Information Research Communications, 2025; 2(2):193-202.
https://inforescom.org

Research Article

Indian Scientists on the Stanford List: A Comprehensive Bibliometric Study

Hasan Demir[1,*], Sanjay K. Sharma[2]

[1]Osmaniye Korkut Ata University, Karacaoğlan Yerleşkesi, Osmaniye, TÜRKIYE.
[2]Department of Chemistry, JECRC University, Vidhani, Rajasthan, INDIA.

ABSTRACT

Aim/Background: In recent years, the list of scientists published by the Stanford database has emerged as a source of pride for the scientific community. In 2013, Stanford University compiled this ranking by analyzing several variables of 84,116 scientists. The Stanford database metric list rated scientists based on a composite C score, which was computed by excluding self-citations for all authors who contributed to the publication and considering total citations. **Methodology:** The composite c score encompasses six principal indicators: number of citations (nc), number of citations for which the scientist is the sole author (ns), number of citations for which the scientist is either the sole or first author (nsf), number of citations for which the scientist is the sole, first, or last author (nsfl), Hirsch index (h), and Schreiber co-authorship adjusted index (hm). Indian scientists included in the Stanford list were subjected to bibliometric analysis based on citation counts, composite scores, gender, scientific disciplines, and their connected universities. **Results:** The 2023 Stanford database metrics compilation comprises 2,939 scientists for career-long metrics and 5,351 scientists for single-year metrics. **Discussion:** Six of the top 100 Indian scientists are women. Stanford's top institutions with the most scientists are included in the Times Higher Education world university rankings. **Conclusion:** Among the top 100 Indian scientists, 20% are chemists, 18% are physicists, 21% are clinical medical researchers, and 14.5% specialize in artificial intelligence.

Keywords: Stanford scientists list, Bibliometric analysis, Indian scientists, Citation analysis.

Correspondence:
Prof. Dr. Hasan Demir
Osmaniye Korkut Ata University, Karacaoğlan Yerleşkesi-80000, Osmaniye, TÜRKIYE.
Email: demirhasan.hd@gmail.com

Received: 09-05-2025;
Revised: 24-07-2025;
Accepted: 12-09-2025.

INTRODUCTION

Bibliometrics is described as 'the use of mathematical and statistical methods to books and other forms of communication' by Pritchard, A. (1969) (Velmurugan and Radhakrishnan 2016). The bibliometrics literature suggests that "quality" is quantitatively unattainable, as the academic value of a publication remains indeterminate until its impact on subsequent literature can be assessed, despite the frequent citation of the number of peer-reviewed articles as a metric of research quality (Donovan, 2007). Bibliometric methods are employed to analyze authorship, citation and publication patterns, as well as the interrelationships within scientific domains, research communities, and the structure of specific fields (Vijay and Raghavan 2007; Jermann *et al.*, 2015; Verma *et al.*, 2015; Demir and Sharma, 2020). The examination of documents utilizing diverse statistical methodologies can guide investigative studies, characteristics, and behaviors of published knowledge, facilitating the exploration of research structures and scientific domains, as well as the evaluation of scientific information management and research activities (Velmurugan and Radhakrishnan 2016).

A paper with a high citation count is more likely to garner further citations compared to one with a low count. An author with several publications is more likely to republish than one with fewer works (Price, 1976). Numerous methodologies exist for assessing the cumulative influence and significance of scientific research outputs from academics outside a select few Nobel Prize laureates, whose research impact and relevance are indisputable (Hirsch 2005a). It has recently assumed a crucial position in the assessment and evaluation of research performance. The Hirsch index, or h, assesses the weight, relevance, and overall impact of a scientist's cumulative research contributions. When scientific achievement is a primary evaluation criterion, the h-index may provide a useful standard for objectively evaluating several applicants competing for the same resource (Hirsch 2005a). Furthermore, the h-index exhibits robustness as it stays impervious to a cluster of uncited or inadequately cited works, as well as to a limited number of highly cited articles, and it does not account for numerous co-authorships. The hm-index, an alternative to the h-index, quantifies articles fractionally according to numerous co-authorships. The hm is calculated in

DOI: 10.5530/irc.2.1.16

Publishing Partner : ScienScript Digital. [www.sciencript.com.sg]

a manner akin to the h index, by dividing the total number of authors by the total number of citations for each work (Schreiber, 2008). The g-index inherits all the favorable characteristics of the h-index while additionally providing a more precise evaluation of the citation counts of the most highly rated articles (Egghe, 2006). Variations of the h index, including the m quotient (Hirsch, 2005b), g index (Egghe, 2006), h (2) index (Kosmulski, 2006), A index (Jin, 2006), R index (BiHui *et al*., 2007), AR index (BiHui *et al*., 2007), hw index (Egghe and Rousseau, in press), and b index (Bornmann *et al*., 2007), have been proposed to address its limitations.

The analysis of citations in scholarly literature, referred to as scientometrics or informetrics, considers the increase in publications, journals, and researchers. Mingers and Leydesdorff (2015) examine the historical progression of scientometrics, sources of citation data, citation metrics and their "laws," normalization, journal impact factors and other journal metrics, the mapping and visualization of research, evaluation and policy, as well as future advancements. Mingers and Leydesdorff (2015); Nalimov and Mulchenko (1971).

