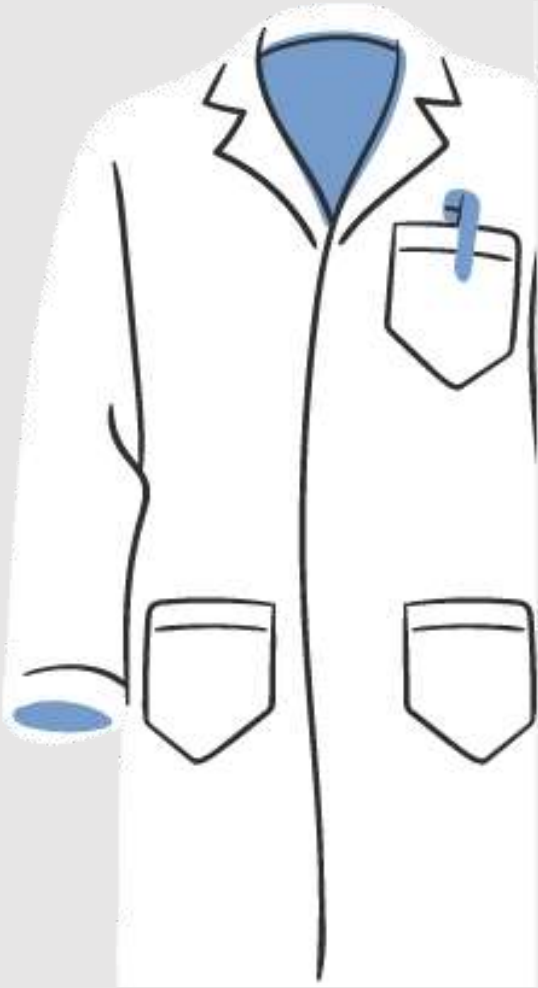
ON LIBRARY TOPICS

PhD Course in Clinical and experimental Oncology and Immunology

2020/2021



DIGITAL LIBRARY & V. PINALI MEDICAL LIBRARY

ON LIBRARY TOPICS

3. BIBLIOMETRICS

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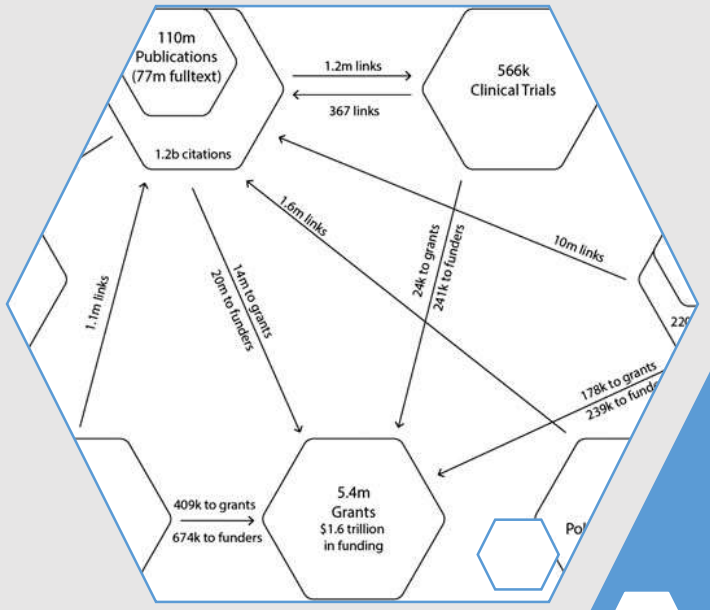
Bibliometrics

