DESIDOC Journal of Library & Information Technology, Vol. 44, No. 6, November 2024, pp.365-373, DOI : 10.14429/djlit.44.6.20239

Measuring the Social Attention of the Leading Medicine Journals of India: An Altmetric Analysis

Pritam Dey* and Mukut Sarmah

Department of Library and Information Science, Assam University, Silchar - 788 011, India
**E-mail: pritamd506@gmail.com*

ABSTRACT

The present study is an attempt to analyse the leading medicine journals of India through altmetric parameters. The primary objective of the study is to find the altmetric presence of the journals and analyse the altmetric events recorded in various altmetric data sources. The study also aims to find the correlation between Altmetric Attention Score (AAS) and citation count. The study considered Scimago Journal & Country Rank 2021 to select the top five medicine journals of India. The bibliographic and altmetric data were extracted from the Dimensions.ai database. Data analysis was done using R, Biblioshiny, and VOSviewer. The study reported that 43.46 % of the articles had an AAS, with a mean AAS of 7.48 for articles with AAS≥1, and a standard deviation of 24.58. The majority of altmetric events were recorded on Mendeley (53,666), followed by Twitter (5,885) and News outlets (523). The study also reported a significant, weak positive correlation between citation count and AAS ($r(1287) = 0.237$, $p < .001$). Balram Bhargava was the top contributing author, and the Indian Council of Medical Research was the top contributing organisation, with a cumulative AAS of 696 and 1293, respectively, while India was followed in terms of contributions by the US, China, and Italy. The findings of the study revealed the social engagement of articles across a range of online platforms, highlighting the key themes, influential authors, and organisations involved in the publications of leading Indian medicine journals. These findings provide valuable insights into the benefits and significance of using social media for disseminating research articles.

Keywords: Altmetrics; Medicine journals; India; Altmetric attention score; Citation; Alternative metrics

1. INTRODUCTION

The internet and Web 2.0 tools have significantly changed scientific communication[1], influencing science communicators beyond traditional social networking activities. The social media platforms, such as Facebook, blog, Twitter, Mendeley, Wikipedia, and YouTube, allow science articles to enter the domain of the scientific community, leaving footprints on the web, allowing for more efficient and accessible communication within the scientific community[2]. In 2010, Jason Priem and his team developed Altmetrics to compute scientific expressions exchanged through nanopublications, such as Facebook, Twitter, blogs, and Wikipedia, by tracking their footprints on the internet and assigning scores to them, providing an idea of the social attention received by an article.

An article to receive a citation takes a long time after publication[3], as it only receives citations once the citing paper is published. However, altmetrics can assess an article's impact instantly and in real time[4-5]. In order to enable readers and researchers to examine an article's success on social media platforms, a number of research databases and journals have included altmetric tools in their offerings[6-7]. The purpose of altmetrics is to supplement existing traditional metrics rather than to replace them[8]. Altmetrics is also not free from flaws, as it is a newly emerged metrics lacking a strong theoretical background compared to traditional metrics. Heterogeneity, data quality, and dependencies on identifiers (such as DOIs, PubMed IDs, and Handles) have been recognised as the three primary problems with Altmetrics[9].

Scholars who are interested in research evaluation have drawn numerous conclusions from the social impact of research articles. According to Smith[10], the drawbacks of using conventional research evaluation metrics like citation analysis, impact factors, and h-index generally highlight the scholarly use of research papers while ignoring their social use, particularly on the web. By analysing the altmetric data associated with the publications, the societal impact of the research outputs can be unveiled. Additionally, analysing the correlation between altmetrics and conventional metrics based on citations can aid in our comprehension of the relationship between social attention and scholarly influence.

The field of medicine has been considered for the study due to its high research output[27], broad public interest[24], and rapid impact on public health. Medical research often garners immediate attention from social

Received : 23 May 2024, Revised : 12 July 2024
Accepted : 16 July 2024, Online published : 12 November 2024

media, news outlets, and online platforms[26], reflecting its wide societal relevance. This study aims to provide a comprehensive view of how research articles from leading Indian medicine journals are being discussed and utilised in the public sphere. By analysing altmetric data, journals can gain insights into which types of articles are generating the most interest and engagement. This can help them refine their editorial strategies to enhance the visibility and impact of their publications.

2. LITERATURE REVIEW

The existing literature on altmetrics encompasses a substantial body of work analysing altmetric data across various domains, including journalism articles[11], dental literature[12], stroke research[13], and highly cited papers in library and information science[14]. However, there is a notable paucity of studies focused specifically on the altmetric analysis of journals within a particular country. The most closely related study conducted by Kolahi[15], *et al.* where they analysed the altmetric status of Iranian medical journals. Out of 104 journals, 7518 articles were mentioned, with the 'International Journal of Preventive Medicine' ranking first. Twitter was the most popular altmetric resource, followed by Facebook and news outlets. Hot topics included multiple sclerosis, cancer, and anxiety. The study suggested that Iranian biomedical journal editors and researchers should be more dynamic on the web, using social media, peer review tools, and other web 2.0 tools.

