

Covid-19 and Psychology: A Scientometric Assessment of India's Publications during 2020-21

Sandeep Grover^{1,*}, BM Gupta², Madhu Bansal³, K.K. Mueen Ahmed⁴

ABSTRACT

Objectives: The present study examines the publication output of authors from India on the topic of "Covid-19 and Psychology" using bibliometric methods. **Methods:** The publications as listed in Scopus database were identified by using "Covid-19" and its synonyms keywords in "Keyword" and "Title" tags. The results obtained were further restricted to subject "Psychology" under subject tag and country to India. **Results:** 372 publications emerged in the last 2 years on the topic of "Covid-19 and Psychology," accounting to 4.63% share of global output. About 9.95% and 25.81% share of Indian publications received external funding support and involved international collaboration, respectively. The author's from 277 organizations and 416 authors participated unevenly in the research in this area. The highest number of publications emerged from National Institute of Mental Health and Allied Sciences (NIMHANS), Bangalore, followed by Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, All India Institute of Medical Sciences (AIIMS), New Delhi and All India Institute of Medical Sciences (AIIMS), Bhubaneswar. Authors from Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry had highest impact in terms of citations per paper and relative citation index, followed by authors from King George's Medical University (KGMU), Lucknow, and Manipal Academy of Higher Education (MAHE), Manipal. The journals that published the highest number of publications were *Asian Journal of Psychiatry* (158 papers), *Indian Journal of Psychological Medicine* (44 papers), and *Frontier in Psychology* (18 papers). The most commonly investigated topics in terms of frequency of appearances of keywords were mental health (93), followed by anxiety (80), mental disease (68), depression (64), mental stress (34), and social isolation. **Conclusion:** Over the last 2 years a large number of publications have emerged in the area of COVID-19 and psychology from India.

Keywords: Covid-19, Psychology, India, Bibliometrics, Scientometrics.

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INTRODUCTION

Covid-19 pandemic has affected mentally almost all human beings. It has led to significant negative mental health impact on the population in general and more so in those who have suffered from the infection and those caring for patients with Covid-19. The publications on the psychological impact of the pandemic have been evaluated by using bibliometrics in some of the studies and these suggest that over the time period a significant amount of literature has emerged from different countries.¹⁻² These publications suggest that initially most of the literature has emerged from China. Although some of the bibliometric studies from India have focused on the research on mental health³⁻⁵ and sleep disorder,⁶ none of the bibliometric study has focused on the publications emerging from India on the topic of "Covid-19 and Psychology". In this background the present study aims to assess the Indian research on "Covid-19 and Psychology", based on quantitative and qualitative indicators. The main focus of the study was to assess the publications output from India on

this topic, in terms of overall aspects such as its global share, citation impact, extent of funded research and international collaborations, leading Indian organizations, authors and their collaborative linkages, leading journals publishing papers on this topic and characteristics of high-cited papers.

METHODOLOGY

Publications as listed in the Scopus database (<https://www.scopus.com>), with at least one author from India and addressing the issues of 'Covid-19 and Psychology' were identified, retrieved and downloaded using a well-defined search strategy. The search strategy used a set of keywords related to Covid-19 in field tags, "Keyword" or "Title" (Article Title) for the search and retrieval, and subsequently the search was limited to publication years 2020-2021. The search was finally restricted to subject "Psychology" in subject tag. The initial search on the topic yielded 8035 global records and, when the same was restricted to India, the

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total numbers of publications were 372. The analytical provisions as provided in the Scopus database were utilized to ascertain the distribution of publications by broad subject areas, collaborating countries, contributing authors, affiliating organizations and the journals in which the articles were published. The citations to publications were counted from date of their publication till 29.10.2021. The study used metrics and indicators to quantify and evaluate the performance of the most productive organizations, authors and journals. To evaluate and visualize the collaborative interaction among most productive countries, organizations, authors and keywords, VOSviewer and biblioshiny app for bibliometrix were used.