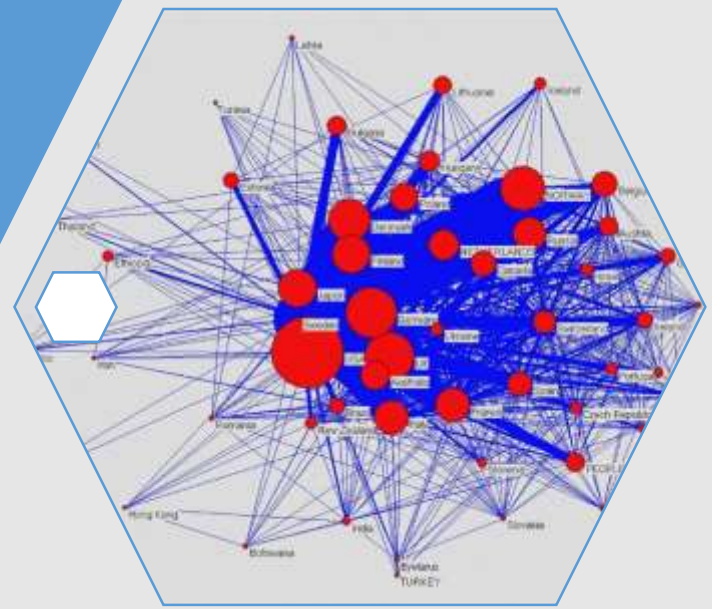
- What is Bibliometrics? Why use it?
- Qualitative assessment methods
- Quantitative Metrics: Citation, Scholarly Journal Rankings, Journal IF, *h*-index
- Citational databases (WoS / Scopus) & related journal metrics
- Misleading metrics
- Bibliometrics & CV

What is Bibliometrics ?



Bibliometrics is the statistical analysis of bibliographic data, commonly focusing on citation analysis of research outputs and publications (books, articles & other research published items)

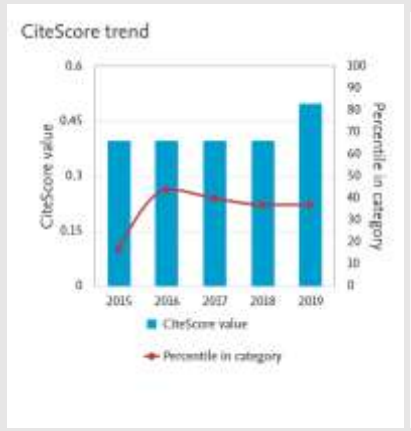
i.e. *citation*: how many times research outputs and publications are being cited.

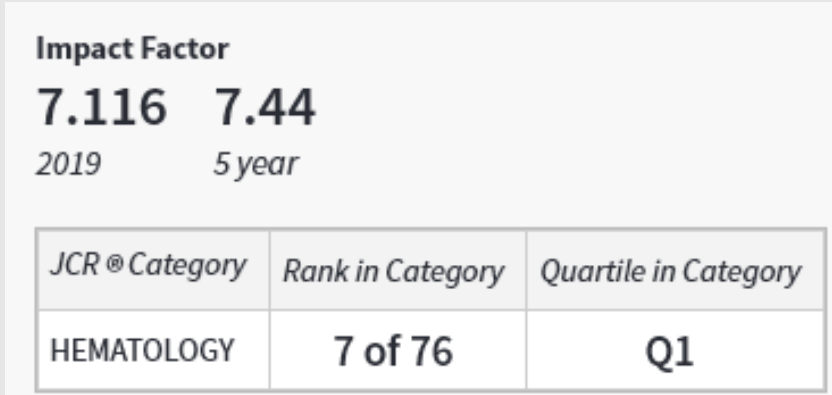


What is Bibliometrics ?

- Bibliometric analysis is becoming an increasingly important way to measure and assess research impact of individuals, groups of individuals or institutions.

- Due to limitations associated with bibliometrics, bibliometric measures should always be used in conjunction with other data: funding received, number of patents, awards granted and qualitative measures such as peer review.





Why use Bibliometrics ?

Bibliometrics could help with a number of activities, including:

1) Identifying **top performing** journals in a subject area.

This can be useful for:

> deciding where to publish
> learning more about a subject area
> identifying emerging areas of research

2) Identifying **areas of research strength and weaknesses**

This can be useful for:

> informing future research priorities for an institution

Why use Bibliometrics ?