Kanat[16] conducted a combined bibliometric and altmetric study on "palliative care" literature, using Web of Science and altmetric.com to find the top 100 documents with high citation and AAS. The study found a significant positive correlation between AAS and Citation count for both articles. The study also employed thematic analysis, to find out the most discussed topics. The study recommends combined altmetric and bibliometric analysis due to the possibility of manipulation. Kolahi[17], *et al.* conducted an Altmetric analysis on Endodontology literature, focusing on 192 articles with AAS > 5. They found Twitter as the most popular altmetric data resource, followed by patents and Facebook.

Rosenkrantz[18], *et al.* conducted an altmetric investigation on four radiology journals, comparing traditional citation with alternative metrics. They found that 96.4 % had a citation count ≥ 1 and 41.8 % had an Altmetric Attention Score ≥ 1, with Mendeley, Twitter, Facebook, and news outlets being the major altmetric sources. Saberi[19], *et al.* conducted an altmetric analysis on the Medical Journal of the Islamic Republic of Iran. The study found that 51 % of the articles had an Altmetric Attention Score (AAS), with Twitter being the most commonly used platform for sharing these articles. They observed that review papers constituted the majority of the articles with high AAS. Additionally, the study reported an insignificant correlation between AAS and the citation count of the articles, suggesting that altmetric impact does not necessarily align with traditional citation metrics.

Barbic[20], *et al.* evaluated traditional metrics and Altmetric scores of the 50 most cited articles in emergency medicine (EM) journals and compared them to EM-related articles in other biomedical journals. The highest Altmetric score for EM articles was 25.0, with Resuscitation leading in mean scores. Trauma and cardiac arrest were the primary clinical areas. For other journals, the highest Altmetric score was 176.0, with the New England Journal of Medicine leading. Critical care, sepsis, cardiology, and infectious diseases were the main clinical topics. The study reported a weak positive correlation between citation counts and Altmetric scores.

Moon[21], *et al.* aimed to identify and characterise the top 100 articles with the highest Altmetric attention scores (AAS) in medical imaging journals. The analysis revealed that these articles were published in 18 different imaging journals, with Radiology contributing 47 % of them. A significant portion of the articles (94 %) were published between 2016 and 2018. Most articles originated from the United States (62 %) and the primary focus of the articles was on brain disease and function.

3. OBJECTIVES

- To find the altmetric presence of the articles published by the leading medicine journals of India
- To analyse the altmetric events recorded in various altmetric data sources for the articles
- To find the correlation between AAS and citation count
- To analyse the MeSH (Medical Subject Headings) terms of the articles with high AAS
- To identify the authors, institutions, and nations attaining high AAS

4. METHODOLOGY

The top five medicine journals of India were selected from Scimago Journal & Country Rank, 2021 and later checked in the Scopus Database for their continuous presence for at least five years. The top journals that were not having continuous presence in SCOPUS for the last 5 years were excluded. The altmetric and bibliographic data were extracted from Dimensions database. The altmetric data were extracted manually between 05 August 2023 and 11 September 2023. The basic analysis was done by Microsoft Office Excel 2021 and the statistical analysis was done with the help of R. The Spearman's correlation was employed to calculate the correlation between AAS and citation count as the data were highly skewed. The dimensions database doesn't provide the keywords of the articles whereas it provides the MeSH terms, which is the National Library of Medicine's controlled vocabulary thesaurus used for indexing articles in PubMed so the MeSH terms were considered for analysis using the Biblioshiny.

The VOSviewer version 1.6.18 (www.vosviewer.com) was used to trace the top authors, organisations, and nations based on AAS. The CSV files downloaded from Dimensions database were having the citation count of

the articles which were replaced by the AAS manually. The modified CSV file with AAS was used for analysis via VOSviewer.

5. SCOPE AND LIMITATION

This study is limited to top five Indian medicine journals, ensuring the inclusion of high-quality, influential publications with significant impact. These leading journals encompass a broad range of medical disciplines, providing a representative sample of India's medical research output. Consequently, this analysis establishes a benchmark for other Indian medical journals. The present study has only considered the articles published between 2018 and 2022. The study's 5-year time frame ensures relevance, captures recent trends, and provides a manageable dataset for detailed analysis and identification of emerging patterns in altmetric attention. The bibliographic and altmetric data has been collected from Dimensions.ai database. Subsequent research can compare the results of this study with the results of the respective data from other altmetric data providers.

6. RESULTS

The top five medicine journals of India along with their ISSN, SJR, and H-index are listed in Table 1.

Table 1. Top five medicine journals of India

S. No.	Name of the journal	ISSN	SJR (H-Index)
1	Hepatology International	19360533, 19360541	1.555 *(58)*
2	Endoscopic Ultrasound (OA)	23039027, 22267190	1.001 *(32)*
3	Journal of Pathology Informatics (OA)	22295089, 21533539	0.962 *(24)*
4	Indian Journal of Medical Research (OA)	09715916, 09759174	0.907 *(96)*
5	WHO South-East Asia Journal of Public Health	23045272	0.758 *(16)*

6.1 Altmetric Presence of the Indian Medicine Journals

The journal-wise total number of articles, articles with AAS, altmetric presence, and mean AAS of the articles having AAS with standard deviation (SD) shown in Table 2. India's top five medicine journals published 2966 articles between 2018 and 2022. Out of 2966 publications 1289 had an AAS≥1. Therefore, the Indian leading medicine journal's publication had a 43.46 % altmetric presence. Among the top Indian journals, the highest altmetric presence was recorded for the journal *"*WHO South-East Asia journal of public health*"* with 76.42 % of the articlels having an AAS≥1.