RESULTS

Top 10 Countries

The global output on “Covid-19 and Psychology” comprised of 8035 publications. Among these publications, majority of the publications emerged from top 10 countries, which were cited 90939 times and these figures constituted 88.16% share of the total publications and more than 100.0% share of total citations. On further analysis, it was observed that only three countries contributed publications more than the average group productivity (708.4) and these included USA (2586 publications, 32.18% share), U.K.(877 publications and 10.91% share) and China (742 publications and 9.23% share). Five countries registered citations per paper (CPP) and relative citation index (RCI) above the group average (1080 and 0.95) of top ten countries, with Canada (16.42 and 1.45), Australia (15.11 and 1.33), U.K. (14.81 and 1.31), India (12.16 and 1.07), China (11.85 and 1.05) and Brazil (11.08 and 0.98) at the top (Table 1).

Publications from India

Of the 8035 global publications, only 372 (4.63%) publications had one author from India. These publications received 4525 citations, averaging 12.16 CPP.

Of the 372 publications from India, only 37(9.95%) received external funding support. The publications based on funding had received 123 citations, averaging 3.32 CPP. The major funding agencies supporting India's research on “Covid-19 and Psychology” were Department of Biotechnology, India (3 papers), Japanese Society for the Promotion

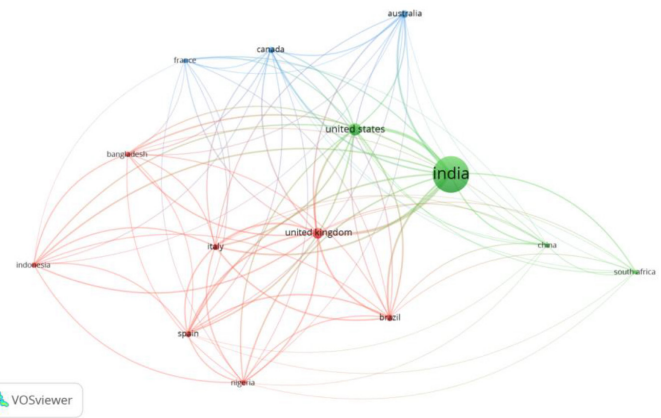


Figure 1: Co-authorship Collaboration Network of India with Other Countries. Figure 1 depicts India's collaboration network with other countries. Different clusters show the countries which have collaborated with each other and India. Red cluster includes countries like Bangladesh, Brazil, Indonesia, Nigeria, Spain and U.K. Green cluster includes USA and China. Blue cluster includes Australia and Canada. All these countries have collaborated with authors from India but in different degrees.

of Science (3 papers), National Institute of Health, USA (3 papers), Department of Biotechnology, West Bengal (2 papers), National Institute of Health Research (2 papers), National Institute of Mental Health (2 papers), etc. Of the 372 publications, articles constituted the largest publication share (51.61%), followed by letters (39.52%), reviews (4.57%), editorials (2.69%), notes (0.34%) and erratum (0.27%).

Of the 372 publications from India 96 (25.81%) were published as international collaborative publications (ICP). These ICP received 651 citations, averaging 6.78 CPP. Among India's ICPs, USA contributed the largest publication share (42.71%), followed by U.K. (31.25%), Brazil (15.62%), Australia and Spain (12.5% each), Indonesia and Nigeria (10.42% each), and Bangladesh and Canada (9.375 each). In terms of research impact per paper of foreign collaborative partners in India's ICP, Indonesia registered the largest impact (16.1), followed by Spain (10.25), Italy (9.91), U.K. (9.57), Nigeria (9.3), Bangladesh (6.79), Australia (6.25), USA (5.93) and Canada (5.44) (Figure 1).