Ioannidis *et al*., (2016) analyzed all scientists ranked within the top 30,000 (0.28%) based on six principal metrics: number of citations (nc), citations for which the scientist is the sole author (ns), citations for which the scientist is either the sole or first author (nsf), citations for which the scientist is the sole, first, or last author (nsfl), Hirsch index (h), and Schreiber co-authorship adjusted index (hm). The 2023 list of Stanford scientists was examined, resulting in the selection of researchers from India. In 2023, the Stanford dataset metrics identified 217,097 scientists based on comprehensive career variables from 166 countries. This study analyzes the bibliometric attributes and characteristics of the Stanford scientist list for 2,939 researchers based in India. This study is significant for offering a comprehensive overview of the progress of Indian scientists, whose 50 universities rank among the top 1200 globally, and whose substantial contributions to science are evident in their global diaspora, as well as the advancement of Indian scientists nationally over the years. A bibliometric analysis of Indian scientists was performed, focusing on year, subfield category, author rank, citation index, affiliated universities, six key indicators for career-long and single-year performance, and the overall distribution of authors in the Stanford list, illustrated in a heat map utilizing Bibliometrix (Aria and Cuccurullo, 2017) and MS Excel.

Importance and Significance

David Pendlebury said that "Research fuels the race for knowledge and it is important that nations and institutions celebrate the individuals who drive the wheel of innovation" (Web3, 2023). Meanwhile, the percentage of collaboration by many researchers is rising, thus it's critical to take their respective contributions into consideration. In the literature, multiple performance indicators are used in science and scientific evaluation which are citation analysis (citation impact of authors, articles, and journals), h-index/ g-index (quantify the impact of an individual author), *hm*-index (co-authorship adjustment), i10-index (number of publications at least 10 times), use/download data (number of downloads for article), journal of impact factor (average citation count for a journal), and scientometrics 2.0/ altmetrics (measurement of scholarly impact) etc. (Priem *et al*., 2010). Multiple citation indicators, including overall impact, co-authorship adjustment, and author order (specifically, single, first, or last position authorships, since these positions reflect crucial contributions to the work) were investigated by the Stanford database metrics.

METHODOLOGY

Ioannidis *et al*., (2016) used the Scopus database in the Meta-Research Innovation Center at Stanford (METRICS). They performed such an evaluation of 84,116 influential scientists across 12 scientific fields (physics, mathematics, computer science, chemistry, earth sciences, engineering, biology/ biotechnology, infectious disease, medicine, brain research, health sciences, social sciences).

The updated science-wide author databases of standardized citation indicators tables were downloaded for 2017 and 2018 (Ioannidis, 2019), 2019 (Baas *et al*., 2020), 2020 (Baas *et al*., 2021), 2021 (Ioannidis 2022), 2022 (Ioannidis 2023) and 2023 (Ioannidis 2024). In this study, the search was made in February 2025. All these data were organized, analyzed, tabulated, and presented by using simple statistical methods in MS excel. The data set tables covered for the career of scientists that were initiated prior to 1996 and for single year. The dataset tables involve six key indicators which are determined and/or analyzed for excluded self-citation for all authors contributed to article and total citations. Ioannidis *et al*., (2016) calculated the c (composite) indicator, any scientist may use the following equation composed of six key indicators.

$$c = \frac{ln(nc+1)}{ln(nc_{max}+1)} + \frac{ln(h+1)}{ln(h_{max}+1)} + \frac{ln(hm+1)}{ln(hm_{max}+1)} + \frac{ln(ncs+1)}{ln(ncs_{max}+1)} + \frac{ln(ncsf+1)}{ln(ncsf_{max}+1)} + \frac{ln(ncsfl+1)}{ln(ncsfl_{max}+1)} \quad (1)$$

The variables value depends on whether the indicator c is calculated by career or single year. Moreover, the indicator *c* was calculated for excluding self-citation for all authors contributed to the article and total citations. Where *nc* is the total number of citations, h is the *h*-index, *hm* is the Schreiber co-authorship-adjusted index, *ncs* is the number of citations to single-author articles, *ncsf* is the number of citations to single or first-author articles, and *ncsfl* is the number of citations to single, first, or last author articles. The maximum values, nc_{max}, h_{max}, hm_{max}, ncs_{max}, $ncsf_{max}$, and $ncsfl_{max}$ were found for career, single year, excluded self-citation or total citations individually. Ioannidis *et al*., (2016) were described 176 category names such as Agronomy and Agriculture, Dairy and Animal Science, Biotechnology etc.

Share of Indian Scientists Year-wise

Figure 1 illustrates the top 25 countries for the number of scientists listed in Stanford dataset metrics according to career long metrics. The Stanford dataset metrics in 2017 and 2023 listed 105026 and 217097 scientists according to career long metrics, respectively. The 84202 scientists from the United States are listed in the Stanford dataset metrics. The percentage with a US scientist was 38.8% in 2023. India has 2939 scientists, placing it 13th in the Stanford dataset metrics according to career long metrics. The first five countries' percentage of scientists was 57.1%. The countries, the number of scientists indexed on the Stanford list increased by an average of 3-fold from 2017 to 2023. From 2017 to 2023, the number of scientists indexed on the Stanford list rose by an average of three times across the nations.

Figure 2 depicts the year-wise number of scientists listed in Stanford dataset metrics according to the single year and career of the scientists. The Stanford dataset shows a consistent yearly growth in the number of listed. The maximum number of scientists listed in the Stanford dataset was observed in Figure 2 as 5351 in 2023 according to single year metrics. The number of listed authors will rise because of the citation indexing databases' recent progress, which has decreased the confusion caused by name similarities while recognizing scientists and classifying their publications. This is a significant issue for scientists, particularly in nations like India where there is a large population density and a high degree of name similarity.