6.2 Altmetric Events of the Articles in Various Sources of Altmetrics

6.2.1 Coverage of Articles in the Altmetric Data Sources

Among the 12 altmetric data sources, the study found the presence of the 1289 articles in 11 altmetric data sources. The analysis revealed that 98.76 % of the articles were having a Mendeley reader count ≥ 1, 87.28 % of the articles were having Twitter mentions ≥ 1, followed by News (12.10 %), and Policy (10.24 %). The presence of articles in all the other remaining data sources were found to be very low. Figure 1 shows the percentage of articles present in the all the 12 altmetric data sources.

6.2.2 Journal-wise and Year-wise Altmetric Events in the Altmetric Data Sources

Table 3 and Table 4 depicts the journal-wise and year-wise presence of articles and average altmetric events in the altmetric data sources. The journal "WHO South-East Asia journal of public health" has Mendeley readers for all the documents published for the last 5 years. The journal articles also have an 96.81 % presence in policy documents and 8.51 % presence in Wikipedia. The journal "Hepatology International" has 3.44 % articles mentioned in patents. The highest presence of articles in news, Twitter, and Facebook was found in the journals "Indian Journal of Medical Research", "Journal of Pathology Informatics", and "Indian Journal of Medical Research" respectively.

Table 2. Journal-wise altmetric presence

Name of journal	Total no. of articles	Number of articles with AAS	Altmetric presence	Mean AAS of the articles with AAS≥1	SD
Hepatology International	617	320	51.86%	4.47	10.42
Endoscopic Ultrasound	448	90	20.09%	6.91	31.83
Journal of Pathology Informatics	361	213	59.00%	4.46	9.85
Indian Journal of Medical Research	1417	572	40.37%	10.94	32.90
WHO South-East Asia journal of public health	123	94	76.42%	4.05	2.04
Total	**2966**	**1289**	**43.46%**	**7.48**	**24.58**

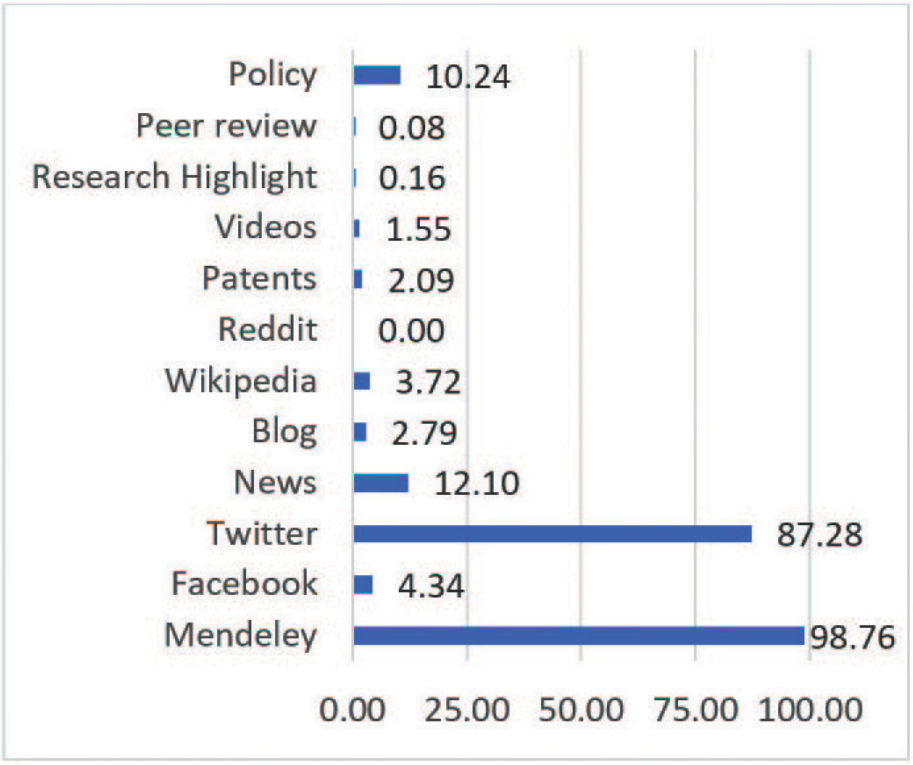

Figure 1. Percentage of articles in the altmetric data sources.

