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# Global Research on Covid-19 Misinformation on Social Media: A Scientometric Assessment of Publications during 2020-21

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**This paper analyses global research publications (317 records) on the topic 'Covid 19 Misinformation on Social Media', based on bibliometric indicators, using Scopus database during 2020-21. The study has been undertaken with the aim to identify key countries, research organisations, and the authors leading the research in the subject. The study used VOSviewer software for mapping network interactions among the key countries and keywords co-occurrences. The results reveal that a 19.24% share of the total output appeared as sponsored research publications and a 80.76% share as regular research publications. A 5.75% share of the total output accounted for highly cited publications (60 to 257 citations per paper). A total of 317 research publications were contributed by 291 authors from 232 global organizations spread across 84 countries. The USA has emerged as the most productive country in the world with a 34.38% share, followed by UK (12.93%), India (9.15%) share. The top authors identified in terms of most research productivity hail from the USA, Sweden, and Jordan. 'Medicine' was the most preferred area of research studies on 'Covid - 19' misinformation. It accounted for a 65.93% share, followed by Social Sciences (15.46%), Computer Science (9.46%), etc. In addition, the study identified most productive journal titles and most cited journal titles in the subject.**

**Keywords**: *Covid 19, Misinformation, Social Media, Bibliometric analysis, Scientometric analysis.*

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## 1 INTRODUCTION

In post-Covid-19 outbreak in 2019, social media has become a platform for misinformation about corona virus conspiracies, vaccines roll out, health risks from vaccines, and preventative treatments. The uncertainty about the virus, its origin, and effective prevention and treatment strategies has contributed immensely to the diffusion of misinformation.

Though technology advancements and social media are known for their role to create opportunities to keep people safe, well informed and connected. However, the same tools now a days have become home grounds for misinformation that potentially undermine and frustrate the global response to the pandemic [1].Whenever any news about disease-outbreak grabs public attention, recommendations from medical experts are often muffled. Half-baked advice, sketchy remedies, and misguided theories begin to circulate rapidly as anxious people are in a rush to understand new health risks[2]. Fake news, fake cures, panic-ridden rumors and unreliable information on the social media are galore. Such an 'infordemic' [3] trend (overabundance in misinformation on virus) especially during pandemic times is certainly unethical and harmful; it is as much a threat to global public health as the virus itself. Misinformation makes it harder for people to find trustworthy and reliable information when they need it the most. The challenges for stakeholders responsible for public health management are how to address and resolve Covid 19 pandemic related misinformation, how to keep focus on real issues and problems, how to garner public support and acceptance for the treatment and management of infectious diseases. On the far end is extreme disinformation. Disinformation is when people purposely coordinate, share information that they know is false in an effort to scare people, gain money, power or reputation [4]. Misinformation is unintentionally false information, whereas disinformation is intentionally false or inaccurate information that is spread deliberately to deceive and mislead people [5].

Research is critical to contain and tackle 'infodemic' on virus. World Health Organization (WHO) has already created a shareable infographics ("mythbusters") that debunk specific myths about Covid-19 [3]. Research studies evaluating the efficacy of health organization websites designed to debunk misinformation are also underway [6]. More and more research studies on 'infordemic', its effects, and strategies are needed to tackle and contain its spread.

### 1.1 LITERATURE REVIEW

Although a number of bibliometric studies have been published on coronavirus in general and Covid-19 in particular, but only a few of these studies are related to "Covid-19 misinformation on social media"

Among studies related to "Covid-19 and social media", Vysakh and Babu[7] studied to what extent are COVID-19 articles (145 articles from 'Nature' journal) discussed in social media platforms during the deadly pandemic period were misinformation. Examined metrics from various social platforms and the results showed that Twitter was the major carrier of Covid-19 articles with total 143452

tweets followed by news media outlets with 5251 mentions. Articles are yet to penetrate social media platforms like Highlights, Wiki, Video uploading and F1000. Cinelli, Quattrociocchi, Galeazzi. et al [8]. The study analysed how the narratives and moods in social media related to the Covid-19 have evolved and how it spread on five social media platforms (Twitter, Instagram, YouTube, Reddit and Gab) during the COVID-19 outbreak. The data-set includes more than 8 million comments and posts over a time span of 45 days. Tsao, Chen, Tisseverasinghe, Yang, Li and Butt [9] examined empirical studies relating to Covid-19 and social media during the first outbreak from November, 2019 to November, 2020. From an analysis of 81 studies, the authors identified five over arching public health themes about the role of online social media platforms and Covid-19. These themes focused on: surveying public attitudes, identifying infodemics, assessing mental health, detecting or predicting Covid-19 cases, analysing government responses to the pandemic, and evaluating the quality of health information in prevention education videos.