Table 1 reveals year wise world-wide percentage of Indian author and threshold of six key indicators which are the total number of citations, *h* index, Schreiber co-authorship adjusted index, the number of citations to single-author articles, the number of citations to single or first-author articles, the number of citations to single, first, or last author articles and composite score for career-long and single year. Ioannidis *et al.*, (2016) assessed the composite score, which combines the standardized values of these six log-transformed indicators. In 2022, overall average composite scores were 2.7529 and 3.4739 for single year and career long metrics, respectively. In 2023, overall average composite scores were 2.7152 and 3.4584 for single year and career long metrics, respectively. The c scores of Indian scientists for both career and single years perspective were very close to overall average values. In 2022 and 2023, overall average h-index were approximately 12.3 and 40.0 for single year and career long metrics, respectively. The h-index of Indian scientists were also close to overall average values for both career and single year perspective. The average total number of citations for 2022 were 971 and 8813 for single year and career long metrics, respectively. For 2023, The average total number of citations were reported as 958 and 9349 for single year and career long metrics, respectively. The share of year wise Indian scientists in Stanford dataset was observed continuous and steadily increment. The Indian scientists' percentages reached in 2023 as 1.35 and 2.40 for single year and career long metrics, respectively. The composite score which is calculated and used in the Stanford dataset metrics evaluates a more successful ranking than evaluating according to total citations. The citation of an article depends on many different parameters and factors. In some cases, it would be more accurate to attribute citations to the success of the article rather than to an author. According to Ioannidis *et al.*, (2016), many of the top 1,000 authors in terms of overall citations do not have a single or last-authored cited work.

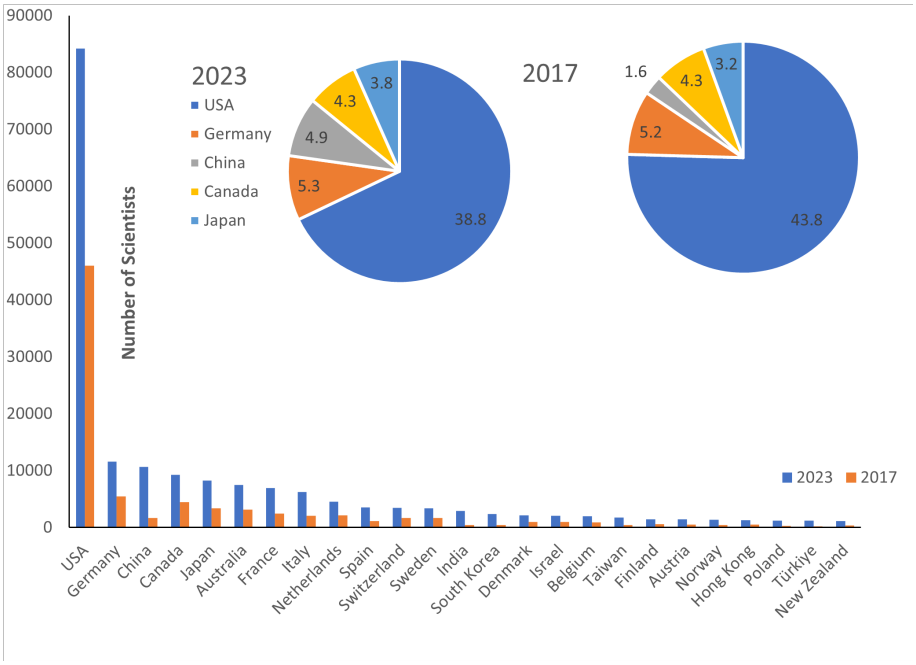

Figure 1: Top 25 countries for number of scientists listed in Stanford dataset metrics for career long period.

As a result, while citations constitute a significant element in a scientific index, they are not the only index criterion.

Scientific Categories Analysis

Scopus was divided into 12 categories for indexed published items which are physics, mathematics, computer science, chemistry, earth sciences, engineering, biology/biotechnology, infectious disease, medicine, brain research, health sciences, social sciences (Börner *et al.*, 2012). Ioannidis *et al.*, (2019) investigated 6,880,389 scientists and his/her research field in the career-long data from 1996-2017. Ioannidis *et al.*, (2016) and Ioannidis *et al.*, (2019) classified and/or defined the scientists research fields in 22 fields and 176 subfields as well. Figure 3 shows top 20 subfield category which are the most popular around the Indian scientists. Mechanical engineering and transports, applied physics, artificial intelligence and image processing, energy, and materials are most studied fields more than 100 Indian scientist in 2023 as it seen in Figure 3. It is not surprising that the most popular research areas that have gained importance in recent years; materials, energy and artificial intelligence are widely studied by Indian scientists.

Indian Scientists Ranking and Affiliation Wise

Table 2 reveals top 100 Indian scientists which were ranked according to composite score in the Stanford dataset metrics. As is seen in the table, some rankings were missed in some case last scores some cases first scores were not written. These problems

Table 1: Year wise worldwide percentage of Indian author and threshold of six key indicators for career-long and single year.