Bibliometrics could help with a number of activities, including:

3) Demonstrating the **importance and impact of** your own **research** / research group.

This can be useful for:

> applying for tenure, promotion or grants
> including bibliometric data on your CV
> demonstrating the value of your research to your institution
> demonstrating return on investment to funding bodies, industry and the general public

Why use Bibliometrics ?

Bibliometrics could help with a number of activities, including:

4) Identifying top researchers in a subject area.

This can be useful for:

> locating potential collaborators or competitors
> learning more about a subject area
> informing the recruitment process

There are a number of limitations associated with bibliometrics:
it is important to use bibliometric indicators contextualized in the academic field and mixed with other metrics!

You can use Bibliometrics tools and try to answer to questions such as:

What are the “ high impact journals” within a certain research area?

Who is citing my articles?

How many times have I been cited?

How do I know this article is more or less important?

In which scholarly journal should I publish to have more impact?

Research evaluation approaches are…

quantitative

i.e. in terms of numbers of scientific impact (bibliometrics), patentability or of the presence of contracts with companies interested in research topics

qualitative

i.e. peer-review

which is still the most important method for a meaningful assessment of the quality

Non-bibliometrics indicators are:

expert panel

peer review, peers evaluation

extensive analysis of the economic benefit

Qualitative assessment: *Peer Review*

* A group of expert scholars, working in the same scientific area evaluate submitted research work, published in a scientific journals in a particular field.

* It's an evaluation process to assess the quality of scientific research before it is published. It's different across journals and research fields:

- ✓SINGLE-BLIND REVIEW
- ✓DOUBLE-BLIND REVIEW
- ✓OPEN REVIEW
- ✓PEER REVIEW

Qualitative assessment: *Peer Review*

Peer review can be used as an objective and reliable evaluation measure and is seen by many as the "**gold standard**"

However,

- ✓It is (extremely) time consuming and expensive
- ✓Experts can genuinely disagree (referees)
- ✓There are unconscious and conscious biases
- ✓Is surrounded with mysticism and can create an elite club which can be difficult to enter
- ✓Peer reviewing of grant applications might be biased in favour of applicants who might be closely related to the members of the evaluation committees.

Journal *Peer Review information tool*

Web of Science Group **Master Journal List**

https://mjl.clarivate.com

Peer Review Information

Type of Peer Review	Peer review	**Review Policy**	Visit Site
Publons Partner	No, and this journal does not explicitly endorse Publons	**Claimed Reviews on Publons**	649
Public Reports on Publons	No	**Signed Reports on Publons**	No
Publons Transparent Peer Review Partner	No	**Publons User Endorsements**	6

Journal non-bibliometric qualitative metric

Center for Open Science Information

Transparency and Openness Promotion Guidelines (TOP) Factor:
11

What is Transparency and Openness Promotion Guidelines?
Transparency and Openness Promotion Guidelines (TOP) is a metric that reports the steps that a journal is taking to implement Open Science practices.

What is Center for Open Science?
Center for Open Science (COS) is a non-profit technology company providing free and open services to increase inclusivity and transparency of research. This data is provided by COS.

Want to Learn More about COS & TOP?

Visit Site

TOP Factoring:

Guideline	Level	Summary
Citation Standards	1	Journal describes citation of data in guidelines to authors with clear rules and examples.
Data Transparency	2	Articles must have publicly available data, or an explanation why ethical or legal constraints prevent it.
Analytic Methods (Code) Transparency	0	Code sharing is encouraged, or not mentioned
Research Materials Transparency	0	Materials sharing is encouraged, or not mentioned
Design and Analysis Transparency	2	Journal requires adherence to design transparency standards for review and publication.
Study Preregistration	0	Journal says nothing
Analysis Plan Preregistration	0	Journal says nothing
Replication	3	Journal accepts Registered Reports for replication studies as a regular submission option.
Open Science Badges	0	
Registered Reports	3	Journal accepts Registered Reports for novel studies as a regular submission option.
TOP Factor Total	**11**	

Web of Science Group **Master Journal List**

https://mjl.clarivate.com

Quantitative assessment : *Citation Analysis*

Citation Analysis

It collects the citations of academic outputs to establish connections with other works, common areas or researchers. Relationships studied by citation analysis include field, authors, institutions, and countries.