Significant Keywords

The 82 significant keywords (with frequency of appearance varying from 2 to 281) were identified from the Indian literature on this topic, which independently or in combination with other keywords. These keywords provide meaningful hints on the trends of research on his theme. The most frequently used keywords were mental health (with frequency of appearances as 93), followed by Anxiety (80), Mental Disease (68), Depression (64), Mental Stress (34), and Social isolation (29) (Table 2 and Figure 2).

Profile of Top 20 Organizations

Overall authors from 277 organizations participated unevenly on “Covid-19 and Psychology”. A majority of the publications emerged from authors belonging to 20 organizations only and they together contributed 247 papers and 3834 citations, constituting 66.4% share of Indian publications and 84.73% share of Indian citations. On further analysis, it was observed that four organizations contributed papers higher than the group average (12.35) of top 20 organizations, with 61 publications emerging from National Institute of Mental Health and Allied Sciences (NIMHANS), Bangalore, 37 papers emerging from Postgraduate Institute of Medical Education and Research (PGIMER),

Table 1: Profile of Top 10 Countries in Global Output in “Covid-19 and Psychology”

S. No.	Country	TP	TC	CPP	RCI	%TP
1	USA	2586	20816	8.05	0.71	32.18
2	U.K.	877	12992	14.81	1.31	10.91
3	China	742	8789	11.85	1.05	9.23
4	Italy	618	6406	10.37	0.92	7.69
5	Spain	443	4128	9.32	0.82	5.51
6	Canada	440	7224	16.42	1.45	5.48
7	Australia	400	6042	15.11	1.33	4.98
8	Germany	377	3062	8.12	0.72	4.69
9	India	372	4525	12.16	1.07	4.63
10	Brazil	229	2538	11.08	0.98	2.85
	Total	7084	76522	10.80	0.95	88.16
	Global Total	8035	90939	11.32	1.00	

TP: total Publications; TC: Total Citations; CPP: Citations per paper; RCI: Relative Citation Index; %TP: percentage of total publications

Table 2: List of Significant Keywords appearing in Literature on “Covid-19 and Psychology”.

S.No	Name of the keyword	Frequency	S.No	Name of the keyword	Frequency	S.No	Name of the keyword	Frequency
1	Covid-19	281	29	Psychiatry	16	57	Burnout	6
2	Pandemic	154	30	Sleep Disorder	16	58	Fatigue	6
3	Mental Health	93	31	Psychological Stress	16	59	Psychological Re-silience	5
4	Psychology	82	32	Social Psychology	14	60	Autism	5
5	Anxiety	80	33	Social Support	14	61	Alcoholism	5
6	Mental Disease	68	34	Comorbidity	14	62	Buprenorphine	5
7	Depression	64	35	Distress Syndrome	13	63	Delirium	5
8	Quarantine	44	36	Psychosocial Care	13	64	Yoga	5
9	Mental Health Service	37	37	Psychotherapy	13	65	Neuroleptic Agents	4
10	Fear	35	38	Hand washing	12	66	Opiate Addiction	4
11	Mental Stress	34	39	Loneliness	12	67	Sleep Walk Disorder	4
12	Social Distancing	34	40	Panic	11	68	Social Behavior	4
13	Lockdown	31	41	Post-traumatic Stress	10	69	Paranoia	3
14	Social Isolation	29	42	Isolation	9	70	Perceived Stress	3
15	Risk Factor	29	43	Psychological Aspects	9	71	Cerebrovascular Accident	3
16	Telemedicine	28	44	Psychosis	9	72	Sadness	3
17	Psychological Wellbeing	27	45	Social Stigma	9	73	Social Stress	3
18	Social Media	24	46	Psychological Adaptation	9	74	Headache	3
19	Suicide	22	47	Risk Assessment	9	75	Tachypnea	3
20	Tele- psychiatry	21	48	Anger	8	76	Tobacco Dependence	3
21	Stress	19	49	Hypertension	8	77	Neurodevelopment Disorders	2
22	Domestic Violence	19	50	Suicidal Behavior	8	78	Opiate Related Disorders	2
23	Tele-consultation	19	51	Emotion	7	79	Alzheimer's Disease	2
24	Vulnerable Population	19	52	Insomnia	7	80	Clinical Psychology	2
25	Stigma	17	53	Schizophrenia	7	81	Seizure	2
26	Communicable Disease	17	54	Social Discrimination	7	82	Smoking	2
27	Copying Behavior	16	55	Social Interaction	7	83		
28	Drug Dependence	16	56	Alcohol Consumption	6	84		