Year	Career (%)	nc	h	hm	ncs	ncsf	ncsfl	c
2017	0.41	4259.9	30.8	17.4	184.2	1383.1	2875.4	3.5430
2018	0.61	6070.8	35.4	19.6	334.9	1846.1	3938.0	3.4758
2019	0.93	4350.5	29.5	16.4	211.2	1298.1	2805.9	3.3526
2020	1.10	4603.8	29.9	16.2	197.5	1236.5	2775.4	3.2866
2021	1.13	4716.0	30.3	16.4	195.2	1247.9	2845.0	3.2792
2022	1.26	5375.1	31.9	16.9	197.1	1317.0	3082.7	3.2786
2023	1.35	5811.6	33.1	17.3	197.3	1350.9	3192.5	3.2644
Year	Single year (%)	nc	h	hm	ncs	ncsf	ncsfl	c
2017	0.63	544.6	9.7	5.7	18.0	142.9	329.9	2.9115
2019	1.43	748.2	11.3	6.2	19.6	158.5	378.4	2.7673
2020	1.76	939.2	12.6	6.8	22.6	180.7	440.1	2.7473
2021	1.88	656.3	10.3	5.5	14.4	120.5	291.6	2.6157
2022	2.21	715.9	10.8	5.7	13.9	128.2	312.3	2.6212
2023	2.40	751.6	11.0	5.6	12.8	123.7	306.4	2.5984

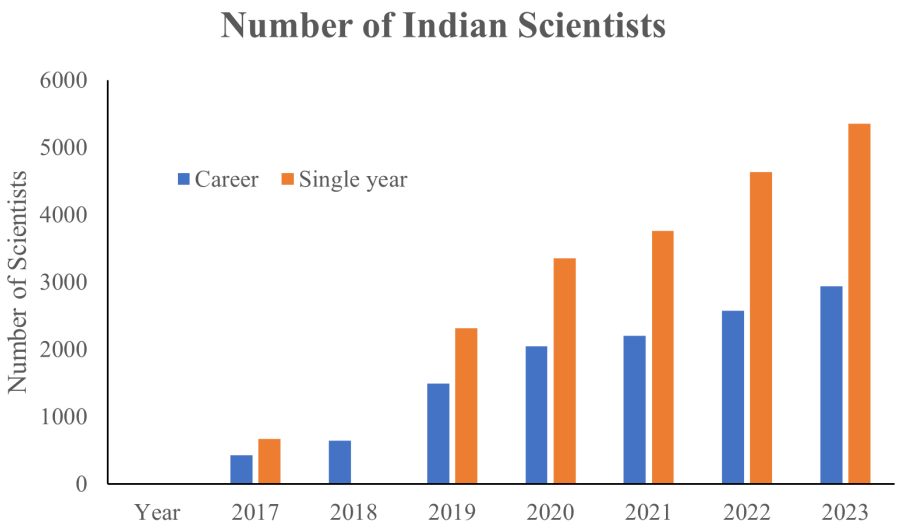

Figure 2: Year-wise number of scientists listed in Stanford dataset metrics.

may become because of name-surname similarities. Citation databases still need to be improved themselves, i.e. databases must develop author recognition and/or name similarity sorting systems. It causes confusion when databases assign distinct ID numbers to an author. Although the confusion is not obvious since databases do their own searches, having too many ID numbers for one author limits traceability. Accepting disparate databases' ORCID (Open Researcher and Contributor Identifier) numbers as an author ID enables database comparison and/or information merging while also being unaffected by name changes, cultural differences in name order, inconsistent abbreviations, or the use of different alphabets. The gender of top 100 scientists was analyzed that 6 of top 100 scientists are women. The top 100 scientists are 20% of chemists, 18% of physicists, 21% of clinical medical, and 14.5% of artificial intelligence.

Table 3 presents the single year total number of citations excluding self-citation for the last three years. As was already noted, the most common statistic for evaluating the influence (or lack thereof) of a journal article is its citation count. However, this should not be the only method used to determine impact. Before evaluation of an article based on a citation, the following limitations of citations should be considered (web1, 2024):

- Cited positively/negatively: An article may be heavily quoted because it is contentious, satirical, or its assertions are being contested.
- Types of articles: Review papers tend to be more well-cited than original research papers
- Prestige effect: to cite a well-known paper over a lesser-known paper is possible.
- Languages: preventing readers from finding and citing non-English research.

Table 3 shows the top ten scientists who have been consistently highly cited in the last three years. Almost all scientists cited more than 10,000 citations every year. Despite various limitations and controversies, receiving such a high number of citations per year is a significant achievement. The number of papers and citations per paper are inversely related to each other. Having a high number of articles and citations per article does not mean that the rank of the scientist is better. Because the number of articles and citations per article values of 84,116 scientists listed in Stanford database metrics are quite different, the number of papers varied from 1 to 2,533, and citations per paper varied from 0.08 to 5318 (Ioannidis *et al*., 2019).

Table 4 depicts year wise self-citation percentage for career-long and single year. Self-citation occurs in an article when an author refers to one of their own publications. This can be a respectable approach to refer to previous discoveries, but self-citations can also be used to artificially raise an individual's citation count (web 1, 2024). When analyzing the performance of scientists, it is necessary to exclude the number of self-citations. Available citation databases have the option of extracting authors' self-citations. Ioannidis *et al*., 2019 reported that the median was 3.3% and the mean was 5.5% among the 84,116 scientists.

