 on mental health: A bibliometric analysis using Scopus database

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Abstract
Purpose: Coronavirus disease has impacted socio-economic network across the globe. Loss of employment and job, and physical distancing has caused grave physical and psychological distress too among people in general and mental health issues such as uncertainty, stress, anxiety, frustration, and depression. The present study has been undertaken to extensively examine current research about the impact of COVID-19 on mental health of general population.

Design/methodology/approach: This study has employed a bibliometric analysis of the research work collected through the Scopus database. The sample included 1,676 documents. The analysis includes descriptive variables such as the number of publications per year, country, author affiliation, keywords and active institutions, graphical network analysis and thematic analysis.

Findings: This study has revealed that initially the focus of research was on understanding of COVID-19 and its causes, examination of virus and its medical treatment which later shifted to effect of the pandemic on mental health of people with different demographics. Concepts that have got more attention in this research area are mental health, psychology, human, pandemic and female. Trending topic analysis based on authors’ keywords confirms these findings. The effects are directly linked to the socio-demographic variables of the people.

Research limitations/implications: The study is based on the Scopus database, which has limited coverage. It provides base for undertaking structured literature review based on shortlisted papers on different dimensions of effect of COVID on mental health such as analysing coping strategies adopted by people and effect of initiatives taken by government to ease economic burden on people and restore their mental peace.

Keywords: Anxiety, COVID-19, depression, mental health, psychological impact, stress

1. Introduction
COVID-19 outbreak severely affected functioning of the global economy. As fear started setting in among people, country heads took all measures to save their people. Since the COVID virus was highly contagious in nature, many other steps were initiated by the governments to curtail the widespread of infection like quarantine on detection of infection, restriction of social gatherings and celebrations, restrictions on travelling and many more. All of this led to the feeling of loneliness, fear and anxiety leading to depression and mental destruction. One such measure was global lockdown. It changed the way people worked in all spheres be it business, education, or communication. People were confined to their houses. According to UN report [1], physical distancing led to closing of businesses and offices resulting in wide spread unemployment for many. Various research studies such as Gardener and Moolle (2015) [4]; Ricci- Cabello et al. (2020) [17] and Wu et al. (2009) [24] have empirically tested that loss of employment and income, physical distancing due to fear of exposure to the disease, grief of loss of loved ones and financial burden took its toll on the mental health of people at large. Kim (2006) [9] in his study has shown that job insecurity and unemployment is directly correlated to depression. Ma et al. (2016) [13] and Leigh-Hunt et al. (2017) [10] have also found positive correlation between financial strain, social isolation and suicidal behaviour. Similar results were revealed by Liu et al. (2012) [12]; Jeong et al. (2016) [8]; and Wen et al. (2020) [23]. COVID-19 resulted in deep rooted financial and social impacts. People from all walks of life suffered major mental health issues such as grief, trauma, feeling of loneliness, depression and in many cases suicidal tendencies increased (James, Wardle and Adams (2019) [7]; González-Sanguino (2020) [5]; Li and Wang (2020) [11]; and Palgi et al. (2020) [15]. Situation was equally dismal in India too. According to a report in the

Hindu [2], a 24x7 mental health helpline number received approximately 45000 calls in just 2 months. 52% of them came from anxiety, 22% out of seclusion, 11% due to depression, 5% sleeping difficulties and 4% due to worsening of existing mental issues. According to WHO reports [3] on “Violence against women”, it depict that women constituting approximately 30% of the female population across the world had to face domestic violence or violence in any other form during initial period of pandemic. According to researches, approximately 7.62 crore cases of anxiety related disorders and 5.32 crore major depression related disorders were reported during pandemic in the year 2020, which is about 26% and 28% increase in respective disorders. India is reported to have approximately 35% increase in mental disorders during the pandemic. So, it becomes necessary to study and make analysis of major problems faced by the general population and various means and measures adopted to cope up with the various difficulties faced. Therefore, there is need to study mental health issues associated with COVID 19 in depth to equip ourselves to deal with such situation in future.