Table 3. Journal-wise presence of articles and altmetric events in the altmetric data sources

Altmetric data sources	Hepatology international (n=320)		Endoscopic ultrasound (n=90)		Journal of pathology informatics (n=213)		Indian journal of medical research (n=572)		WHO south-east asia journal of public health (n=94)	
	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events
Mendeley	99.38	29.95	94.44	10.53	98.59	25.42	98.95	57.30	100	52.59
Facebook	4.69	0.05	2.22	0.02	0.47	0.00	5.94	0.06	4.26	0.04
Twitter	92.81	4.82	95.56	4.01	96.24	3.32	89.51	5.65	26.60	0.47
News	7.19	0.08	6.67	0.50	11.74	0.20	17.31	0.72	3.19	0.03
Blog	1.56	0.02	0.00	0.00	1.88	0.02	4.55	0.06	1.06	0.01
Wiki	1.88	0.04	0.00	0.00	1.88	0.03	5.24	0.08	8.51	0.09
Reddit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Patents	3.44	0.04	1.11	0.01	2.82	0.04	1.40	0.02	1.06	0.01
Videos	1.25	0.01	0.00	0.00	0.00	0.00	2.80	0.06	0.00	0.00
Research highlight	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00
Peer review	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00
Policy	1.56	0.02	0.00	0.00	1.88	0.02	5.59	0.06	96.81	1.03

Table 4. Year-wise presence of articles and altmetric events in the altmetric data sources

Altmetric data sources	2018 (n=221)		2019 (n=249)		2020 (n=247)		2021 (n=276)		2022 (n=296)	
	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events	Percentage of articles	Avg. events
Mendeley	100	53.67	99.20	51.41	98.38	78.12	99.28	23.32	97.30	11.05
Facebook	5.88	0.07	6.83	0.07	3.24	0.03	2.90	0.03	3.38	0.03
Twitter	84.62	3.67	84.74	3.86	85.02	5.53	84.42	4.88	95.95	4.72
News	13.12	0.57	11.24	0.53	16.19	0.51	15.22	0.38	5.74	0.14
Blog	4.07	0.05	2.41	0.02	5.26	0.09	1.81	0.02	1.01	0.01
Wiki	9.95	0.18	5.22	0.07	3.64	0.04	1.09	0.01	0.34	0.003
Reddit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Patents	4.52	0.05	2.01	0.03	3.24	0.06	1.09	0.01	0.34	0.003
Videos	3.17	0.10	2.01	0.02	2.02	0.02	0.72	0.01	0.34	0.003
Research highlight	0.45	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peer review	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
Policy	14.03	0.15	12.85	0.14	13.36	0.15	12.68	0.13	0.34	0.003

All the articles published in the year 2018 has a Mendeley reader but the average Mendeley reader was found highest for the year 2020. The highest presence of articles in Facebook, Twitter, and News were published in the years 2019, 2022, and 2020 respectively. The highest average altmetric events was found for the articles published in the year 2020 (84.55), followed by the years 2018 (58.51), 2019 (56.17), 2021 (28.80), and 2022 (15.98) respectively.

6.2.3 Statistical Summary of the Altmetric Events, AAS, and Citation Count

The analysis of all the altmetric events in the various data sources revealed a total of 60479 altmetric events recorded for the selected 1289 articles. The average altmetric event per paper was found to be 46.92 with a standard deviation of 83.47. The median and mode of the altmetric events were found to be 23 and 6, respectively. The range of the altmetric events was 1343. The highest number of altmetric events occurred in Mendeley (53666), followed by Twitter (5885), News (523), Policy (140), and Wikipedia (72). The number of altmetric events in other altmetric data sources was found to be very low. Table 5 shows the statistical summary of the altmetric events recorded in various data sources.

The mean AAS and citation count were found to be 7.48 and 16.54, with a standard deviation of 24.58 and 34.34, respectively.

6.3 Correlation between Citation Count and Altmetrics

The correlation matrix as depicted in Figure 2 shows the association among various altmetric data sources (independent variables), AAS (dependent variable) and citation count (independent variable).

Results of the spearman correlation indicated that there is a significant weak positive relationship between citation count and AAS, ($r(1287) = 0.237$, $p < .001$).

Between the altmetric data sources and citation count, the highest significant positive relationship with citation count was recorded for Mendeley readership, ($r(1287) = 0.669$, $p < .001$). The data sources News ($r(1287) = 0.205$, $p < .001$), Patents ($r(1287) = 0.151$, $p < .001$), and Blog ($r(1287) = 0.134$, $p < .001$) were found to have a significant weak positive relationship with citation count. Rest of the data sources were having a significant, very weak positive association with citation count.

6.4 MeSH Term Analysis

The primary aim of the fourth objective was to know the themes of the articles published in the leading medicine journals of India that gained high AAS.

All the articles were not considered for analysis as a very large number of articles (550) were having an AAS of 1. Articles with very low AAS cannot be considered as popular because it can be achieved by one or two mention/share/discussion by the author(s) or journal of the article. The study considered only the MeSH terms of articles having AAS≥10 for further analysis using Biblioshiny.