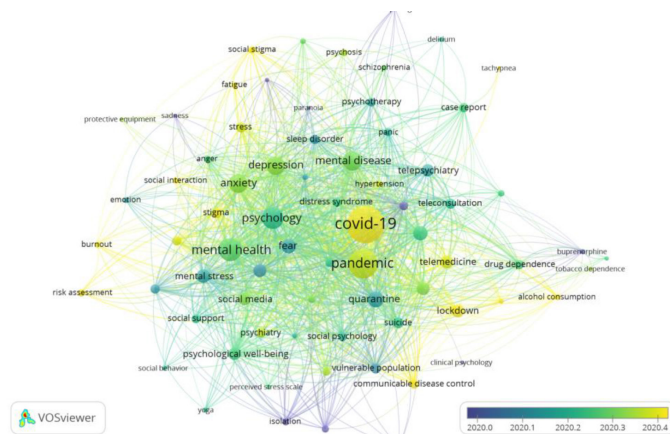


Figure 2: Co-occurrence Network of Significant Keywords from India on “ Covid-19 and Psychology”. Figure 2 presents co-occurrence network of significant 82 keywords, which are arranged in six clusters, having 1474 links and total link strength of 6206. Closely aligned keywords are arranged in a cluster.

Chandigarh, and 20 each publication with at least one author from All India Institute of Medical Sciences (AIIMS), New Delhi and All India Institute of Medical Sciences (AIIMS), Bhubaneswar. Five organizations had CPP and RCI above the group average (15.52 and 1.28) for top 20 organizations and these included Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry (72.44 and 5.96), King George’s Medical University (KGMU), Lucknow (51.31 and 4.22), Manipal Academy of Higher Education (MAHE), Manipal (24.0 and 2.80), University of Gour Banga, West Bengal (31.6 and 2.6) and B K L Walawalkar Rural Medical College, Ratnagiri, Maharashtra (16.0 and 1.32) (Table 3).

Collaboration among Top 20 Organizations

Except for 4 organizations, all other 16 organizations had one to one collaborative linkages among themselves. Their total collaborative linkages varied from 1 to 16 and the individual collaborative linkages varied from 1 to 5. Among these 20 organizations, the largest numbers of linkages were seen for AIIMS, Bhubaneswar (16), NIMHANS, Bangalore (15) and JIPMER, Pondicherry (13). Among organization to organization linkages, the largest number of collaborative linkages were between

Table 3: Top 5 Most Productive and Most Impactful Organizations on "Covid-19 and Psychology".

S.No	Name of the Organization	TP	TC	CPP	HI	ICP	% ICP	RCI
Top 5 Most Productive Organizations								
1	National Institute of Mental Health and Allied Sciences (NIMHANS), Bangalore	61	565	9.26	10	5	8.20	0.76
2	Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh	37	514	13.89	10	6	16.22	1.14
3	All India Institute of Medical Sciences (AIIMS), New Delhi	20	80	4.00	5	3	15.00	0.33
4	All India Institute of Medical Sciences (AIIMS), Bhubaneswar	20	80	4.00	5	3	15.00	0.33
5	Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry	16	1159	72.44	5	3	18.75	5.96
Top 5 Most Impactful Organizations								
1	Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry	16	1159	72.44	5	3	18.75	5.96
2	King George's Medical University (KGMU), Lucknow	13	667	51.31	6	4	30.77	4.22
3	Manipal Academy of Higher Education (MAHE), Manipal	5	170	34.00	4	0	0.00	2.80
4	University of GourBanga, West Bengal	5	158	31.60	3	0	0.00	2.60
5	B K L Walawalkar Rural Medical College, Ratnagiri, Maharashtra	6	96	16.00	3	4	66.67	1.32

TP: total Publications; TC: Total Citations; CPP: Citations per paper; HI: *h*-Index; RCI: Relative Citation Index; ICP: International collaboration papers; % ICP: percentage of international collaboration papers

Table 4: Collaborative Linkages among Top 20 Organizations.