It is the analysis of the frequency and pattern of citations of the articles / texts

Citation count and citation indexes:

Citation analysis **would not be possible without citation indices** to gather the information together.

The original idea of citation indexing is credited to *Shephard's Citations*, which was first published in 1873 as an index to law literature; **Eugene Garfield**, founder of ISI, **is credited** with taking this idea and **applying it to the science literature**.

M. K. McBurney and P. L. Novak, "What is bibliometrics and why should you care?," *Proceedings. IEEE International Professional Communication Conference*, Portland, OR, USA, 2002, pp. 108-114, doi: 10.1109/IPCC.2002.1049094.

Citation laws, theories & indexes:

1873
Shepard's citation

Shepard's Citations

It is a citator used in United States legal research that provides a list of all the authorities citing a particular case, statute, or other legal authority

1926 Lotka's Law

Lotka, A J "The Frequency Distribution of Scientific Productivity. " *Journal of the Washington Academy of Sciences*, vol. 16, no. 12 (1926): 317–23

1927
First Citation Analysis?

Gross, P L and Gross E M "College Libraries and Chemical Education." *Science* vol. 66 (1927): 385-9

1934
Bradford's Law

Bradford, S C "Sources of Information on Specific Subjects." *Engineering* , vol. 137 (1934): 85-91

1955
Garfield E. "Citation Indexes for Science A New Dimension in Documentation through Association of Ideas." *Science* vol. 122 (1955):108-11

1964
ISI - Science Citation Index

5 volume print edition indexing 613 Journals and 1.4 million citations

1965
ISI –Journal Impact Factor is created to evaluate which journals should be indexed in *SCI*

1975
Scientific Journal Ranking

made by ISI – Journal of Citation Reports

1995
Online edition of ISI indexes

1997
Web of Science citational database

2006
Scopus citational database

2010
Altmetrics

Citation Analysis

Objective: Analyze distibution models & impact of scientific papers on academic & scholarly community

Metrics: **citation, n. articles, journal metrics, researcher metrics** (…)

Medium: **tools for calculation** and metrics creation & archive: **citational dbs**

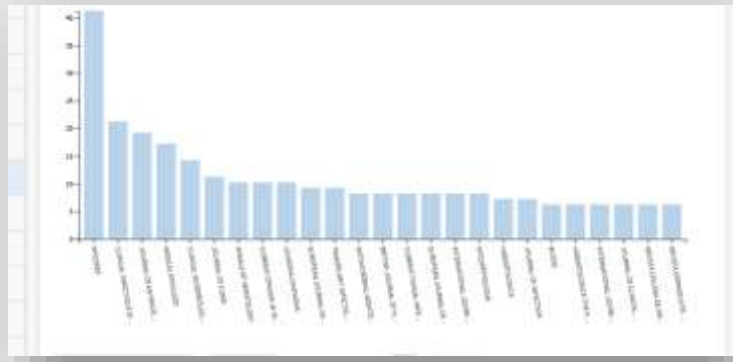
Quantitative assessment : *Citation Analysis*

PRO	CONS
Availability and readiness of bibliometric data (bibliometric databases)	No qualitative differentiation between citations
Objective, easy and low cost procedure	Technical errors e.g., typo errors in papers and references result in inaccuracy
Positive correlation between peer review and bibliometric analysis	Citations measure visibility and impact, not quite the same as quality
	Citation coverage varies widely across different subject fields
	Citations are bound by time Papers are more likely to be cited when authors are known or come from top journals
	There are problems with recording citations depending on their sources

Quantitative assessment - article level metrics

1. Citation count

476 documents have cited:



Citation Network

In Web of Science Core Collection

438

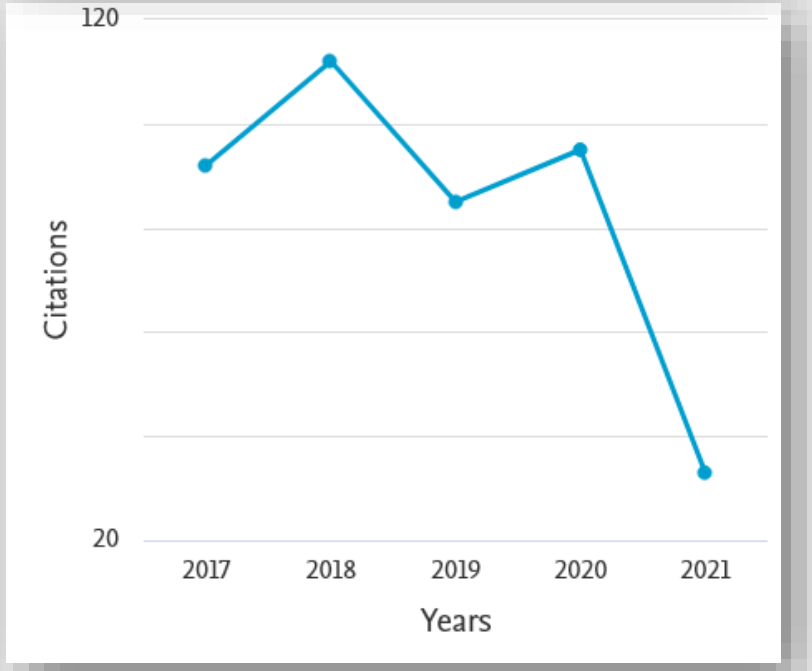
Citations

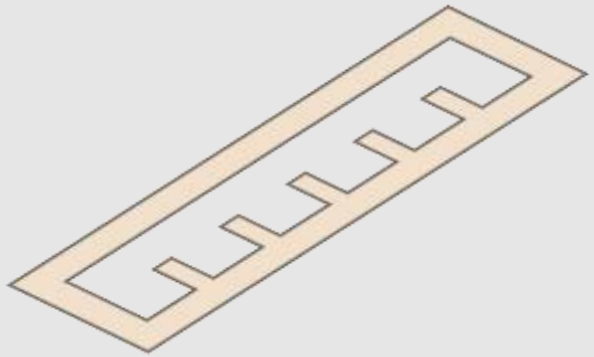
Create citation alert

All Citations

446 In All Databases

\+ See more citations





Lotka's Law

Where **the number of authors publishing a certain number of articles is a fixed ratio to the number of authors publishing a single article**.

*As the **number of articles published increases**, authors producing that many publications become less frequent*

The rich (scholarly author) get richer and the poor (scholarly author) get poorer

Bradford's law

Bradford's law of scattering or *Bradford distribution Law* is a pattern that estimates the exponentially diminishing returns of searching for references in (STM) journals.

It means is that ***for each specialty it is sufficient to identify the "core publications" for that field and only stock those; very rarely will researchers need to go outside that set****.*

Armed with this idea and inspired by the 1945 essay *As We May Think* by Vannevar Bush, Eugene Garfield creates his index.

This law or distribution in bibliometrics can be applied to the World Wide Web, it is also one of the methods originally implemented in *search engines like Google*

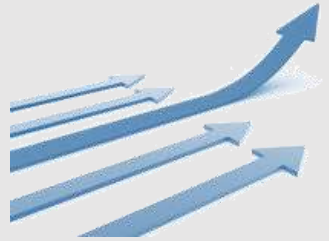
Bradford's law and bibliometrics critical isues

Only a small percentage of a close subset of journals is highly cited. This subset owns the majority of the total citations received by academic journals.