This study aims to extract, analyse and report research documents on the area of “effect of COVID 19 on mental health”. It examines the number of publications by year and by subject of effect of COVID 19 on the selected topic. It also aims to examine the contribution of institutions to the advancement of the research on the stated topic. The study also attempts to provide insights into the research work done in this area so far and guide researchers about scope of future work. Some of the basic research questions this study seeks to answer include:

RQ1
What is the bibliometric profile of the database in the area like number of publications by year and by subject area?

RQ2
Who are the most influential authors, journals, institutes and countries in this area of research?

RQ3
What is the co-citation network and bibliographic coupling among the authors?

RQ4
Which key areas have been investigated by researchers at present to identify areas which needs attention of researchers?

2. Conceptual Framework
The conceptual framework of the study is descriptive as well as graphical.

3. Research Design: Materials and Methods
3.1 Data Collection
The present study has utilised Scopus database for collection of data as this is the most popular and one of the largest data bases used for such type of analysis. The study utilised the key string “consequences” OR “impact” OR “effect” AND of “COVID 19” on AND ”mental health” OR “Psychological health” OR “Mental Balance” OR “Mental well Being” OR “Mental Sanity” OR “mental illness” OR “Mental soundness” using title-abstract-key words search option. The query resulted in 17,538 results. Considering such a large set of papers, the search was restricted to title search only. It resulted in 1,812 papers. Taking inclusion criteria of papers in English language and papers finally published, the search resulted in 1,676 research papers. These were finally analysed using suitable tools. The details of the data selection process are given in Table 2.

3.2 Analysis Methods
The data has been analysed bibliometrically using MS Excel, Scopus analysis tools, VosViewer and biblioshiny embedded in R Software. According to Yu et al. (2019) [25] and Choudhri et al., 2015 [3], bibliometrics analysis is used to examine current research trends and the current fields of research interest. Bibliometrics is used to evaluate academic productivity and to assess the current research situation and parameters for future studies (Pu et al., 2016; Iftikhar et al., 2019; Wang et al., 2020) [16, 6, 22]. Found that bibliometric analysis was first used by Garfield in the mid-20th century to review multiple subjects. Descriptive analysis of the data has been done using MS Excel and Scopus analytical tools. For analysing co-citation network, key words analysis, co-occurrences and bibliographic coupling. VosViewer and biblioshiny software has been used. Van Eck and Waltman (2010) [19] in their study of suitable software for bibliometric mapping based on survey found VosViewer to be highly useful.

3.3 Sample Composition: Main Information about Data
Main information about the data set is given in Table 3.

4. Research Findings and Discussion
The analysis has been performed from three angles.

4.1 Statistical Analysis
The statistical analysis has been performed using Scopus analysis tools and Biblioshiny embedded in R software. It includes eight categories namely documents by source, documents by type, documents by subject area, documents by year, documents by country, documents by author, documents by affiliation and documents by top funding agencies. The findings are given below.

4.1.1. Documents by Year
Ahmi and Muhammad (2019) [2] stressed that number of documents published in each year is a good indicator of research productivity. Hence, trends of research publications has been examined on the basis of number of research documents published in each year. Documents published during the period of analysis are shown in Figure 3. It shows that the research publications are having upward trend with 275 publications in 2020, the year just after the COVID outbreak, increasing to 545 and 674 in coming years 2021, and 2022. The year 2023 has 182 publications till date.