S.No	Name of the organization	Collaborative linkages with other organizations	TCL (NOO)
1	National Institute of Mental Health and Allied Sciences (NIMHANS), Bangalore	2(1), 5(1), 9(2), 10(4), 15(1), 17(1), 18(3), 20(2)	15(8)
2	Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh	1(1), 3(1), 4(5)	7(3)
3	All India Institute of Medical Sciences (AIIMS), New Delhi	2(1), 4(2), 10(1), 20(1)	5(4)
4	All India Institute of Medical Sciences (AIIMS), Bhubaneswar	2(5), 3(2), 5(7), 6(1), 9(1),	16(5)
5	Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry	1(1), 4(7), 6(3), 9(2)	13(4)
6	King George's Medical University (KGMU), Lucknow	4(1), 5(3), 9(2)	6(3)
7	Christ University, Bangalore	Nil	Nil
8	University of Delhi	15(1)	1(1)
9	B K L Walawalkar Rural Medical College, Ratnagiri, Maharashtra	1(2), 4(1), 5(2), 6(2), 10(3), 13(1), 20(2)	13(7)
10	Lady Harding Medical College (LHMC), New Delhi	1(4), 3(1), 9(3), 17(1), 20(2), 13(1)	12(6)
11	Banaras Hindu University, Varanasi	Nil	Nil
12	Vellore Institute of Technology	Nil	Nil
13	Central Institute of Psychiatry (CIP), Ranchi	9(1), 10(1)	2(2)
14	Manipal Academy of Higher Education (MAHE), Manipal	Nil	Nil
15	Tata Institute of Social Sciences (TISS), Mumbai	1(1), 8(1)	2(1)
16	O.P.Jindal Global University, Sonapat, Haryana	Nil	Nil
17	All India Institute of Medical Sciences (AIIMS), Raipur	1(1), 10(1), 18(1), 20(1)	4 (1)
18	JSS Academy College and Hospital, Mysore	1(3), 17(1)	2 (2)
19	University of GourBanga, West Bengal	Nil	Nil
20	JawarharLal Nehru Memorial Hospital, Aligarh	1(2), 3(1), 9(2), 10(2), 17(1), 20(2)	5 (2)

TCL=Total collaborative linkages; NOO=Number of organizations

AIIMS, New Delhi and JIPMER, Pondicherry (7 linkages), followed by PGIMER, Chandigarh and AIIMS, Bhubaneswar (5 linkages)(Table 4).

Profile of Top 20 Authors

All the publications from India included 416 authors, with majority of the authors contributing to 1-5 papers each. Only 12 authors had

6-10 papers each and 5 authors' published 11-22 papers each. The top 20 authors individually contributed 5 to 22 papers each and together contributed to 192 papers and 2436 citations, constituting 51.61% and 53.83% share in India's total publications and citations respectively. On further analysis, it was observed that nine authors contributed papers higher than their group average (9.96) of top 20 authors. Four authors

registered CPP and RCI above the group average (12.69 and 1.04) for the top 20 authors (Table 5).