Among studies related directly to "Covid-19 misinformation and social media", Gabarron, Oyeyemi and Wynn [10] reviewed 22 studies related to Covid- 19 and social media which dealt with misinformation, using different databases. The proportion of COVID-19 misinformation on social media ranged from 0.2% (413/ 212846) to 28.8% (194/673) of posts. Of the 22 studies, 11 did not categorise the type of Covid-19-related misinformation, nine described specific misinformation myths and two reported sarcasm or humour related to Covid-19. Only four studies addressed the possible consequences of Covid- 19-related misinformation. All studies reported that it led to fear or panic. Sixteen of the 22 studies proposed one or several ways of tackling Covid-19- related misinformation. The studies identified several Covid-19-related myths that were spread through social media but provided no clear evidence of the effects of this misinformation. Al-Zaman [11] analysed 9,657 pieces of misinformation that originated in 138 countries and fact-checked by 94 organisations. The study sought to understand the prevalence and sources of Covid-19 misinformation around the world. Three specific objectives of this study were: (i) to identify countries that are most affected by Covid-19 misinformation? (ii) to identify the sources producing most of the Covid-19 misinformation and (iii) to identify the dominant sources of misinformation in different countries. Pool, Fatehi and Akhaghpor [12] presented the concept mapping of infodemic literature and highlighted avenues for future directions. Using a visualization approach on a set of 414 records, a concept mapping was carried out. This map revealed 42 infodemic-related nodes in five clusters. The authors also proposed an infodemic research platform in which a combination of the research nodes (e.g., Covid, pandemic, disinformation, fake news, post-truth, fact-checking, social networks, Facebook, WhatsApp, and lockdown) with impactful questions suggestive of future directions.

Despite a rapidly growing interest in the topic of misinformation, only a few studies have sought to examine the scope of the problem, including why misinformation spreads fast, what is its impact and how best to tackle it. The best approach to document such sort of studies is to undertake a bibliometric study in this field with the objective to analyse the global literature characteristics, subject

scatter and identification of significant keywords as well as identify the major global players (countries, organisations, authors and journals) on this topic

## 2 METHODOLOGY

The data for the present study was sourced from the Scopus database (https://www.scopus.com). The kewords used for extracting data for the purpose included Covid-19, novel coronavirus, coronavirus 2019, coronavirus disease 2019, 2019-novel CoV, corona virus 2019, severe acute respiratory syndrome coronavirus 2, SARS-CoV-2, severe acute respiratory syndrome coronavirus 2, SARS-CoV-2, social, media, and misinformation. The keywords were searched on two metadata fields - Title, Keyword, while limiting the search output to select publication period 2020-21. Using this search strategy, the database returned a total of 317 records on the topic under study. The citations to publications under study were counted since their publication till 23.7.2021.

TITLE ( "Covid 19" or "2019 novel coronavirus" or "coronavirus 2019" or "coronavirus disease 2019" or "2019-novel CoV" or "2019 ncov" or covid 2019 or covid19 or "corona virus 2019" or ncov-2019 or ncov2019 or "nCoV 2019" or 2019-ncov or covid-19 or "Severe acute respiratory syndrome coronavirus 2" or "SARS-CoV-2" ) or KEY ( "Covid 19" or "2019 novel coronavirus" or "coronavirus 2019" or "coronavirus disease 2019" or "2019-novel CoV" or "2019 ncov" or covid 2019 or covid19 or "corona virus 2019" or ncov-2019 OR ncov2019 or "nCoV 2019" or 2019-ncov or covid-19 or "Severe acute respiratory syndrome coronavirus 2" or "SARS-CoV-2") and KEY ( social and media and misinformation ).

## 3 ANALYSIS AND RESULTS

### *31 OVERALL OUTPUT*

As seen from Scopus database, the global output on the topic "Covid-19 Misinformation on Social Media" comprised a total of 317 publications. Of these, 178 appeared in 2020 and 139 publications in 2021 (23.7.2021). During the period, these 317 publications accrued a total of 3102 citations, since their publication till July 2021, an average of 9.78 citations per publication.