Figure 3 shows the year-wise trending MeSH terms of the articles. Popular articles published in the year 2018 mostly focused on the topics “risk factors”, “biomedical research”, and “asian people”. Articles published in the year 2019 are mostly on “obesity”, “public health”, and

Table 5. Statistical summary of the altmetric events

Altmetric data sources	No. of events	Mean	Median	Mode	Max	Min	SD
Mendeley	53666	41.63	18	11	1343	0	79.23
Facebook	60	0.05	0	0	2	0	0.22
Twitter	5885	4.57	2	1	292	0	16.76
News	532	0.41	0	0	40	0	2.34
Blog	47	0.04	0	0	4	0	0.24
Wikipedia	72	0.06	0	0	7	0	0.36
Reddit	0	0.00	0	0	0	0	0.00
Patents	38	0.03	0	0	7	0	0.27
Videos	36	0.03	0	0	13	0	0.39
Research highlight	2	0.002	0	0	1	0	0.04
Peer review	1	0.001	0	0	1	0	0.03
Policy	140	0.11	0	0	2	0	0.33
Total	**60479**	**46.92**	**23**	**6**	**1344**	**1**	**83.47**

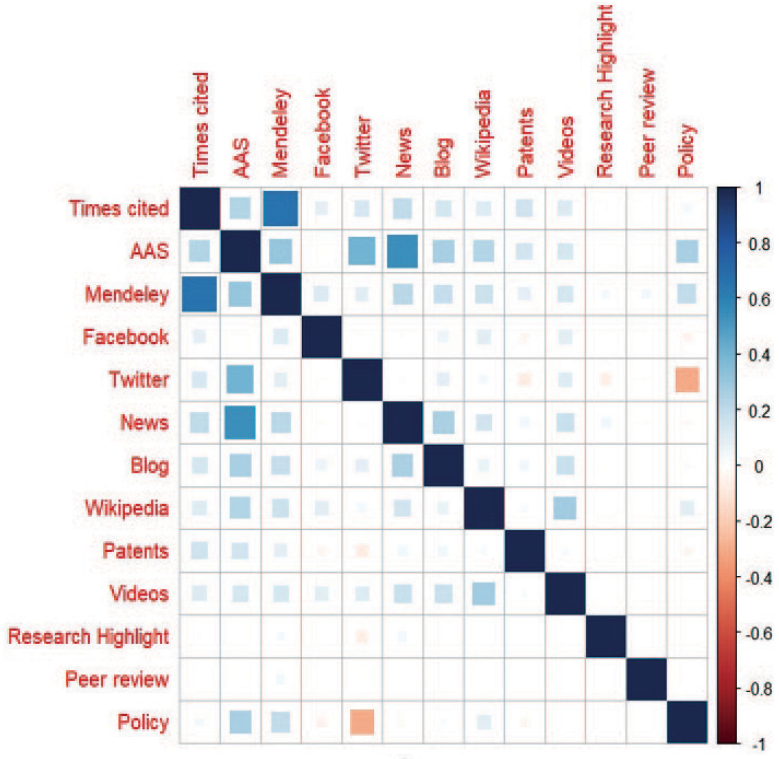

Figure 2. Correlation matrix of citation count, AAS, and altmetric data sources.

"developing countries". MeSH terms such as "Human", "India" and "female" were mostly found for the articles published in the year 2020. The top MeSH terms of the popular articles of 2020 were found to have much higher frequency of occurrence compared to the other years. Articles gaining high AAS published in the year 2021 were on the topics "liver cirrhosis", "cross-sectional studies", and "covid-19 vaccines". The popular articles published in the year 2022 were found under the themes "retrospective studies", "non-alcoholic fatty liver disease", and "chadox1 ncov-19".

In the thematic map as depicted in Figure 4, the top left quadrant displays under-represented, high-density topics with low centrality, while the upper right quadrant highlights important motor or driving topics for future research. The lower left quadrant displays declining/ emerging topics with low centrality and density, while the lower right quadrant contains basic topics with high

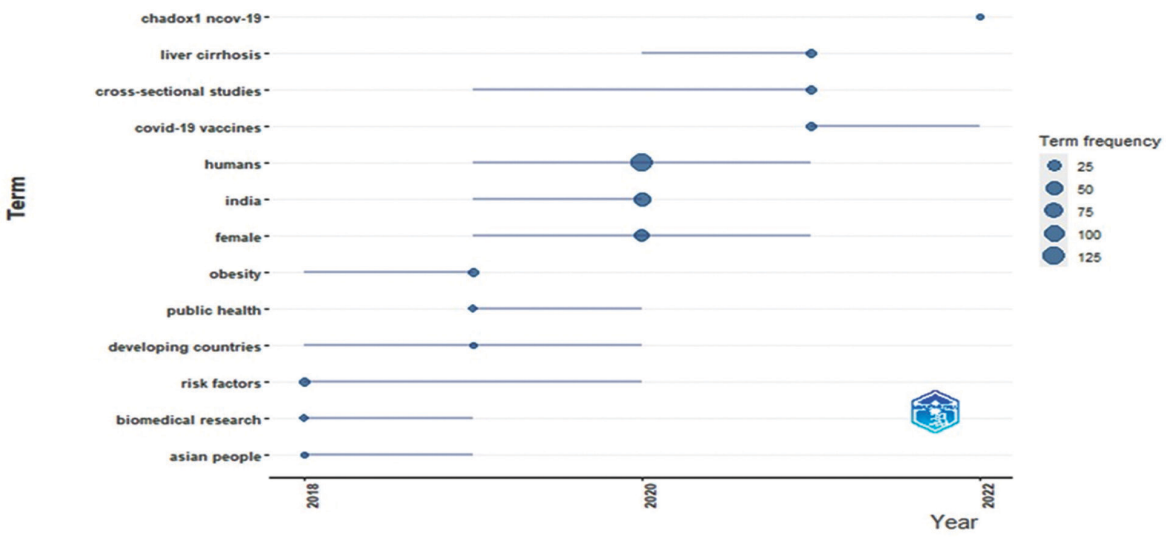

Figure 3. Year-wise trend of MeSH terms.