Profile of Top 20 Journals

The publications with one author from India, in the area of "Covid-19 and Psychology" were published across 87 journals. Among 87 journals, 78 journals published 1-5 papers each, 5 journals 6-10 papers each, 2 journals 11-20 papers and 2 journals 44-158 papers each. The top 20 journals contributed 2 to 158 publications each and together published 299 papers, that were cited 4290 times, constituting 80.38% share and 94.81% share of India's total publications and citations respectively. On further analysis it was found that: (i) the top 8 most productive journals were *Asian Journal of Psychiatry* (158 papers), *Indian Journal of Psychological Medicine* (44 papers), *Frontier in Psychology* (18 papers), and *Children and Youth Services Review* (11 papers). The top 8 journals in terms of CPP were *Asian Journal of Psychiatry* (23.91), *Children and Youth Services Review* (18.0), *Lancet Child and Adolescent Health* (9.33), *International Psychogeriatrics* (8.0), *Psychological Trauma Theory Research Practice and Policy* (4.75), *Technological Forecasting and Social Change* (4.50) and *Frontiers in Psychology* (3.0) (Table 6).

High Cited Papers

Of the 372 papers, only 24 (6.45%) papers received 30 citations or more (assumed here as high-cited) and they together received 3285 citations, averaging 136.87 CPP (Table 7). Many of these papers were international collaborative papers. In terms of type of publications, 12 of these 24 publications were articles, 11 were letter to the editor and 1 was an editorial. More than half (14) of the highly cited papers were non-collaborative papers and only 10 papers involved 2 or more organizations (3 national collaborative and 7 international collaborative).

DISCUSSION

Among the various infectious diseases, Covid-19 pandemic has possibly emerged as the one of the most devastating pandemic in the recent times. It led to lockdown in most of the countries. It negatively impacted the mental health of each and everyone in one or the other way¹. Considering the pandemic as an ongoing crisis, it is important to understand how the pandemic has affected the psychology of the human beings across different countries and cultures. Accordingly this paper

analyzes the research output on the topic of "Covid-19 and Psychology" emerging from India using a bibliometric method.

Our findings suggest that 4.63% share to global research output (8035 papers) on the topic, emerged from India, with an average citation impact of 12.16 CPP. Overall India was ranked in the ninth position in the world research output on the topic of "Covid-19 and Psychology". However, when one compare the CPP of publications from India with publications emerging from other countries, India was ranked at third place, suggesting that publications from India received more number of citations compared to those emerging from other developed countries.

Of the 372 publications with one of the author from India, 25.81% were published as international collaborative publications suggesting that pandemic possibly led to significant increase in the international collaboration between the authors. This could be attributed to possibly due to writing view points and commentaries on various topics, which did not require ethical clearance. Other possible reasons for this could include frequent online webinars during the pandemic, which provided opportunity to the researchers to interact with each other more freely than even before. Additionally, carrying out multicentric, multi-country online surveys also possibly contributed to the increased collaboration.

Of the 372 India's publications, only 37(9.95%) received external funding support. This suggests that despite lack of funding support, many of the authors from India, made contribution to the enhancement of knowledge in this area. Of the 372 publications, articles constituted the largest publication share (51.61%), followed by letters (39.52%), reviews (4.57%), editorials (2.69%), notes (0.34%) and erratum (0.27%). A significantly higher proportion of publications being letter to the editor possibly reflect the policy of many leading journals which encouraged sharing of viewpoints and case descriptions in order to help clinicians across the globe to fight the ongoing pandemic. The most frequently used keywords in this area of research included mental health, followed by anxiety, mental disease, depression, mental stress, and social isolation. When one attempts to interpret closely the frequency of commonly used key words, it is evident that majority of the research focused on the negative impact of the pandemic, rather than positive aspect of the pandemic.

The present bibliometric study also suggests that the research from India was not limited to a few centres only. Overall authors from 277 organizations participated unevenly on this topic. Although a majority

Table 5: Profile of Top 5 Most Productive and Most Impactful Authors on "Covid-19 and Psychology".