The global output comprised 61 publications (a 19.24% share) as research output from sponsored research projects, and the rest of 256 publications appeared as unsponsored ones (a 80.76% share). During the period, sponsored research publications accrued 436 citations, an average of 7.15 citations per paper. The leading global funding agencies who sponsored research projects were — National Institute of Health, USA (7 papers), U.S. Department of Health & Human Sciences (5 papers), National Science Foundation, USA (5 publications), European Commission, Horizon 2020 Framework Program and National Institute of Drug Abuse (3 papers each), etc. Of the 258 total publications, articles contributed the largest share (48.58%), followed notes, reviews and letters (13.56%, 12.62% and 10.41%), editorials (8.83%), conference papers (3.15%), short surveys (2.21%) and book chapters ().63%).

## *32 TOP MOST PRODUCTIVE COUNTRIES*

84 countries contributed to global research on "Covid-19 Misinformation on Social Media". The distribution of 317 publications by country of origin is highly skewed. 64 countries contributed 1-5 papers each, 11 countries 6-10 papers each, 8 countries 11-50 papers each and only one country 109 papers. The top 10 countries individually contributed 10 to 109 papers and collectively contributed a 91.48% share of total output. The USA contributed the most publications, a 34.38% share, followed by U.K. (12.93%), India (9.15%), Australia (8.20%), Canada (6.54%), and the other five of top 10 countries countries contributed between 3.15% and 4.73% share. The research performance of top 10 countries was also evaluated on citation indicators. Five of top 10 countries registered their performance on 'citations per paper' and 'relative citation index' above the group average (11.20 CPP and 1.14 RCI respectively): Sweden (26.53 and 2.71(,U.K.( 16.85 and 1.72), Spain (16.55 and 1.69), Canada (13.5 and 1.38) and Italy (13.42 and 1.37).

**Table 1. Profile of Top 10 Most Productive Countries in Global Research on 'Covid-19 Misinformation on Social Media' during 2020-21**

| S. No. | Country | TP | TC | CPP | H-Index | ICP | %ICP | % TP | RCI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | USAs | 109 | 930 | 8.53 | 14 | 39 | 35.78 | 34.38 | 0.87 |
| 2 | U.K. | 41 | 691 | 16.85 | 10 | 21 | 51.22 | 12.93 | 1.72 |
| 3 | India | 29 | 193 | 6.66 | 7 | 7 | 24.14 | 9.15 | 0.68 |
| 4 | Australia | 26 | 277 | 10.65 | 8 | 16 | 61.54 | 8.20 | 1.09 |
| 5 | Canada | 22 | 297 | 13.50 | 8 | 16 | 72.73 | 6.94 | 1.38 |
| 6 | China | 15 | 65 | 4.33 | 4 | 8 | 53.33 | 4.73 | 0.44 |
| 7 | Sweden | 15 | 398 | 26.53 | 7 | 11 | 73.33 | 4.73 | 2.71 |
| 8 | Italy | 12 | 161 | 13.42 | 6 | 8 | 66.67 | 3.79 | 1.37 |
| 9 | Spain | 11 | 182 | 16.55 | 4 | 6 | 54.55 | 3.47 | 1.69 |
| 10 | Iran | 10 | 55 | 5.50 | 3 | 2 | 20.00 | 3.15 | 0.56 |
| | Total | 290 | 3249 | 11.20 | 7.1 | 134 | 46.21 | 91.48 | 1.14 |
| | Global Total | 317 | 3102 | 9.79 | | | | | |

**CPPP = Citations per paper, ICP = International collaborative papers, RCI = Relative citation index; TP = Total papers, TC = Total citations, CP**

CPPP = Citations per paper, ICP = International collaborative papers, RCI = Relative citation index; TP = Total papers, TC = Total citations, CP

## *321 COLLABORATIVE LINKAGES AMONG TOP 10 COUNTRIES*

The research collaboration among top 10 countries was evaluated on their published collaborative papers (linkages). The total collaborative linkages among top 10 countries for global research on "Covid-19 Misinformation on Social Media" varied from 2 to 50. The USA, U.K. and Australia rank in top 3 countries with most collaborative linkages (50, 34 and 25 respectively). Among country-to-country collaboration, USA-UK made the most collaborative linkages (12), followed by U.K.-Australia (8 linkages), USA-Australia and USA-China (7 linkages each), USA-

Canada and U.K.-Sweden (6 linkages each), etc.(Table 2).