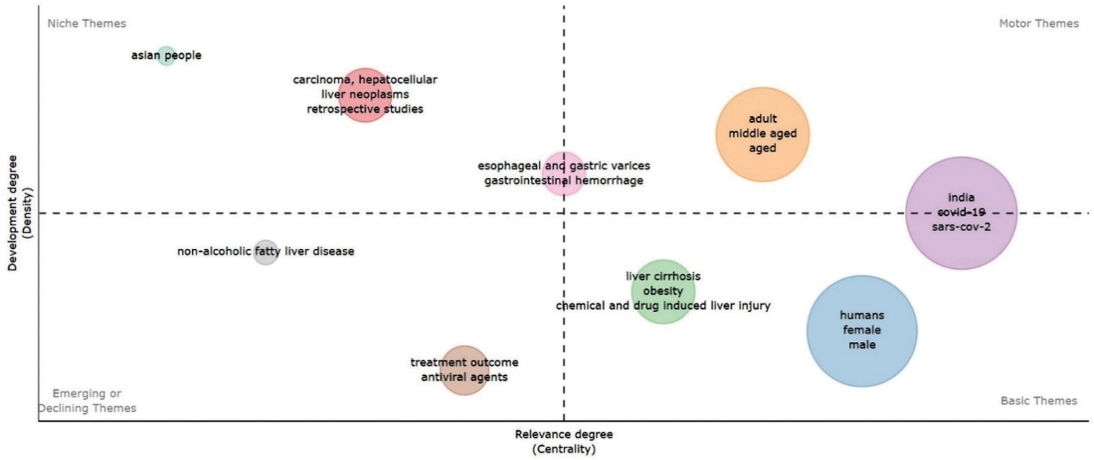

Figure 4. Thematic Map obtained from the MeSH terms of the articles with AAS≥10.

centrality but low density, crucial for research. The thematic analysis unfolded four major themes of research in the field of Altmetrics which are:

Basic Themes: humans, female, male, liver cirrhosis, obesity, chemical and drug induced liver injury.

Niche Themes: Asian people, carcinoma, hepatocellular, liver neoplasm, retrospective studies.

Motor Themes: adult, middle aged, aged.

Emerging/ declining Themes: non-alcoholic fatty liver disease, treatment outcome, antiviral agents

Themes such as "India", "covid-19", "sarcs-cov-2" falls under both basic and motor themes. Similarly, themes "esophageal and gastric varices", and "gastro intestinal hemorrhage" falls under both niche and motor themes.

6.5 Authors, Organisations, and Nations behind the Popular Articles

6.5.1 Leading Authors

Behind the 1289 articles was a total of 7724 authors. The analysis found 2333 authors with AAS of 5 and above, 1403 authors with AAS of 10 and above and 192 authors with AAS of 100 and above. The author "bhargava, balram" was found as the top author with a contribution of 18 documents gaining total AAS of 696 and a link strength of 195 followed by "yadav, pragya d" and "abraham, priya" with 27 and 21 number of documents attaining total AAS of 662 and 572 respectively.

6.5.2 Leading Oganisations

The 1289 articles were discovered to be the work of 2253 organisations in all. The analysis found 640 organisations with AAS of 10 and above, 110 organisations with AAS of 100 and above and 1 organisation with AAS of 1000 and above. The "Indian Council of Medical Research" is the top organisation with 90 publications attaining total AAS of 1293 and total link strength of 307 followed by the organisations "All India Institute of Medical Sciences", "National Institute of Virology", and "King George's Medical University" with a contribution of 91, 50 and 14 documents and total AAS of 831, 772, and 537 respectively.

6.5.3 Leading Nations

A total of 61 nations were involved in producing the 1289 articles. The analysis found 54 nations with AAS of 5 and above, 50 nations with AAS of 10 and

above, and 24 nations with AAS of 100 and above. As the current study is on the leading Indian medicine journals so India is the top contributor as well as gaining the highest total AAS of 5901 and total link strength of 309 followed by the nations United States, China and Italy with a contribution of 252, 179, and 47 articles and attaining total AAS of 1850, 661 and 573 respectively.

7. FINDINGS AND DISCUSSION

The study revealed that India's leading medicine journals had an altmetric presence of 43.46 %. Similar altmetric presence was reported for specific medicine journals in earlier investigations[18-19]. The leading Indian medicine journal articles were present in 11 different altmetric data sources. This wide online sharing of research shows how findings can be shared through numerous channels and engage a broad audience. The study revealed that the top altmetric data sources as Mendeley and Twitter which corresponds to many previous studies[17-18,22,25]. On average, each paper attracted 46.92 altmetric events, with a standard deviation of 83.47. The distribution of altmetric events across platforms showed Mendeley leading with 53,666 events, followed by Twitter (5,885), News (523), Policy (140), and Wikipedia (72).