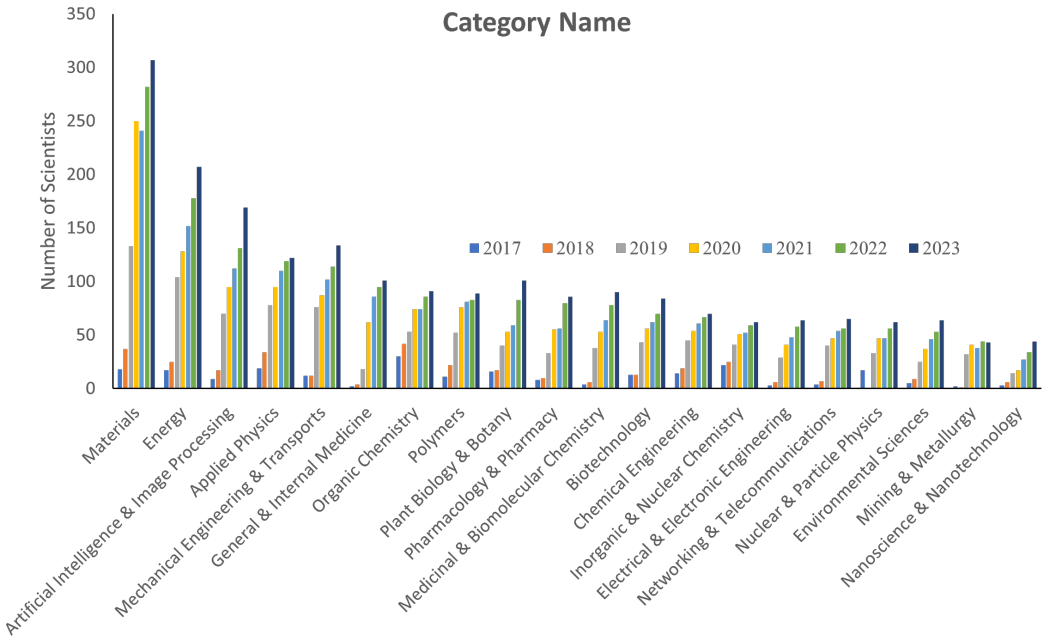

Figure 3: The number of scientists for the top 20 subfield category.

Table 2: **The comparison of rank for top 100 scientists for career long metrics.**

Sl. No.	Surname, Name	2017	2018	2019	2020	2021	2022	2023
1	Desiraju, Gautam R.	264	272	288	296	304	301	314
2	Rao, C.N.R.	298	310	315	330	331	345	385
3	Sen, Ashoke	1019	1332	1362	1395	1368	1527	1590
4	Pandey, Ashok	-	3406	2995	2385	2340	1989	1596
5	Ali, Imran	-	-	5905	3807	3561	2751	2426
6	Padmanabhan, T.	3650	3559	3552	3377	3296	3443	3358
7	Gogate, Parag R.	10581	8194	6833	5521	5278	4395	3966
8	Garg, Harish	-	-	27122	10385	7569	4536	2595
9	Rao, Ravipudi Venkata	-	16054	11403	7200	6933	5203	4534
10	Siddique, Rafat	-	18183	12520	8026	7201	5284	4228
11	Srivastava, Pramod Kumar*	-	-	4512	5111	5564	6084	6550
12	Sarin, Shiv Kumar	-	9492	9150	7632	7288	6492	5675
13	Singh, Bhim	-	--	10863	8528	8103	6719	5649
14	Reddy, K. Srinath	-	13468	11295	10423	9947	7054	7185
15	Tuteja, Narendra	-	13556	11253	9339	8824	7345	6873
16	Jana, Nikhil R.	7642	7405	7173	7250	7444	7481	7540
17	Mohan, Viswanathan	-	13738	10599	8741	8525	7562	6876
18	Thomas, Sabu	18996	16513	12814	10541	9586	7563	6495
19	Gupta, R.*	6181	8044	8059	7751	7853	7677	15151
20	Sundar, Shyam	9069	9076	8585	7980	8166	7808	7790
21	Aminabhavi, Tejraj M.	-	10874	9790	8716	8551	7914	7389
22	Lokhande, Chandrakant D.	-	9085	8487	8061	8147	8208	7943
23	Agarwal, Avinash Kumar	19499	14809	11860	9646	9391	8378	7635
24	Das, Dipak Kumar*	10717	7182	8464		8958	9039	7276
25	Jha, Vivekanand*	-	-	19679	16180	13061	10404	9160
26	Flora, Swaran Jeet Singh	15236	13881	13357	11825	11606	10818	9987
27	Ajayaghosh, Ayyappanpillai	10228	9863	10337	10710	10912	11058	11618
28	Venkata Mohan, S.	25532	-	-	14560	13834	11196	10209
29	Ranu, Brindaban C.	8838	9883	9877	10558	10757	11482	12282
30	Yadav, Jhillu Singh	19854	10275	10149	10499	10901	12025	12919
31	Yajnik, Chittaranjan S.	19452	14757	13205	12411	12504	12200	11386
32	Bagchi, Biman	11310	11580	11687	11461	12129	12572	13391
33	Sankaranarayanan, Rengaswamy	-	11173	-	9842	9916	12846	11591
34	Ramachandran, Ambady	-	-	16069	15138	14656	13803	13343
35	Choudhary, Vasant R.*	10894	11672	11682	-	12739	13703	13475
36	Nangia, Ashwini	17750	17235	16744	15612	15526	15091	14256
37	Pal, Nikhil R.	18519	20147	13970	14683	14766	15202	14974
38	Gupta, Rajeev	17124	9428	9399	8853	8431	15274	14694
39	Patil, P.S.	21798	19421	17878	16063	16098	15278	6527
40	Ogale, Satishchandra	-	15932	15435	15055	15136	15493	14442
41	Pal, Sankar K.	15930	17976	14373	14225	14616	15525	15337
42	Srinivasan, Krishnapura	26984	25028	21222	17929	17282	15544	15774