**Table 2. Collaborative Research Output (Linkages) from Top 10 Countries in 'Covid-19 Misinformation on Social Media'during 2020-21**

| S.No | Name of the Country | Collaborative Linkages with other Top 10 Countries | Total Collaborative Linkages |
|---|---|---|---|
| 1 | USA | 2(12), 3(3), 4(7), 5(6), 6(7), 7(5), 8(5), 9(4), 10(1) | 50(9) |
| 2 | U.K. | 1(12), 3(1), 4 (8), 5(2), 7(6), 8(2), 9(3) | 34(7) |
| 3 | India | 1(3), 2(1), 4(1), 5(2), 7(1), 8(1), 10(1) | 10(7) |
| 4 | Australia | 1(7), 2(8), 3(1), 5(3), 6(1), 8(3), 9(1), 10(1) | 25(8) |
| 5 | Canada | 1(6), 2(2), 3(2), 4(3), 7(2), 8(3), 9(1) | 19(7) |
| 6 | China | 1(7), 4(1) | 2(2) |
| 7 | Sweden | 1(5), 2(6), 3(1), 5(2), 8(3), 9(1) | 18(6) |
| 8 | Italy | 1(5), 2(2), 3(1), 4(3), 5(3), 7(3), 9(1) | 18(7) |
| 9 | Spain | 1(4), 2(3), 4(1), 5(1), 7(1), 8(1) | 11(6) |
| 10 | Iran | 1(1),3(1), 4(1) | 3(3) |

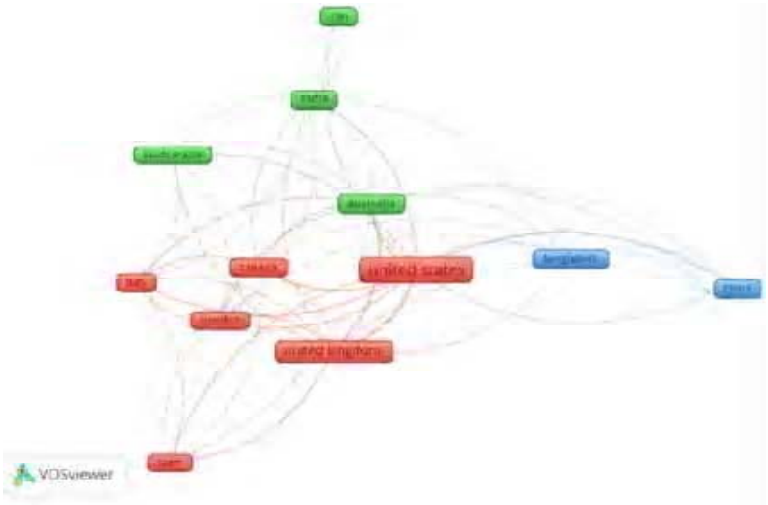


**Fig 1 : Collaborating Countries Network Map on Covid-19 Misinformation on Social Media**

A collaborative network map depicting collaboration among most productive countries on Covid-19 misinformation on social media is shown in Fig.1. The map is generated using VOSviewer software tool. Map shows most productive countries as nodes grouped into three clusters, involving 134 collaborative publications. The thickness of a linkage is in proportion to collaborative publications involved. The thickness of a node in is in proportion to the strength of collaborative output by the related country. As stated earlier the USA tops in most collaborative publications output.

## *33 SUBJECT-WISE DISTRIBUTION OF PUBLICATIONS*

The Scopus database grouped 317 publications on " Covid-19 Misinformation on Social Media" under 9 broad subject areas (Table 3). Medicine accounted for the most 65.93% share, followed by Social Sciences (15.46%), Computer Science (9.46%) and in other 6 subjects their share of output varied from 4.10% to 5.99%. The citation performance of research by subject area was evaluated on citation indicator. Immunology & Microbiology accounts for the most cited paper (15.84 CPP), followed by Medicine (12.09 CPP), Pharmacology, Toxicology & Pharmaceutics (10.41 CPP), etc.