S.No	Name of the author	Affiliation of the author	TP	TC	CPP	HI	ICP	%ICP	RCI
Top 5 Most Productive Authors on "Covid-19 and Psychology"									
1	S. Grover	PGIMER, Chandigarh	22	254	11.55	9	2	9.09	0.95
2	A. Mehra	PGIMER, Chandigarh	20	246	12.30	9	2	10.00	1.01
3	S. Sahoo	PGIMER, Chandigarh	20	246	12.30	9	2	10.00	1.01
4	S.K. Padhy	AIIMS, Bhubaneswar	12	65	5.42	5	1	8.33	0.45
5	V. Menon	JIPMER, Pondicherry	11	49	4.45	4	2	18.18	0.37
Top 5 Most Impactful Authors on "Covid-19 and Psychology"									
1	S.K.Kar	KGMU, Lucknow	10	632	63.20	4	4	40.00	5.20
2	D. Banerjee	NIMHANS, Bangalore	10	309	30.90	6	2	20.00	2.54
3	S.S. Chatterjee	NIHMANS, Bangalore	6	119	19.83	5	3	50.00	1.63
4	S. Chakrabarti	PGIMER, Chandigarh	6	118	19.67	3	0	0.00	1.62
5	R. Ransing	B K L W.Rural Medical College, Ratnagiri, Maharashtra	10	124	12.40	4	5	50.00	1.02

TP: total Publications; TC: Total Citations; CPP: Citations per paper; HI: *h*-Index; RCI: Relative Citation Index; ICP: International collaboration papers; % ICP: percentage of international collaboration papers

Table 6: Bibliometric Profile of Top 20 Journals.

S.No	Name of the journal	TP	TC	CPP
1	Asian Journal of Psychiatry	158	3778	23.91
2	Indian Journal of Psychological Medicine	44	82	1.86
3	Frontiers in Psychology	18	54	3.00
4	Children and Youth Services Review	11	198	18.00
5	Current Psychology	9	13	1.44
6	Archives of Mental Health	7	0	0.00
7	Human Arenas	6	6	1.00
8	Journal of Psychosocial Rehabilitation and Mental Health	6	37	6.17
9	Technological Forecasting and Social Change	6	27	4.50
10	Humanities and Social Science Communications	4	0	0.00
11	Journal of Loss and Trauma	4	6	1.50
12	Personality and Individual Differences	4	8	2.00
13	Psychological Trauma Theory Research Practice and Policy	4	19	4.75
14	International Psychogeriatrics	3	24	8.00
15	Lancet Child and Adolescent Health	3	28	9.33
16	Nature Human Behavior	3	2	0.67
17	Psychological Studies	3	0	0.00
18	Archives of Psychiatry Research	2	0	0.00
19	Asian Journal of Social Health and Behavior	2	3	1.50
20	Child Abuse and Neglect	2	5	2.50
	Total of 20 journals	299	4290	14.35
	India's total journal papers	372	4525	12.16
	Share of top 20 journals in India's output	80.38	94.81	

of the publications emerged from authors belonging to 20 organizations only, together contributing to 66.4% of publications and 84.73% share of citations. Another important aspect of the present bibliometric study is that it suggests that although majority of the publications emerging from institutes like NIMHANS, PGIMER, and AIIMS, but in terms of CPP and RCI, authors from institutes like JIPMER, Pondicherry, KGMU, Lucknow, and MAHE, Manipal had highest impact. These findings suggest that pandemic has possibly contributed to change in the landscape of the Indian research and this may have significant positive impact on the research output from India.

The present analysis also reflects that 416 authors across the country contributed to the research in this area. However, when one evaluates the data further, it is evident that top 20 authors contributed to 51.61% and 53.83% share in total publications and citations respectively from India suggesting that the research output of various authors was heterogenous and there is a need to improve the research capacity across the country.