The result of this citation distribution law is pressure on scientists to publish in the best journals, and pressure on universities to ensure access to that core set of journals. On the other hand, the set of "core journals" may vary more or less strongly with the individual researchers, and even more strongly along schools-of-thought divides. There is also a danger of over-representing majority views if journals are selected in this fashion.

Quantitative assessment - Journal level:

2. Scientific Journal Ranking



Scientific Journal Ranking is a measure of scientific impact of a Scholarly - Academic Journal, in its subject Area\ category

It starts (60's) from the needs of academic libraries in the evaluation of journal subscriptions (= high costs & poor budgets): how to subscribe to the most influential journals?

There are several journal metrics developed and calculated by different "market players" … Internationally acknowledged Journal metrics are:

- Impact Factor - Journal of Citation Reports
- Scopus CiteScore / SNIP
- SCImago SJR

Bibliometric Indicators & related databases:

Impact factor

Clarivate Journal of Citation Reports

SUBSCRIPTION BASED

Citescore / SNIP

Elsevier Scopus

SUBSCRIPTION BASED

Scimago SJR

Journal Metrics

(powered by Scopus)

https://www.scimagojr.com

FREE

Each journal metric offers ≠ values for Journal ranking !

Each journal metric uses ≠ measures, that are not mutually compatible:

Journal/2019 metric	Impact Factor	SNIP	SJR	EigenFactor	*CiteScore*
CA - A Cancer Journal for Clinicians	292.278	113.774	88.192	0.09358	435.4

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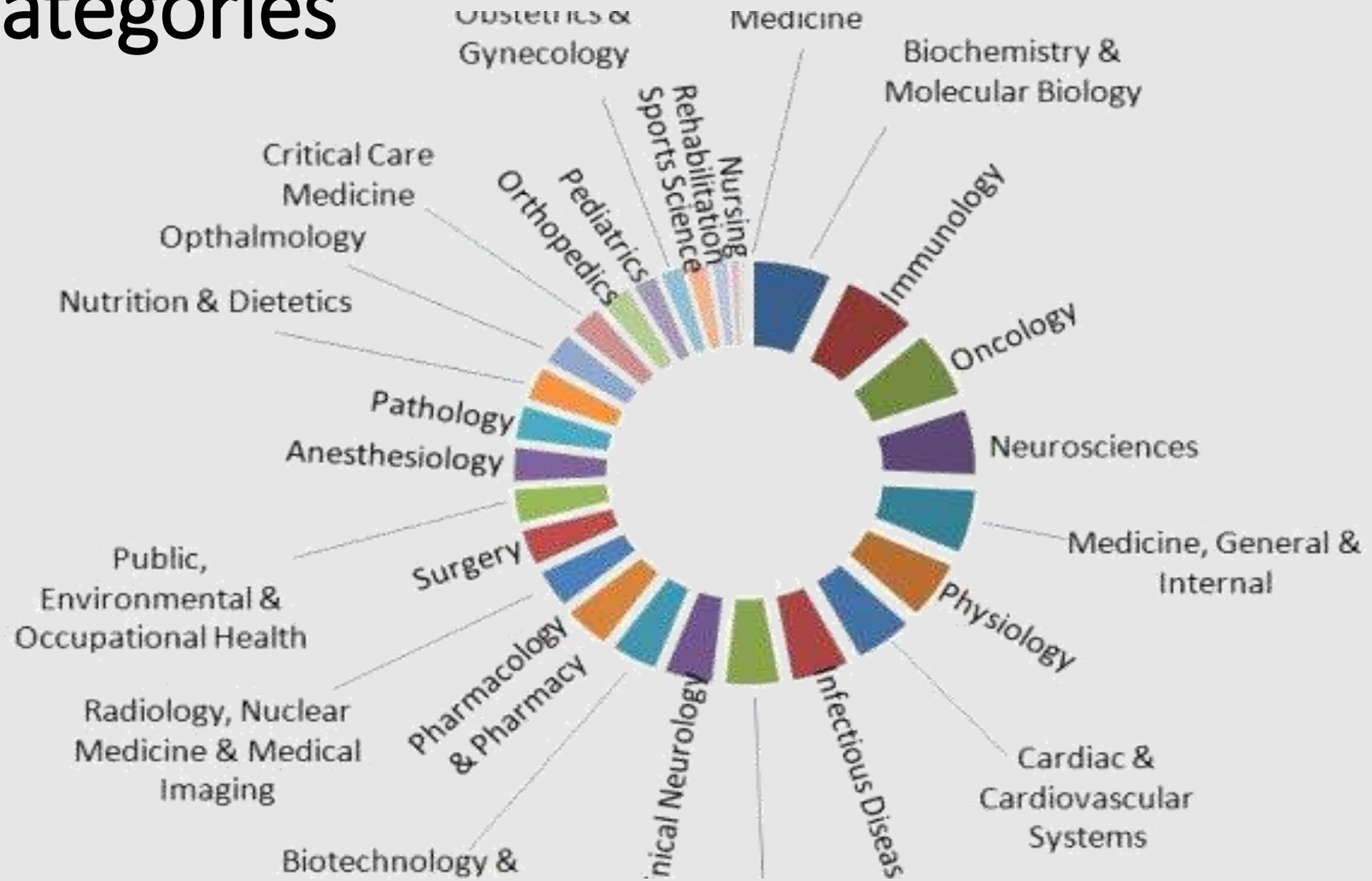
Journal Categories