Sl. No.	Surname, Name	2017	2018	2019	2020	2021	2022	2023
43	Sharma, Ashutosh*	31340	17043	16276	-	15152	16276	14573
44	Ahmaruzzaman, Md	-	-	-	21950	20758	15969	13616
45	Misra, Anoop	-	17689	17080	15990	16339	16150	12913
46	Gupta, Prakash Chandra	-	23499	22537	20354	28229	16746	8597
47	Philip, Daizy	-	25336	22500	19365	18401	16810	17275
48	Prasad, Majeti Narasimha Vara	-	24419	20723	20643	17432	-	16560
49	Madras, Giridhar	-	20874	20936	19447	18641	18881	18164
50	Joshi, Jyeshtharaj Bhalchandra	19018	18739	18104	18288	18432	-	17734
51	Tharanathan, R.N.	-	21885	20035	-	-	-	18642
52	Kulkarni, Shrinivas K.	14239	16424	16651	17689	18182	18710	18650
53	Sebastian, Mailadil Thomas	-	-	-	20631	20554	18776	20220
54	Goel, Atul	24246	24509	23332	21055	21638	19113	17494
55	Basu, Mousumi	-	-	26138	22638	22140	19138	18087
56	Sarma, D.D.	29405	18055	17615	17965	18615	19333	17405
57	Pradhan, Narayan	-	-	-	25484	22464	19548	19013
58	Sahni, Varun	-	-	19578	18164	18741	19722	16745
59	Sharma, Yogesh Chandra	31574	25623	24848	21508	21481	19985	19712
60	Srivastava, Vimal Chandra	-	-	27826	22901	22188	20094	18774
61	Singh, Narpinder	-	-	-	28649	26056	20415	18283
62	Kumar, Sandeep	-	11537	16309	-	17799	20452	16227
63	Parida, Kulamani	-	-	27285	24213	23982	20751	20951
64	Yadav, Sudesh Kumar	-	-	-	26562	24620	21203	17949
65	Simon, R.	-	-	19146	20365	20719	21438	18738
66	Chattaraj, Pratim Kumar	25580	24759	23224	22322	22989	21475	21314
67	Mittal, Alok	-	22866	23515	21659	22530	21566	20544
68	Das, Debabrata	-	-	29479	27436	26993	21681	20566
69	Khuroo, Mohammad Sultan	-	-	20905	20794	22045	22122	20557
70	Agarwal, Ritesh	-	-	-	27597	25032	22319	22690
71	Yadav, Ganapati D.	25388	25425	24360	23025	23538	22357	20512
72	Rahman, Nazneen*	-	22955	21971	22149	22004	22612	22091
73	Nagendra, Harini	43951	36653	31997	27163	26104	23121	20131
74	Biradha, Kumar	17344	19159	20406	21262	21484	23133	20131
75	Dash, Pradipta Kishore	-	29761	27807	24964	24423	23134	24207
76	Kundu, Debasis	42896	37989	31618	26960	27019	23520	22996
77	Goswami, Bhupendra Nath	40989	32490	28358	25433	27228	23740	21502
78	Aggarwal, Rakesh	-	-	30378	26909	25924	23750	22731
79	Singh, Rajesh	-	-	-	26839	21648	23946	22429
80	Priyadarsini,. Indira K	-	-	31109	27815	27536	25662	23600
81	Bhattacharyya, Kankan	-	-	22079	23919	24406	25845	23600
82	Kamal, Ahmed	-	13396	29427	28141	28083	26783	26906
83	Balaram, Padmanabhan	17778	24553	21611	23827	24671	27185	26664
84	Varshney, Rajeev K.	31447	27356	22065	18244	16990	12197	29338
85	Rudrapatnam, Tharanathan N.	-	19201	19073	19212	19073	18642	18650

Sl. No.	Surname, Name	2017	2018	2019	2020	2021	2022	2023
86	Rajendran, Chandrasekharan	-	25155	23910	24880	25528	26704	28521
87	Bandyopadhyay, Sanghamitra	25152	26747	26761	26064	27086	27896	28521
88	Kakkar, Vijay V.	-	16320	25251	27825	27130	30225	34487
89	Moulik, Satya Priya	25097	27373	26877	27515	28133	29744	31302
90	Prasad, Yellapregada Venkata Rama Krishna	28625	-	26883	28152	26883	28255	27168
91	Samanta, Anunay	-	26900	28032	26954	28228	28292	28272
92	Sastry, Srikanth	-	28486	28608	27756	28586	29926	28272
93	Chandra, Ranjit Kumar*	-	5502	6686	7443	7086	9022	9772
94	Kumar, Rakesh*	13763	16148	16321	14238	16979	17922	19019
95	Kumar, Vijay	27074	28852	29063	27927	-	31017	31110
96	Chandrasekhar, Vadapalli	27486	27781		27863	28642	29853	30853
97	Kumar, Manoj	5257	6847	8807	-	-	-	-
98	Kumar, Rakesh	4159	15417	14238	-	87194	89201	90559
99	Jayakumar, Rangasamy	35331	28353	-	34171	31710	28919	28554
100	Ramaswamy, Sriram	13315	33468	32231	29708	29591	27715	26010

* The scientist changed university at one point in her/his career.

Table 3: The single year total number of citations excluded self-citation for last three years.

Sl. No.	Surname, Name	Number of Paper at 2022	2020	2021	2022	2023
1	Gupta, Rajeev	452	27014	20323	24778	26142
2	Kumar, G. Anil	190	23424	19043	23730	25797
3	Nangia, Vinay	165	21664	16673	18966	22642
4	Koul, Parvaiz	710	15688	12357	17670	15453
5	Jha, Vivekanand	638	14938	13673	16642	17268
6	Jeemon, Panniyammakal	164	17234	13753	15042	17921
7	Prabhakaran, Dorairaj	564	16451	11298	12421	10955
8	Zodpey, Sanjay	300	15637	11829	12364	14025
9	Sagar, Rajesh	327	15032	11888	12249	14569
10	Mahesh, Padukudru Anand	162	12365	9881	12032	12559

Table 4: Year wise self-citation percentage for career-long and single year.