**Table 3. Subject-Wise Distribution of Research Publications Output on 'Covid-19 Misinformation on Social Media'during 2020-21**

| S.No | Name of the Subject | TP | TC | CPP | %TP |
|---|---|---|---|---|---|
| 1 | Medicine | 209 | 2527 | 12.09 | 65.93 |
| 2 | Social Sciences | 49 | 318 | 6.49 | 15.46 |
| 3 | Computer Science | 30 | 118 | 3.93 | 9.46 |
| 4 | Immunology & Microbiology | 19 | 301 | 15.84 | 5.99 |
| 5 | Biochemistry, Genetics & Molecular Biology | 18 | 44 | 2.44 | 5.68 |
| 6 | Pharmacology, Toxicology & Pharmaceutics | 17 | 177 | 10.41 | 5.36 |
| 7 | Engineering | 14 | 22 | 1.57 | 4.42 |
| 8 | Environment Science | 13 | 103 | 7.92 | 4.10 |
| 9 | Psychology | 13 | 95 | 7.31 | 4.10 |
| | Global total | 317 | 3102 | 9.79 | |
| TP = Total papers, TC = Total citations, CPP = Citations per paper | | | | | |

## *34 KEYWORDS ANALYSIS*

Keywords used to index research papers also provide a secondary support to identify the ongoing research trends in a given subject area. In all, 44 significant keywords have been identified from the literature on "Covid-19 Misinformation on Social Media". These were ranked by frequency of their occurrence ranging from 9 to 306 times. 'Misinformation' as a keyword occurred 306 times, followed by Social Media (302), COVID-19 (299), pandemic (208), interpersonal communication (87), etc. (Table 4)

**Table 4. Significant Keywords on'Covid-19 Misinformation on Social Media'during 2020-21**

| S.No. | Keywords | TP | S.No | Keywords | TP | S.No | Keywords | TP |
|---|---|---|---|---|---|---|---|---|
| 1 | Misinformation | 306 | 16 | Anxiety | 31 | 31 | Health Care Policy | 21 |
| 2 | Social Media | 302 | 17 | Health Education | 32 | 32 | Fake News | 20 |
| 3 | COVID-19 | 299 | 18 | Quarantine | 33 | 33 | Health Behavior | 16 |
| 4 | Pandemic | 208 | 19 | Fear | 34 | 34 | Public Opinion | 16 |
| 5 | Interpersonal Communication | 87 | 20 | Mental Health | 26 | 35 | Mass Media | 15 |
| 6 | Virus Pneumonia | 85 | 21 | COVID-19 Vaccine | 26 | 36 | Public Health Messages | 14 |
| 7 | Public Health | 75 | 22 | Social Networks | 25 | 37 | Telemedicine | 14 |
| 8 | Information Dissemination | 67 | 23 | Twitter | 25 | 38 | Facebook | 12 |
| 9 | Medical Information | 67 | 24 | Health Care System | 24 | 39 | Consumer Health Information | 11 |
| 10 | Psychology | 44 | 25 | Mass Medium | 24 | 40 | Depression | 11 |
| 11 | Disinformation | 42 | 26 | Social Distancing | 24 | 41 | Social Isolation | 11 |
| 12 | Epidemiology | 40 | 27 | Social Networking (Online) | 23 | 42 | Anxiety Disorders | 11 |
| 13 | Infodemic | 39 | 28 | Vaccine Hesitancy | 23 | 43 | Deception | 9 |
| 14 | Internet | 35 | 29 | Antivaccination Movement | 22 | 44 | Social Psychology | 9 |
| 15 | Vaccination | 34 | 30 | Attitude to Health | 22 | 45 | | |

A network visualization map of most frequently occurring keywords on the topic of Covid-19 Misinformation on Social Media is shown in Fig.2. Map groups keywords in four clusters. Red cluster includes dominant keywords like misinformation, social media, coronavirus infection, pandemic etc. Green cluster includes Covid-19, infodemic, epidemiology. Blue cluster includes information dissemination, twitter etc. and Olive cluster includes keywords like vaccination, vaccine hesitancy etc.