Journal Citations & Research Area

Research Area	Web of Science Documents	Times Cited	% Documents Cited	Journal Normalized Citation Impact	Documents in Q1 Journals	Documents in Top 1%	Documents in Top 10%	Hot Papers
ONCOLOGY	549,385	3,252,845	50.97%	0.68	212,050	5,218	44,232	150
IMMUNOLOGY	234,224	1,624,078	58.83%	0.71	76,094	2,046	19,562	77
SURGERY	369,002	1,281,270	50.94%	0.67	134,438	3,244	29,063	15

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Journal Categories

Citations patterns can differ greatly between disciplines, for example, in **certain disciplines research outputs may be cited more frequently than in other disciplines**.

Therefore it is important to compare journals, researchers, or groups of researchers against those **from the same or similar discipline**.

ONCOLOGY

Year	Edition	# Journals Graph	Articles Graph	Total Cites Graph	Median Impact Factor Graph	Aggregate Impact Factor Graph	Aggregate Immediacy Index Graph	Aggregate Cited Half-Life Graph
2019	SCIE	244	47,673	2,187,273	3.297	4.840	1.115	6.5

SURGERY

Year	Edition	# Journals Graph	Articles Graph	Total Cites Graph	Median Impact Factor Graph	Aggregate Impact Factor Graph	Aggregate Immediacy Index Graph	Aggregate Cited Half-Life Graph
2019	SCIE	210	37,719	1,327,558	1.901	2.558	0.717	8.0

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Journal Metrics & Journal Quartile Rankings

Quartile rankings are therefore derived for each journal in each of its subject categories according to **which quartile of the bibliometric indicator** (IF, CiteScore…) **distribution** the journal occupies for that subject **category.**

Journal	JIF-subject category Quartile
ANNALS OF ONCOLOGY	Q1
BREAST CANCER RESEARCH	Q1
BREAST CANCER RESEARCH AND TREATMENT	Q2
CANCER IMAGING	Q4
CANCER NURSING	Q4
CANCER RESEARCH	Q1
CANCER SCIENCE	Q1
Cancer Biomarkers	Q2
Frontiers in Oncology	Q2
INDIAN JOURNAL OF CANCER	Q4
JOURNAL OF CLINICAL ONCOLOGY	Q1
ONCOLOGIST	Q1
ONCOLOGY-NEW YORK	Q3
OncoImmunology	Q1

47	Liver Cancer	journal	2.023 Q1
48	ESMO Open	journal	2.018 Q1
49	Current Opinion in HIV and AIDS	journal	2.016 Q1
50	Radiotherapy and Oncology	journal	2.003 Q1