The spearman's correlation test reported a significant, weak, positive correlation between citation count and AAS ($r(1287) = 0.237$, $p < .001$). This finding is consistent with the results observed in previous altmetric studies across various fields of medicine[16,23]. Among data sources, Mendeley readership exhibited the strongest positive relationship with citation count ($r(1287) = 0.669$, $p < .001$).

In terms of articles' topic, "risk factors" dominated popular articles in 2018, while "obesity" took centre stage in 2019. The MeSH term "Human" was prevalent in articles from 2020, while topics shifted to liver cirrhosis and non-alcoholic fatty liver disease in 2021 and 2022 respectively. Thematic analysis uncovered both emerging and declining themes such as non-alcoholic fatty liver disease, treatment outcomes, and antiviral agents, alongside niche themes like Asian populations, carcinoma, and retrospective studies. By identifying which type of research areas attract the most interest and engagement, journals can improve their editorial strategies, highlight influential research, and better meet the needs of both public and academic audiences. Noteworthy contributor Balram Bhargava, the top author with 18 documents and a cumulative AAS of 696, and the Indian Council of Medical Research, the top organisation with 90 publications and a total AAS of 1293. Tracing the influential authors and institutions based on AAS can inform future collaborations, funding decisions, and the direction of research priorities.

8. CONCLUSION

This study provides critical insights into the altmetric presence and impact of research articles from leading Indian medicine journals, emphasising the importance of online engagement in contemporary academic dissemination. The substantial level of altmetric activity, particularly on platforms like Mendeley and Twitter, highlights the relevance and reach of medical research beyond traditional citation metrics.

This study will provide a reference point for comparing the altmetric performance of other Indian medicine journals in future studies. Further, the demographics of the people sharing the articles, has not been explored in this research which can be addressed in future research. Moreover, the study underscores the importance of altmetrics as a complementary measure to traditional citations, providing a broader perspective on the influence and dissemination of research. This can help researchers, institutions, and policymakers to recognise and support high impact research that addresses pressing public health issues, ultimately contributing to the advancement of medical science and public well-being.

REFERENCES

1. Darwish, A. & Lakhtaria, K.I. The Impact of the New Web 2.0 Technologies in Communication, Development, and Revolutions of Societies. *J. Advances Infor. Technol.,* 2011, **2**(4). doi: 10.4304/jait.2.4.204-216
2. Munnolli, S. & Pujar, S. The Impact of Indian cancer research in social media: A study using altmetric explorer. *In* emerging trends and issues in scientometrics, informetrics and webometrics. Institute of Economic Growth, New Delhi, 2015, 511-517.
3. Noah, A.; Pearce, I. & Modgil, V. Altmetrics and citations: The impact of journal publications. *Bulletin of the Royal College of Surgeons of England,* 2020, **102**(7), 324–327. doi: 10.1308/rcsbull.2020.132
4. Liu, C.L.; Xu, Y.Q.; Wu, H.; Chen, S.S. & Guo, J.J. Correlation and interaction visualization of altmetric indicators extracted from scholarly social network activities: Dimensions and structure. *J. Medical Internet Res.,* 2013, **15**(11), e259. doi: 10.2196/jmir.2707
5. Melero, R. Altmetrics– a complement to conventional metrics. *Biochemia Medica: Biochemia Medica.,* 2015, **25**(2), 152-160. doi: 10.11613%2FBM.2015.016
6. Maflahi, N. & Thelwall, M. When are readership counts as useful as citation counts? Scopus versus Mendeley for LIS journals. *J. Association Infor. Sci. Technol.,* 2016, **67**(1), 191-199.
7. Ortega, J.L. Reliability and accuracy of altmetric providers: a comparison among altmetric.com, PlumX and crossref event data. *Scientometrics,* 2018, **116**(3), 2123-2138.
8. Priem, J.; Piwowar, H.A. & Hemminger, B.M. Altmetrics in the wild: Using social media to explore scholarly impact, 2012. doi: 10.48550/arXiv.1203.4745