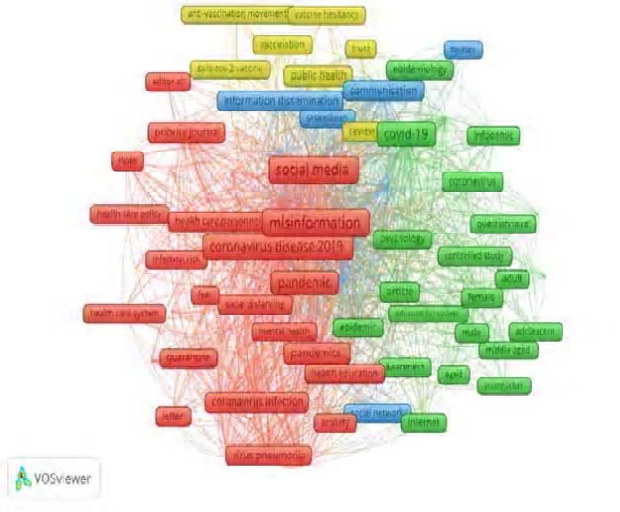


**Fig 2 Network Visualisation Map of Co-occurrence of Keywords**

## *35 PROFILE OF MOST PRODUCTIVE ORGANISATIONS*

Global research on 'Covid-19 Misinformation on Social Media' is scattered widely across a total of 232 research organisations that participated in the global research. The distribution of global research by research organisations is skewed. For instance, 111 organisations contributed 1 paper each, 76 organisations 2 papers each, 23 organisations 3 papers each, 15 organisations 4 papers each, 2 organisations 5 papers each and 5 organisations 6-9 papers each.

The top 30 organisations contributed a 39.75% share (126 papers), accrued 43.87% share (1361 citations) of total citations. Seven of the top 30 organisations contributed papers above their group average (4.2). Twelve organisations registered their citation performance as measured in terms of citations per paper and relative citation index, above their group average (10.80 and 1.10). Table 5 lists the top 7 most productive organisations, two each from the USA, UK, and Sweden and one from Canada. The Table also lists 7 most impactful organisations, three from the USA, two from the UK, and one each from Canada and Jordan.

**Table 5. Profile of Top 7 Most Productive and Most Impactful Organisations on 'Covid-19 Misinformation on Social Media' during 2020-21**

| S.No | Name of the Organis\ation | TP | TC | CPP | HI | ICP | % ICP | RCI |
|---|---|---|---|---|---|---|---|---|
| **Top 7 Most Productive Organisations** | | | | | | | | |
| 1 | University of Minnesota Twin Cities, USA | 9 | 59 | 6.56 | 3 | 0 | 0.00 | 0.67 |
| 2 | University of Pennsylvania, USA | 6 | 73 | 12.17 | 2 | 1 | 16.67 | 1.24 |
| 3 | Karolinska Institute, Sweden | 6 | 39 | 6.50 | 3 | 6 | 100.00 | 0.66 |
| 4 | University of Oxford, U.K. | 6 | 13 | 2.17 | 3 | 2 | 33.33 | 0.22 |
| 5 | Lund University, Sweden | 6 | 100 | 16.67 | 4 | 3 | 50.00 | 1.70 |
| 6 | Imperial College London, U.K. | 5 | 121 | 24.20 | 1 | 2 | 40.00 | 2.47 |
| 7 | University of Alberta, Canada | 5 | 10 | 2.00 | 2 | 3 | 60.00 | 0.20 |
| **Top 7 Most Impactful Organisations** | | | | | | | | |
| 1 | Newcastle University, U.K. | 4 | 136 | 34.00 | 2 | 4 | 100.00 | 3.47 |
| 2 | Harvard University, USA | 4 | 134 | 33.50 | 3 | 2 | 50.00 | 3.42 |
| 3 | Imperial College London, U.K. | 5 | 121 | 24.20 | 1 | 2 | 40.00 | 2.47 |
| 4 | Organisation Mondiale de la Sante, Canada | 4 | 95 | 23.75 | 3 | 4 | 100.00 | 2.43 |
| 5 | John Hopkins Bloomerg School of Public Health, USA | 3 | 66 | 22.00 | 1 | 1 | 33.33 | 2.25 |
| 6 | John Hopkins University, USA | 4 | 86 | 21.50 | 3 | 1 | 25.00 | 2.20 |
| 7 | Jordan University Hospital | 4 | 83 | 20.75 | 3 | 3 | 75.00 | 2.12 |
| **TP = Citations per paper, ICP = International collaborative papers, RCI = Relative citation indexTP = Total papers, TC = Total citations, CPP = Citations per paper** | | | | | | | | |

## *36 PROFILE OF MOST PRODUCTIVE AUTHORS*

The distribution of 317 publications on 'Covid-19 Misinformation on Social Media' by 291 research authors is widely scattered. For instance, 235 authors contributed 1 paper each, 46 authors 2 papers each, 8 authors 3 papers each and, 2 authors 4 paper each. The top 30 of total 291 authors individually contributed merely 2 to 4 papers each and together contributed a 22.71% publications share (72) and a 34.24% (1062) citations share. Table 6 lists the top 7 most productive authors, two each are from the USA and Jordon, one each from the UK, Sweden, Canada. Table 6 also lists7 most impactful authors, three are from Jordon, one each from the USA, the UK, Sweden, and Canada.