Career	2017	2018	2019	2020	2021	2022	2023
Mean	17.3	16.7	16.2	16.1	16.1	16.0	15.7
Median	15.7	14.5	14.1	14.1	14.0	13.8	13.6
MAX	53.0	89.6	94.5	94.1	93.5	93.3	92.8
MIN	1.1	0.6	0.00	0.0	0.0	0.0	0.0
Single year							
	2017		2019	2020	2021	2022	2023
Mean	13.7		13.9	14.2	14.2	14.4	14.1
Median	11.4		11.0	11.3	11.0	11.0	10.5
MAX	73.8		98.4	98.4	95.3	96.1	96.8
MIN	0.00		0.00	0.00	0.00	0.00	0.0

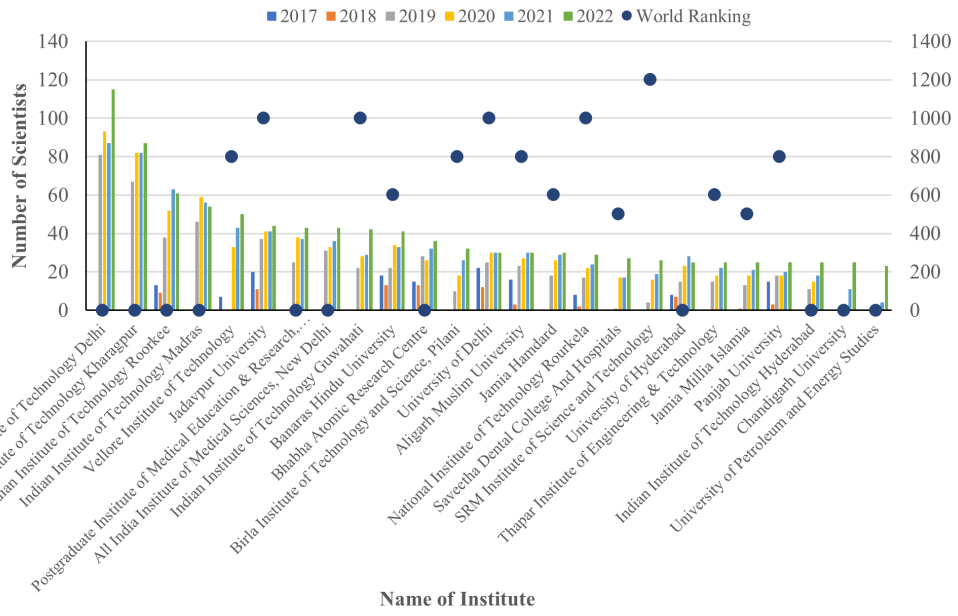

Figure 4: The number of ranked scientists involved in the top 25 Universities.

According to this information the self-citation percentages seemed to be higher.

Figure 4 shows the number of ranked scientists involved in the top 25 Universities and Times Higher Education (THE) Indian university rankings. 11 universities and or institutions were not ranked in THE world university rankings table. Interestingly, the top 4 universities having the maximum number of scientists listed in Stanford dataset metrics were not ranked in the world university rankings table. The Times Higher Education (THE) calculate the ranking of universities under 5 categories and 17 sub-categories and each main and/or sub categories have different calculation weight which are 29.5% Teaching (15% teaching reputation, 4.5% student staff ratio, 2% Doctorate bachelor ratio, 5.5 Doctorate staff ratio, and 2.5% Institutional income); 29% Research environment (5.5% volume, 5.5% income and 18% reputation); 30% Research quality (15% citation impact, 5% research strength, 5% research excellence and 5% research influence); 7.5% International outlook (2.5% staff, 2.5% students and 2.5% research); and 4% Industry (2% income and 2% patents) (Web2, 2024). It is obvious that the top 4 universities as shown in Figure 4 were strength in research environment and research quality categories. Therefore, the top 4 universities need to increase their scores in other categories in order to rise in the Times Higher Education World university rankings.

CONCLUSION

Nowadays, it's critical to assess and index scientific literature. The literature has a wide range of markers for grouping and classifying scientific papers. A more complete picture of the effect may be obtained by combining many indications, but no one approach can choose the greatest scientists. Among the multiple indicators, the Stanford database metric list stands out among other indicators by considering the citations to the publications of scientists from different aspects (specifically, single, first, or last position authorships, since these positions reflect crucial contributions to the work). This study examined the rank of Indian scientists in the Stanford database metric list, their composite scores, citation counts, and their affiliated universities were also considered bibliometrically.

- India has 2939 scientists, placing it 14th in the global Stanford dataset metrics according to career long metrics.
- From 2017 to 2023, the number of listed scientists increased 7 times, from 428 to 2939 according to career long metrics.
- In 2023, the c scores of Indian scientists for both career and single year perspective were very close to overall average values which were 2.7152 and 3.4584, respectively.
- Mechanical engineering and transportation, applied physics, artificial intelligence and image processing, energy, and materials are the most popular disciplines among over 100 Indian scientists in 2022 and 2023.
- The 6 of top 100 Indian scientists are women.
- The top 100 Indian scientists are 20% of chemists, 18% of physicists, 21% of clinical medical, and 14.5% of artificial intelligence.