9. Haustein, S. Grand challenges in altmetrics: Heterogeneity, data quality and dependencies. *Scientometrics,* 2016, **108**(1), 413–423. doi: 10.1007/s11192-016-1910-9
10. Smith, R. Measuring the social impact of research: Difficult but necessary. *BMJ*, 2001. **323**(7312), 528. doi: 10.1136/bmj.323.7312.528
11. Nabavi, M. An analysis of journalism articles achieving high Altmetric attention scores. *Learned Publishing*, 2022, **35**(4), 617-624. doi: 10.1002/leap.1492
12. Kolahi, J. & Khazaei, S. Altmetric analysis of contemporary dental literature. *British Dental J.*, 2018, **225**(1), 68-72. doi: 10.1038/sj.bdj.2018.521
13. Kim, Y.; Kim, J.E.; Kim, Y.H.; Yoon, D.Y.; Kim, Y.J. & Bae, J.S. Social attention and scientific articles on stroke: Altmetric analysis of top-50 articles. *Clinical Neurology and Neurosurgery*, 2019, **183**. doi: 10.1016/j.clineuro.2019.105386
14. Cho, J. Altmetrics analysis of highly cited academic papers in the field of library and information science. *Scientometrics*, 2021, **126**(9), 7623-7635. doi: 10.1007/s11192-021-04084-w
15. Kolahi, J.; Khazaei, S.; Bidram, E. & Kelishadi, R. Altmetric analysis of contemporary Iranian medical journals. *Inter. J. Preventive Medicine,* 2019, **10**, 112. doi: 10.4103/ijpvm.IJPVM_134_19
16. Kanat, B.B. Academic and online attention to palliative care: A bibliometric and altmetric perspective. *European J. Therapeutics*, 2023, **29**(3), 566-576. doi: 10.58600/eurjther1761
17. Kolahi, J.; Khazaei, S.; Iranmanesh, P.; Khademi, A.; Nekoofar, M.H. & Dummer, P.M.H. Altmetric analysis of the contemporary scientific literature in Endodontology. *Int. Endodontic J.,* 2019, **53**(3), 308-316. doi: 10.1111/iej.13226
18. Rosenkrantz, A.B.; Ayoola, A.; Singh, K. & Duszak, R. Alternative metrics ("Altmetrics") for assessing article impact in popular general radiology journals. *Academic Radiology,* 2017, **24**(7), 891–897. doi: 10.1016/j.acra.2016.11.019
19. Saberi, M.K.; Mokhtari, H.; Ouchi, A. & Vakilimofrad, H. An altmetrics analysis of the articles published in the medical journal of the Islamic Republic of Iran (1987-2020). *Medical J. Islamic Republic Iran*, 2021, **35**, 189. doi: 10.47176/mjiri.35.189
20. Barbic, D.; Tubman, M.; Lam, H. & Barbic, S. An Analysis of Altmetrics in Emergency Medicine. *Academic emergency medicine : Official journal of the Society for Academic Emergency Medicine*, 2016, **23**(3), 251–268. doi: 10.1111/acem.12898
21. Moon, J.Y.; Yun, E.J.; Yoon, D.Y.; Seo, Y.L.; Cho, Y.K.; Lim, K.J. & Hong, J.H. Analysis of the altmetric top 100 articles with the highest altmetric attention scores in medical imaging journals. *Japanese J. Radiology*, 2020, **38**, 630–635. doi: 10.1007/s11604-020-00946-0
22. Bonakdaran, S.; Esmaeilzadeh, M.; Mokhtari, H. & Ouchi, A. Does altmetric attention score of articles on diabetes mellitus correlate with their citations in google scholar, scopus, web of science and dimensions? *Int. J. Infor. Sci. Manage. (IJISM)*, 2023, **21**(2), 127-139. doi: 10.22034/ijism.2023.1977844.0
23. Boyd, C.J.; Ananthasekar, S.; Kurapati, S. & King, T.W. Examining the correlation between altmetric score and citations in the plastic surgery literature. *Plastic and Reconstructive Surgery*, 2020, **146**(6), 808e-815e. doi: 10.1097/PRS.0000000000007378
24. Wang, L. & Zhong, Q. Research on the structures and features of netizens' demand for popular science: A search data perspective. *Cultures Sci.*, 2019, **2**(2), 129-150. doi: 10.1177/209660831900200205
25. Makkizadeh, F.; Erfanmanesh, M.A. & Sarrami, F. An altmetric study of medical informatics and health information management articles in social media. *Health Infor. Manage.*, 2020, **17**(3), 118-24. doi: 10.22122/him.v17i3.4078
26. Zahedi, Z.; Costas, R. & Wouters, P. How well developed are altmetrics? A cross-disciplinary analysis of the presence of 'alternative metrics' in scientific publications. *Scientometrics*, 2014, **101**, 1491–1513. doi: 10.1007/s11192-014-1264-0
27. Bornmann, L. & Mutz, R. Growth rates of modern science: A bibliometric analysis based on the number of publications and cited references. *J. Association Infor. Sci. Technol.*, 2015, **66**(11), 2215-2222. doi: 10.1002/asi.23329

CONTRIBUTORS

Mr Pritam Dey works as a Senior Research Fellow at the Department of Library and Information Science, Assam University, Silchar, India. He received his MLISc in the year 2021 and his BTech (ECE) in the year 2019 from Gauhati University. In 2020, he cleared the National Eligiblity Test (NET) with JRF. His research interests include Bibliometrics, Scientometrics, Altmetrics, and Webometrics.
His contributions to the current study are: Conceptualisation, literature review, data collection and interpretation, and referencing.

Dr Mukut Sarmah is an Associate Professor and Head, Department of Library and Information Science, Assam University, Silchar, India. He graduated with a BSc in Botany and obtained his MLISc degree and PhD from the Gauhati University. He has authored many books and journal papers related to ICT application in Libraries, Institutional Repositories, NLP, Bibliometrics, Scientometrics, and Webometrics.
His contributions to the current study are: Conceptualisation of ideas, research design, manuscript review, editing and supervision.