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Table 1: provides the details of the main variables selected to answer the research questions.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Type of Analysis and Tools used</th>
<th>Main Variables Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: Bibliometric profile of the database</td>
<td>Statistical Analysis (MS Excel and Scopus Analysis)</td>
<td>Year wise trend of publication, Classification of present research work on the basis of type of documents, its sources, and subject area Distribution of available research work on the basis of authors, countries, funding sponsorship, and top institutes active in publications</td>
</tr>
<tr>
<td>RQ2: The most influential authors, journals, and institutes</td>
<td>Descriptive Analysis (MS Excel and Scopus Analysis)</td>
<td>Co-authorship Analysis Citation analysis Co-citation analysis and Key word Analysis</td>
</tr>
<tr>
<td>RQ3: The co-citation network and bibliographic coupling</td>
<td>Network Analysis (VOSviewer)</td>
<td>Bibliographic Coupling Analysis Co-citation analysis</td>
</tr>
<tr>
<td>RQ4: Key areas investigated by researchers at present and areas which needs attention</td>
<td>Theme based Analysis (Biblioshiny)</td>
<td>Three field plot analysis, Thematic map analysis, and Trending topics analysis</td>
</tr>
</tbody>
</table>

Table 2: Research Data

| TITLE-ABS-KEY ("consequences" OR "impact" OR "effect" AND of "COVID 19" on AND "mental health" OR "Psychological health" OR "Mental Balance" OR "Mental well Being" OR "Mental Sanity" OR " mental illness" OR " Mental soundness") | 17,538 |
| TITLE ("consequences" OR "impact" OR "effect" AND of "COVID 19" on AND "mental health" OR "Psychological health" OR "Mental Balance" OR "Mental well Being" OR "Mental Sanity" OR " mental illness" OR " Mental soundness") | 6076 |
| TITLE ("consequences" OR "impact" OR "effect" AND of "COVID 19" on AND "mental health" OR "Psychological health" OR "Mental Balance" OR "Mental well Being" OR "Mental Sanity" OR " mental illness" OR " Mental soundness") AND (LIMIT-TO (TYPE, "art")) | 1,812 |
| TITLE ("consequences" OR "impact" OR "effect" AND of "COVID 19" on AND "mental health" OR "Psychological health" OR "Mental Balance" OR "Mental well Being" OR "Mental Sanity" OR " mental illness" OR " Mental soundness") AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (LANGUAGE, "English")) | 1,676 |

Table 3: Main Information about the Data

<table>
<thead>
<tr>
<th>Timespan</th>
<th>2020:2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources (Journals, Books, etc.)</td>
<td>783</td>
</tr>
<tr>
<td>Documents</td>
<td>1676</td>
</tr>
<tr>
<td>Annual Growth Rate %</td>
<td>-12.85</td>
</tr>
<tr>
<td>Document Average Age</td>
<td>1.54</td>
</tr>
<tr>
<td>Average citations per doc</td>
<td>29.47</td>
</tr>
<tr>
<td>References</td>
<td>62209</td>
</tr>
<tr>
<td>Keywords Plus (ID)</td>
<td>3799</td>
</tr>
<tr>
<td>Author's Keywords (DE)</td>
<td>2455</td>
</tr>
<tr>
<td>Authors</td>
<td>9921</td>
</tr>
<tr>
<td>Authors of single-authored docs</td>
<td>98</td>
</tr>
<tr>
<td>Single-authored docs</td>
<td>103</td>
</tr>
<tr>
<td>Co-Authors per Doc</td>
<td>6.9</td>
</tr>
<tr>
<td>International co-authorships %</td>
<td>26.25</td>
</tr>
</tbody>
</table>

Fig 1: Number of Publications Each Year Source: www.scopus.com, accessed on 17 February 2023
4.1.2. Documents by Source in Each Year

Figure 2 shows the trends in publication for the top 5 sources for each of the year under consideration. International journal of environment research and public health has maximum publications as compared to other sources. In general the number of publications for these sources are increasing though there is decline in number of publication in Frontiers in Psychiatry. This may be due to the fact that one of the main causes of the mental health issues during COVID 19 is social exclusions and in such cases, psychological therapy works better as compared to medication. During 2023, the number of publication is low but this should not be taken as downward trend as just a quarter of the year has passed till the time of the data collection.