- The top universities with the most scientists in the Stanford database list are also included in the Times Higher Education world university rankings table.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

Baas, J., Boyack, K., Ioannidis, J. P.A. (2020). Data for Updated science-wide author databases of standardized citation indicators. *Elsevier Data Repository*, (2) doi: 10.17632/btchxktzyw.2

Baas, J., Boyack, K., Ioannidis, J. P.A. (2021). August 2021 data-update for Updated science-wide author databases of standardized citation indicators. *Elsevier Data Repository*, (3) doi: 10.17632/btchxktzyw.3

BiHui, J., LiMing, L., R. Rouseau, L. Egghe, (2007). The R- and AR-indices: Complementing the h-index. *Chinese Science Bulletin*, 52 (6)855-863

Börner, K., Klavans, R., Patek, M., Zoss, A. M., Biberstine, J. R., Light, R. P., Lariviere, V., Boyack K. W. (2012). Design and Update of a Classification System: The UCSD Map of Science. *PLoS Biol*, 7(7) e39464

Bornmann, L., Mutz, R., Daniel, H. D. (2007). The b index as a measure of scientific excellence. A promising supplement to the *h* index. *Cybermetrics*, 11(1) 1-5.

De Solla Price D. (1976). A General Theory of Bibliometric and Other Cumulative Advantage Processes. *Journal of the American Society for Information Science*, 292-306

Demir H. and Sharma S. K. (2020). Green Chemistry and Water Remediation: Research and Applications, Chapter 1 Green chemistry and water remediation: Bibliometric study and research applications" Sanjay K. Sharma (Ed.) Elsevier, 1-33. DOI:10.1016/B978-0-12-817742-6.00001-3

Donovan C., (2007). The qualitative future of research evaluation. *Science and Public Policy*, 34(8)585-597 DOI: 10.3152/030234207X256538

Egghe, L. (2006) Theory and practise of the g-index. *Scientometrics*, Vol. 69, No. 1 131-152

Egghe, L., Rousseau, R. (in press). An *h*-index weighted by citation impact. *Information Processing and Management*. 2008 44, 2, Pages 770-780 doi.10.1016/j.ipm.2007.05.003

Hirsch J. E. (2005a) An index to quantify an individual's scientific research output, *PNAS*, 102, 46; 1 6569-16572 doi_10.1073_pnas.0507655102

Hirsch, J. E. (2005b). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, 102(46) 16569-16572.

Ioannidis, J. P.A. (2022). September 2022 data-update for Updated science-wide author databases of standardized citation indicators. *Elsevier Data Repository*, (5) doi: 10.17632/btchxktzyw.5

Ioannidis, J. P.A. (2023). October 2023 data-update for Updated science-wide author databases of standardized citation indicators. *Elsevier Data Repository*, (6) doi: 10.17632/btchxktzyw.6

Ioannidis, J. P.A. (2024). September data-update for Updated science-wide author databases of standardized citation indicators. *Elsevier Data Repository*, (7) doi: 10.17632/btchxktzyw.7

Ioannidis, J. P.A., Baas, J., Klavans, R., Boyack, K. (2019). Supplementary data tables for "A standardized citation metrics author database annotated for scientific field. *PLoS Biology, Elsevier Data Repository*, (1), doi: 10.17632/btchxktzyw.1

Ioannidis, J. P.A., Klavans, R., Boyack, K. W. (2016). Multiple Citation Indicators and Their Composite across Scientific Disciplines. *PLoS Biol*, 1(7)14: e1002501 doi:10.1371/journal.pbio.1002501

Jermann, C., Koutchma, T., Margas, E., Leadley, C., and Ros-Polski, V. (2015). Mapping trends in novel and emerging food processing technologies around the World Innovative Food Science and Emerging Technologies, 31,14-27.

Jin, B. (2006). h-index: an evaluation indicator proposed by scientist. *Science Focus*, 1(1): 8-9.

Kosmulski, M. (2006). A new Hirsch-type index saves time and works equally well as the original h-index. *ISSI Newsletter*, 2(3): 4-6.

Mingers, J., Leydesdorff, L. (2015). A review of theory and practice in scientometrics. *European Journal of Operational Research*, 246 (1)1-19, doi.10.1016/j.ejor.2015.04.002.

Nalimov, V., and Mulcjenko, B. (1971). Measurement of science: Study of the development of science as an information process. Washington, DC: Foreign Technology Division.

Priem, J., Taraborelli, D., Groth, P., Neylon C. (2010). *Altmetrics*: A manifesto, 26 October 2010. http://altmetrics.org/manifesto

Pritchard, A. (1969). Statistical Bibliography or Bibliometrics. *Journal of Documentation*, 25, 348-349.

Schreiber M. (2008). A modification of the *h*-index: The hm-index accounts for multi-authored manuscripts, *Journal of Informetrics*, 2, 211-216 doi:10.1016/j.joi.2008.05.001

Velmurugan, C., and Radhakrishnan, N. (2016). Indian Journal of Biotechnology: A bibliometric study Innovare Journal of Science, 4:1-7.

Verma, A., Sonkar, S. K., and Gupta, V. (2015). A Bibliometric study of the library philosophy and practice (e-journal) for the period 2005-2014 Library Philosophy and Practice, 1292, http://digitalcommons.unl.edu/libphilprac/1292 (accessed January 19, 2018).

Vijay, K. R., and Raghavan, I., (2007). Journal of Food Science and Technology: A bibliometric study. Annals of Library and Information Studies, 54, 207-212.

Web 1: https://www.imperial.ac.uk/research-and-innovation/support-for-staff/scholarly-communication/bibliometrics/citation-metrics/ Access date: 11.08.2024

Web 2: https://www.timeshighereducation.com/student/advice/world-university-rankings-explained Access date: 19.08.2024

Web 3: https://clarivate.com/highly-cited-researchers/analysis/, Access date: 30/10/2023

Cite this article: Demir H, Sharma SK. Indian Scientists on the Stanford List: A Comprehensive Bibliometric Study. Info Res Com. 2025;2(2):193-202.