**Table 6. Top 7 Most Productive Authors and Top 7 Most Impactful Authors on 'Covid-19 Misinformation on Social Media'during 2020-2021**

| S.No | Name of the Author | Affiliation of the Author | TP | TC | CPP | HI | ICP | %ICP | RCI |
|---|---|---|---|---|---|---|---|---|---|
| **Top 7 Most Productive Authors** | | | | | | | | | |
| 1 | L. Bode | University of Minnosota Twin Cities, USA | 4 | 21 | 5.25 | 2 | 0 | 0.00 | 0.54 |
| 2 | E.K. Vraga | University of Minnosota Twin Cities, USA | 4 | 26 | 6.50 | 2 | 0 | 0.00 | 0.66 |
| 3 | N.A. Ababneh | Lund University, Sweden | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 4 | Aman. Al-Haidar | University of Jordan, Amman, Jordan | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 5 | F.G.Bakri | Jordan University Hospital, Scho ol of Medicine, Jordan | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 6 | D. Dababseh | Jordan University Hospital, Jordan | 3 | 8 | 2.67 | 3 | 3 | 100.00 | 0.27 |
| 7 | B.Godman | University of Strathclyde, U.K. | 3 | 34 | 11.33 | 3 | 3 | 100.00 | 1.16 |
| **Top 7 Most Impactful Authors** | | | | | | | | | |
| 1 | W.Ahmed | Newcastle University, U.K. | 2 | 136 | 68.00 | 2 | 2 | 100.00 | 6.95 |
| 2 | S.Briand | Organisation Mondiale de la Sante, Canada | 2 | 68 | 34.00 | 1 | 2 | 100.00 | 3.47 |
| 3 | A.Gruzd | University of MInnosota Twin Cities, USA | 2 | 68 | 34.00 | 1 | 0 | 0.00 | 3.47 |
| 4 | N.A. Ababneh | Lund University, Sweden | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 5 | Aman. Al-Haidar | University of Jordan | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 6 | F.G.Bakri | Jordan University hospital, school OF Medicine | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| 7 | A.Mahafzah | University if Jordan, School of Medicine | 3 | 81 | 27.00 | 3 | 3 | 100.00 | 2.76 |
| **TP = Citations per paper, ICP = International collaborative papers, RCI = Relative citation indexTP = Total papers, TC = Total citations, CPP - Citations per Paper** | | | | | | | | | |

## *37 PROFILE OF TOP 15 JOURNALS*

Of the total 317 global publications on 'Covid-19 Misinformation on Social Media', 305 appeared asarticles across 160 journal titles, 7 in conference proceedings and 5 in book series. The literature on the subject is widely scattered across 160 journals. Of the 160 journal titles, 113 contributed 1 paper each, 26 journals 2 papers each, 11 journals 3 papers each, 4 journals 4-5 papers each and 6 journals 6-25 papers each. Top 15 journal titles s accounted for a 32.13% share (Table 7).

The top 5 most productive journals in the subject are - *Medical Internet Research* (25 papers), *BMJ* (13 papers), *International Journal of Environmental Research & Public Health* (9 papers), *EMBO Reports* (7 papers) and *JAMA. Journal of the American Medical Association* (6 papers). The top five most cited journals are — *Journal of Travel Medicine*(97.0 CPP), *The Lancet* (33.2 CPP), *JAMA. Journal of the American Medical Association* (23.17 CPP), *Journal of Medical Internet Research* (15.96CPP) and *Media & Communication* (14.67 CPP).