![Figure 2: Number of Publications per Year by Source](https://www.scopus.com accessed on 17 February 2023)

3. Documents by Subject Area

Figure 3 displays research work conducted in various subject areas in percentage form. Initially the complete focus of treatment of COVID 19 was on medicines and hence majority of the published work is coming from medicine field. As time passed, people started facing psychological issues due to lockdown and social isolation. As a result, research work in the area of psychology and social sciences field picked up.

![Figure 3: Documents by Subject Area](https://www.scopus.com accessed on 17 February 2023)
4. Documents by Type
The categories of document type are given in Figure 3. It can be seen from the analysis that majority of the work is in form of research articles (76%). It indicates that the most of the work in this area is coming from empirical and verifiable research.

![Fig 4: Documents by Type, Source www.scopus.com, accessed on 17 March 2023](image)

5. Documents by Country
The data collected from Scopus database has been analysed on the basis of publications by different countries. Figure 5 displays top 10 countries actively working in this research area. It shows that US, UK and China are most active countries leading research work in this area with US having maximum 400 publications. India occupies fourth position with 250 publications.

![Fig 5: Documents by Country, Source www.scopus.com, accessed on 17 February 2023](image)

Contribution of different countries across the globe is presented in the form of Figure 6. Figure 6. Country wise scientific production on the effect of COVID 19 on mental health. In this figure, countries are colour coded with dark colour representing countries having maximum production moving to lighter shades representing countries with lesser contributions in this area.
6. Documents by Author
Analysis shown in Figure 7 indicates that the most active researcher in this subject area is Amerio with 12 publications followed by Serafini (10 publications) and Odone (9 publications). Majority of the authors have 4-5 publications.

7. Documents by Affiliation
Figure 8 shows the top 10 institutes leading the publications. It is found that King’s college, London tops the list with 47 publications followed by University of Toronto with 41 publications. Average publications foe each of the affiliated institute is coming out to be 9.
8. Documents by Top Funding Agencies
According to Aagaard et al. (2021) [1] and Morillo and Alvarez-Bornstein (2018) [14], it is very important to examine the funding or sponsorship associated with research work as it improves credibility of the research work. Nearly 40% of the selected research publications are found to be funded by various institutes. Top 10 funding institutes have been represented in Figure 9. The analysis shows that National Institute of Mental Health has funded 42 researches with national institute of health coming close with funding of 37 researches in this subject area.

4.2 Network Analysis
Network analysis has been performed on the basis of four main categories namely co-authorship analysis, keywords analysis, citation analysis and bibliographic coupling analysis. The details are given in following sub-sections.

4.3.1 Co-authorship Analysis: Authors, organizations, country
Co-authorship analysis has been executed with three main parameters namely authors, organisations and countries.
(i) Co-authorship Analysis in terms of Authors
For this analysis, documents with more than 10 authors have been excluded. Minimum 2 documents per author has been taken as a threshold. Out of 1656 authors, 23 authors meet the threshold. Pieh C. et al. has maximum 524 citations followed by Gualano with 435 citations and Dawel et al. with 162 citations. Then the link strength of the authors with other authors has been calculated. However, no such relationship among authors is seen (figure 10).

![Fig 10: Co-authorship Analysis - Authors, Source www.scopus.com, accessed on 17 February 2023](image)

(ii) Co-authorship Analysis in terms of Organisations
Co-authorship in terms of organisations has been analysed taking minimum number of documents of an organisation to be 3. out of total 6016 organisations, 41 meet the threshold. For each of the 41 organisations, total strength of co-authorship link has been calculated. The organisation with the greatest total link strength has been selected. IRCCS ospedale polclinico san Martino, Genoa, Italy has the highest link strength of 18 with 832 citations. Next in line is department of neuroscience, rehabilitation, ophthalmology genetics, maternal and child health with link strength of 17. Department of Psychiatry, University of Toronto, Canada has link strength of 7 with 2496 citations. Largest set consisted of 8 eight organisations and same has been shown here in Figure 11. There are two clusters. First one consists of 6 organisations and the other one has 2 organisations.