The majority of the papers were published in journals, with a maximum number of publications in the *Asian Journal of Psychiatry* (158 papers), *Indian Journal of Psychological Medicine* (44 papers), *Frontier in Psychology* (18 papers), and *Children and Youth Services Review* (11 papers). Publications of the maximum number of publications in the *Asian Journal of Psychiatry* could be due to the author-friendly editorial policies of faster review of the articles, and publication of the manuscripts as a letter to editors, as has been reported by the Editor's themselves (Tandon *et al.*, 2020). This possibly reduced the rejection rates and gave more opportunity and encouragement to the authors to publish their research. These policies are worth considering in the future too, for research in general, to reduce the 10/90 gap. Additionally, papers published in the *Asian Journal of Psychiatry* received high number of citations, suggesting that the quality of the papers was not compromised with the expedition of the time to publish. This was further reflected by the fact that 9 out of the top 10 highly cited papers were published in *Asian Journal Psychiatry*.

Table 7: List of Top 10 Indian High-Cited Papers.

S.No	Name of the authors	Title of the paper	Source	Citations
1	R.P. Rajkumar	COVID-19 and Mental Health: A review of the existing literature (Article)	<i>Asian Journal of Psychiatry</i> 2020, 52, art. no. 102066	1094
2	D. Roy, S. Tripathy, <i>et al.</i>	Study of knowledge, attitude, anxiety and perceived mental healthcare need in Indian population during COVID-19 pandemic (Article)	<i>Asian Journal of Psychiatry</i> 2020, 51, art. no. 102083	551
3	M.S. Spoorthy	Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review (Letter)	<i>Asian Journal of Psychiatry</i> , 2020, 51, art.no. 102119.	300
4	K. Goyal, P. Chauhan <i>et al.</i>	Fear of COVID 2019: First suicidal case in India (Letter)	<i>Asian Journal of Psychiatry</i> 2020, 49, art. no. 101989,	196
5	D. Banerjee	The COVID-19 outbreak: Crucial role the psychiatrists can play (Letter)	<i>Asian Journal of Psychiatry</i> 2020,50, 102014.	193
6	N. Kapasia, P., Paul, <i>et al.</i>	Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India (Article)	<i>Children and Youth Services Review</i> , 2020, 116, 105194.	116
7	G. Barkur, ,Vibha <i>et al.</i>	Sentiment analysis of nationwide lockdown due to COVID 19 outbreak: Evidence from India (Letter)	<i>Asian Journal of Psychiatry</i> 2020, 51, 102089	78
8	S.S. Chatterjee, C. Barikar <i>et al.</i>	Impact of COVID-19 pandemic on pre-existing mental health problems (Letter)	<i>Asian Journal of Psychiatry</i> , 2020, 51, art. no. 102071.,.	66
9	P. Hiremath, C.S.,SuhasKowshik <i>et al.</i>	COVID 19: Impact of lock-down on mental health and tips to overcome (Article)	<i>Asian Journal of Psychiatry</i> , 2020, 51, 102088	66
10	R. Ransing, F, Adiukwu. <i>et al.</i>	During the COVID-19 Pandemic: A Conceptual Framework by Early Career Psychiatrists.	<i>Asian Journal of Psychiatry</i> , 2020, 51, 102085.	65

Our analysis has certain limitations. We did not evaluate the quality of the papers and our search was limited to Scopus database. To conclude, this bibliographic analysis suggests that researchers from India contributed to about 4.63 % of the global research on the topic of Covid-19 and Psychology. Overall the research output from India was at the 9th position among the various countries in terms of number of publications, but in terms of impact of the publications in the form of CPP and RCI, research from India was at the fourth position. The present study also suggest that although the research on the topic was distributed across large number of institutes, still authors from Institutes like NIMHANS, Bangalore, PGIMER, Chandigarh and AIIMS, New Delhi and Bhubaneswar contributed to a significant proportion of the research. However, research emerging from JIPMER, Pondicherry, KGMU, Lucknow, and MAHE, Manipal had highest impact. The maximum numbers of publications were published in the *Asian Journal of Psychiatry*. Taken together, the present study suggests that the research base in India is becoming more wide-base.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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