**Table 7. Profile of top 15 Journals on 'Covid-19 Misinformation on Social Media' during 2020-21**

| S.No | Name of the Journal | TP | TC | CPP |
|---|---|---|---|---|
| 1 | Journal of Medical Internet Research | 25 | 399 | 15.96 |
| 2 | BMJ | 13 | 86 | 6.62 |
| 3 | International Journal of Environmental Research & Public Health | 9 | 71 | 7.89 |
| 4 | EMBO Reports | 7 | 12 | 1.71 |
| 5 | JAMA. Journal of the American Medical Association | 6 | 139 | 23.17 |
| 6 | PLOS One | 6 | 39 | 6.50 |
| 7 | The Lancet | 5 | 166 | 33.20 |
| 8 | International Journal of Research in Pharmaceutical Sciences | 4 | 21 | 5.25 |
| 9 | JMIR Public Health & Surveillance | 4 | 1 | 0.25 |
| 10 | Vaccines | 4 | 49 | 12.25 |
| 11 | American Journal of Medicine | 3 | 8 | 2.67 |
| 12 | Chiropractic & Manual Therapies | 3 | 10 | 3.33 |
| 13 | International Psychogeriatrics | 3 | 11 | 3.67 |
| 14 | Journal of Travel Medicine | 3 | 291 | 97.00 |
| 15 | Media & Communication | 3 | 44 | 14.67 |
| | Total of top 15 journals | 98 | 1347 | 13.74 |
| | Global total | 305 | | |
| | Share of top 15 journals in global total | 32.13 | | |

## *38 HIGHLY CITED PAPERS*

Out of 317 publications on 'Covid-19 Misinformation on Social Media', only 18 publications (a 5.75% share, assumed here as highly cited papers) received 60 to 257 citations per paper since their publication. Together these publications received 1682 citations, an average of 93.44 citations per paper. Amongst 18 highly-cited papers, 12 received 60 to 94 citations, 5 received 101-125 citations and 1 paper alone received 257 citations.

Among 18 highly cited papers, the USA contributed the most HCPs (5), followed by Canada and U.K. (3 papers each), Bangladesh and Thailand (2 papers each) and 1 paper each by 16 other countries. 81 authors from 63 organisations contributed 18 highly cited papers (10 articles, 2 each as reviews, letters and notes and editorial

and short surveys). Of these, 8 were non-collaborative papers and 10 appeared as collaborative papers (3 national collaborative and 7 international collaborative)

The 18 highly cited publications appeared in 14 journals. Four HCPs appeared in *Journal of Medical Internet Research*, 2 papers in the *Lancet* and 1 paper each in 12 other journals, namely *American Journal of Tropical Medicine & Hygiene, BMC Medicine, European Journal of Clinical Nutrition, European Journal of Epidemiology, European Journal of Information System, European Journal of Obstetrics and Gynecology and Reproductive Biology, Human Vaccine & Immnunotherapeutics, JAMA-Journal of the American Medical Association, Journal of Preventive Medicine & Public Health, Journal of Travel Medicine, Lancet Digital Health and Social Science & Medicine.*

## 4 SUMMARY

This study provides a bibliometric description of research publications on "Covid-19 Misinformation on Social Media" published during 2020-21, The data for the study comprised 317 publications and it was sourced from Scopus database. The results reveal that "Covid-19 Misinformation on Social Media" is though a hot area of research but it did not receive an active support from global research funding agencies. Just a small 19.24% share of the total output accounted for sponsored research publications whereas bulk of the output, a 80.76% share, appeared as regular research publications. The citation performance of the global research was not found to be very significant. Only a small 5.75% share of the total output accounted for high citations (60 to 257 citations), besides citation performance of the global output in overall was also not very significant, just 9.78 citations per paper. The global research publications output on COVID 19 misinformation was contributed by 291 authors from 232 global organizations spread across 84 countries. Their average productivity was 1.36 publication per organisation and 1.08 publications per author. The USA emerged as the home ground for most productivity, a 34.38% share, followed by UK (12.93%), India (9.15%) share. The key research organizations in terms of most research productivity were mainly from the USA, UK, and Sweden, and top authors in terms of most productivity were from the USA, Sweden, and Jordan. Organizations such as Newcastle University, U.K., Harvard University, Imperial College London, U.K., Organisation Mondiale de la Sante, Canada, and John Hopkins Bloomerg School of Public Health, USA were the most cited ones. In addition, authors such as W.Ahmed (Newcastle University, U.K.), S.Briand (Organisation Mondiale de la Sante, Canada), A.Gruzd (University of MInnosota Twin Cities, USA) and N.A. Ababneh (Lund University, Sweden) were the most cited authors. "Medicine" was the hot most area of research studies on 'COVID 19' misinformation. It accounted for the most 65.93% share, followed by Social Sciences (15.46%), Computer Science (9.46%), etc. Research journals such as *Journal of Travel Medicine, The Lancet, JAMA. Journal of the American Medical Association, Journal of Medical Internet Research* and *Media & Communication* were found as the most cited journals in the subject .

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