![Fig 11: Co-authorship Analysis - Organisations, Source www.scopus.com, accessed on 17 February 2023](image)

(iii) Co-authorship Analysis in terms of Countries
Co-authorship has also been analysed on the basis of countries. Taking minimum 5 documents in a country, 67 countries out of 188 countries met the threshold. US with 397 documents has the highest link strength of 428 with 12,897 citations. UK with 234 documents and 8088 citations comes close with link strength of 372. Country wise network is shown in Figure 12.
A close examination of co-authorship analysis based on countries reveals that there are five clusters in all. First cluster is of 19 countries mainly from Europe including France, Germany, Austria, Poland, Italy, UK etc. Second cluster of 19 countries from Asia region like Japan, Nepal, India, Taiwan, China etc. Cluster 3 of 14 Latin American countries Argentina, Brazil, Mexico, Peru, Chile etc. Cluster 4 is of 12 countries mainly from US, UAE and other Muslim countries including Iraq, Jordan, Kuwait, Saudi Arabia and UAE. Cluster 5 consists of Australia, Croatia, and Netherlands.

4.3.2 Network Analysis of Co-occurrence of keywords

For this purpose three units of analysis have been taken namely all keywords, author keywords, and index keywords. The analysis has been performed using VOSviewer software.

(i) Analysis of Co-occurrence of All keywords

Keeping minimum number of occurrences of a keyword at 10, 495 keywords out of the total of 5546 meet the threshold. For each of these keywords, the total strength of the co-occurrences links with other keywords has been calculated. The keywords with the greatest total link strength have been selected.

Figure 13 shows that top most keywords are mental health, psychology, human, pandemic and female. Human has total link strength of 27,395 with 1189 occurrences whereas mental health has link strength of 26,598 with 1,379 occurrences. Least used keywords satisfaction with life scale, hand sanitizer, partner violence, and internet based
interventions.

(ii) Analysis of Co-occurrence of Author keywords
Taking minimum 10 keywords per author, 65 keywords out of total 2458 keywords met the criteria. Figure 14 exhibits the most frequent authors’ keywords. Most preferred author keywords are COVID-19, mental health, depression, anxiety, pandemic, and stress. Least preferred keywords are health, social media, substance use and mental disorder.

![Figure 14: Analysis of Co-occurrence of Authors’ keywords](https://www.scopus.com)

(iii) Analysis of Co-occurrence of Indexed keywords
Taking minimum 10 keywords, 457 out of total 3799 keywords met the threshold which are shown in Figure 15. Key words that have been used the most are mental health, human, depression, anxiety, psychology, and male adult. Least used keywords are substance abuse, hyper tension, new born, working conditions, and occupational stress.

![Figure 15: Analysis of Co-occurrence of Indexed keywords](https://www.scopus.com)

4.3.3 Network Analysis of Citations
Citation analysis has been conducted from five parameters: documents, sources, authors, country and organization.

(i) Citation Analysis of Documents
Considering minimum 20 citations as a threshold per document, 349 documents out of a total of 1676 documents met the threshold. Has the highest citations of 313 followed by Samji et al. and Cost et al. with 181 and 167 citations. Largest set of connected items is 283 which is shown in the figure below.

![Figure 16: Network Analysis of Citations](https://www.scopus.com)
(ii) Citation Analysis of Sources
For this analysis, minimum 5 citations per document is taken as a threshold. 49 sources out of a total of 783 sources met the threshold. Journal of environment studies has the highest citations of 4073 followed by Brain, behaviour and immunity International with 2784 and Frontiers in psychiatry with 1849 citations. Largest set of connected items is 44 which is shown in figure 17 below.

(iii) Citation Analysis of Authors
Taking minimum 2 documents for an author with 50 minimum citations as a threshold, 23 authors out of a total of 1656 authors met the threshold. Pieh C. has the highest citations of 524 followed by Gualano et al. and Dawel et al. with 435 and 162 citations. However, none of the authors are found to be connected to each other.
(iv) **Citation Analysis of Organisations**

Considering minimum 4 documents of an organisation as a threshold, 17 organisations out of a total of 6016 organisations met the threshold. Department of psychiatry, University of Toronto, Canada has the highest citations of 2496 followed by IRCCS Ospedale polliclinico San Martino, Italy with 832 citations. However, none of the organisations are found to be connected to each other.

(v) **Citation Analysis of Countries**

Taking minimum 5 documents of a country as a threshold, 67 countries out of a total of 188 countries met the threshold. Canada has the highest citations of 5,326 followed by China and with 4,982 and 3,482 citations. However, interconnections among countries is not seen in the analysis.
4.3.4 Network Analysis of Bibliographic Coupling

The analysis has been performed from five parameters.

(i) Bibliographic Coupling of Documents

For this analysis, a total of 20 citations per document has been taken as a threshold. 349 documents out of the total of 1676 documents met the threshold. Gonzalez-Sanguino has maximum 811 citations followed by Moreno et al. with 796 citations and Gualano et al. (2020) with 423 citations. Largest network of bibliographic couplings consisted of 284 documents. The network graph is shown in figure 21.

(ii) Bibliographic Coupling of Sources

Taking minimum 5 citations per source, 49 out of 783 total sources met the threshold. International Journal of environmental research published maximum 117 documents with 4073 citations, followed by Frontiers in Psychology with 57 documents and 1849 citations and Frontiers in psychiatry with 40 documents and 552 citations. The network graph is shown in Figure 22.
(iii) Bibliographic Coupling of Authors
Taking minimum 2 documents and 5 citations per author, 15 out of 1,659 authors met the threshold. Pieh C. had maximum 524 citations followed by Gualano with 436 citations and Dawel et al. with 162 citations. Largest set of connected items is 6 as shown in Figure 23.

(iv) Bibliographic Coupling of Organisations
Taking minimum 3 documents per organisation, 41 out of the total 6,016 organisations met the threshold. Figure 24 shows that Department of Psychiatry (University of Toranto), IRCCS (Italy) and Department of Psychological medicine (China) are the topmost organisations with highest citations of 2,496, 832, and 396 respectively.

(v) Bibliographic Coupling of Countries
Minimum 5 documents per country is taken as selection criteria. 67 out of 188 meet the threshold. US, UK, Italy, Canada and China have highest bibliographic coupling.
4.3.5 Co-citation Analysis

(i) Co-citation Analysis of Cited References
Minimum 10 citations per document has been taken as selection criteria for the analysis. 82 out of 61,733 cited references met the threshold. Top three documents are by Brooks et al. (2020) [27] and Wang et al. (2020) [22] with highest co-citations of 65, 31, and 24.

(ii) Co-citation Analysis of Cited sources
Taking minimum 2 citations for each source as selection criteria, 22 sources met the threshold. The co-citation network of cited sources is shown in figure 27. However no interconnections are found.
(iii) Co-citation Analysis of Cited authors
Considering minimum 50 citations for each author, 270 out of 94,077 meet the threshold. Figure 28 shows that Wang Y. Wessely and Wang C have highest co-citations.

4.3.6 Analysis of Research on Effect of COVID 19 on Mental Health: Overall research on effect of COVID 19 on mental health has been studied from three angles.

(i) Three Field Plot Analysis (Sanky Diagram): Three field plot analysis help in analysing the dataset from three parameters namely author countries, authors and key words. Figure 29 shows that main contributing countries on the subject are Italy and China on the main key words COVID 19, mental health, depression, anxiety, and lockdown.
(ii) Thematic Map and Thematic Evolution Analysis

Thematic Map Analysis
Thematic map shows the topics which have been explored to a greater extent by the researchers and topics which require attention of the researchers. The thematic map analysis given in Figure 30 shows that effect of COVID-19 on male/female and aged people has been explored a lot by researchers. On the other hand, effect of COVID-19 on children, children parent relation and university students has not got much attention. In future, research work in this direction can be undertaken.

Thematic Evolution Analysis
Considering the research work done in this field, it would be interesting to analyse the evolution of themes over the period. For this purpose, the overall research period has been divided into two parts namely period 2020-21 and 2022-23. The analysis given in Figure reveals that initially the research was about the disease and its effects on human in general and women. However, at the later stage, researchers started investigating effect of COVID-19 through cross sectional analysis. Focus was on its effect on students, children’s, adolescents and health care professionals.
(iii) **Trending Topics Analysis**

Trending topics relating to the subject area has been analysed on the basis of author’s keywords from the sample set of research papers. Figure 32 shows that at the time of outbreak of the disease researchers started understanding the virus as it was a new disease. Later on the focus of researchers shifted to its effects due to lockdown like mental health, depression, effect on brain.

5. **Summary and Conclusions**

The present work is about identifying and examining the scientific production of the world in the area of effect of COVID 19 on mental health. Efforts have been put to provide a comprehensive review of the research published in the area. For the purpose of the study, research papers have selected from Scopus database using search string “impact of COVID 19 on mental health”. The search is further refined on the basis of given inclusion and exclusion criteria. Finally 1,672 published papers have been selected for the analysis.

The study has revealed that the research work in this area is continuously increasing. Researchers are continuously working to identify effects of COVID 19 and on mental health through general and cross sectional studies. Majority of the published papers (76%) are research articles indicating empirical research. Nearly 50% of the work is found to be from medicine subject area followed by psychology and social sciences. Top 3 sources of published work are International journal of environment research and public health, Frontiers in Psychiatry and Plos One. Top 3 Countries most actively engaged in the research in this area are US, UK and China. Amerio topped the list of most active author with 12 publications followed by Serafini (10 publications) and Odone (9 Publications). King’s college, London, University of Toronto and University College, London are the leading institutes working in this area. Nearly 40% of the selected research papers have funding / sponsorship. The analysis shows that National Institute of Mental Health has funded 42 researches with national institute of health coming close with funding of 37 researches in this subject area.

The examination of published work reveals that not much collaborative work is being done. Very few institutes are doing collaborative research work. In respect of co-authorship analysis based on countries, the findings have
revealed that the UK, the USA, China, and Australia are among the top in the world ranking regarding research and collaborations with other countries. The findings have revealed that most of authors in this area of research are from developed countries as compared to developing countries. This shows a research gap on this topic in developing countries. Most important key words used are mental health, psychology, human, pandemic and female. The least utilised keyword in the network is life scale, hand sanitizer, partner violence, and internet based interventions. Sanky diagram also confirms the findings. Highly cited sources include International Journal of environmental research with maximum 117 documents with 4073 citations, followed by Frontiers in Psychology with 57 documents and 1849 citations and Frontiers in psychiatry with 40 documents and 552 citations.

An examination of the subtopics in this area that have gained maximum attention of the researchers reveals that a lot of work has been done on analysing effect of COVID 19 on male/female and aged people. However, effect of COVID 19 on children, children parent relation and university students has not got much attention. Therefore, research work in this direction should be undertaken in future. The present work is essentially exploratory in nature. It provides base for undertaking structured literature review based on shortlisted papers on different dimensions of effect of COVID on mental health such as analysing coping strategies adopted by people and effect of initiatives taken by government to ease economic burden on people and restore their mental peace. In fact it is very important to the research in this direction to make economies more resilient and stable.

6. References
22. Wang X, Xu Z, Skare M. A bibliometric analysis of economic research-ekonomiska Istra zivanja (2007-