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Quantitative assessment - Journal level:

3. Journal Impact Factor

	Full Journal Title	Impact Factor	Impact Factor
1	CA-A CANCER JOURNAL FOR CLINICIANS	292.278	225.870
2	NEW ENGLAND JOURNAL OF MEDICINE	74.699	72.098
3	Nature Reviews Materials	71.189	84.972
4	NATURE REVIEWS DRUG DISCOVERY	64.797	60.796
5	LANCET	60.390	59.345
6	NATURE REVIEWS MOLECULAR CELL BIOLOGY	55.470	53.949
7	Nature Reviews Clinical Oncology	53.276	34.517

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JIF and Journal of Citation Reports

The Journal of Citation Reports (JCR) is a citation database of peer-reviewed journals, subscription-based and made by Clarivate.

In JCR is calculated and published yearly the **Journal Impact Factor (JIF)** -> in 2020 was published JIF 2019…

JIF is the average number of citations received in one year by articles published, in a scientific journal, in the two previous years

A Journal Impact Factor of 1.0 means that, on average, the articles published one or two years ago have been cited one time. A Journal Impact Factor of 2.5 means that, on average, the articles published one or two years ago have been cited 2.5 time

2021 New JIF calculation

From 2020's edition JIF will include also citations made by Early Access papers (*epub ahead of print* article in PubMed), and will be drawn from citing articles with the Early Access publication year of 2020

Journal Impact Factor

2021 - New JIF calculation!!

$$\text{2020 Impact Factor} = \frac{\text{Citations with Early Access year 2020 to papers with Issue Cover year 2018 or 2019}}{\text{Citable Items with Issue Cover year 2018 or 2019}}$$

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JIF Impact Factor: Numerators and denominators

The **numerator** is the number of **all citations to the journal** from 1 year (i.e. 2020) to the previous 2 years published articles(2019,2018)

Any citation to any item represents an acknowledgment of the journal

However, the **denominator** is the number of substantive, scholarly articles *most likely to be cited*

JIF Impact Factor: Numerators and denominators

The **numerator and denominator** count of “articles”, used in the Impact Factor calculation, may artificially alter the results

The items counted in the **denominator** of the impact factor are identifiable in the Web of Science database by having the index field document type set as “Article,” “Review,” or “Proceedings Paper”. These document types identify the scholarly contribution of the journal to the literature and are counted as “**citable items**” in the denominator of the impact factor.

JIF : Numerators and denominators gaming

If the **numerator grows** and the **denominator decreases**, the Impact factor increases

To increase the impact factor, **many journals publish more articles not calculated in the denominator**:

i.e. "In brief" articles, micro-reviews…

JIF : Numerators and denominators gaming

This involves putting accepted papers in an online queue for one or even two years before they are eventually published “in print”.

For a journal with a 2Y “online queue”, a paper that appears online (i.e. made available as ‘Early access’) accumulates citations for the journal (adding to the **numerator**) for first two years **but do es not ‘count’ in the denominator for 2 Y**. *

*Probably, Clarivate have now introduced early access count in JIF also to overcome the effect of such ‘gaming’ by unscrupulous journal editors

2020 JIF : Numerators, denominators and Early Access Citations

If the **numerator grows** and the **denominator decreases**, the Impact factor increases: it will almost certainly yield a temporary boost in 2020 journal Impact Factors across the JCR, since the numerator will include citations from Early Access articles while Early Access articles remain excluded from the denominator.

$$\text{2020 Impact Factor} = \frac{\text{Citations with Early Access year 2020 to papers with Issue Cover year 2018 or 2019}}{\text{Citable Items with Issue Cover year 2018 or 2019}}$$

$$\text{2021 Impact Factor} = \frac{\text{Citations with Early Access year 2021 to papers with Issue Cover year 2019 or Early Access year 2020}}{\text{Citable Items with Issue Cover year 2019 or Early Access year 2020}}$$

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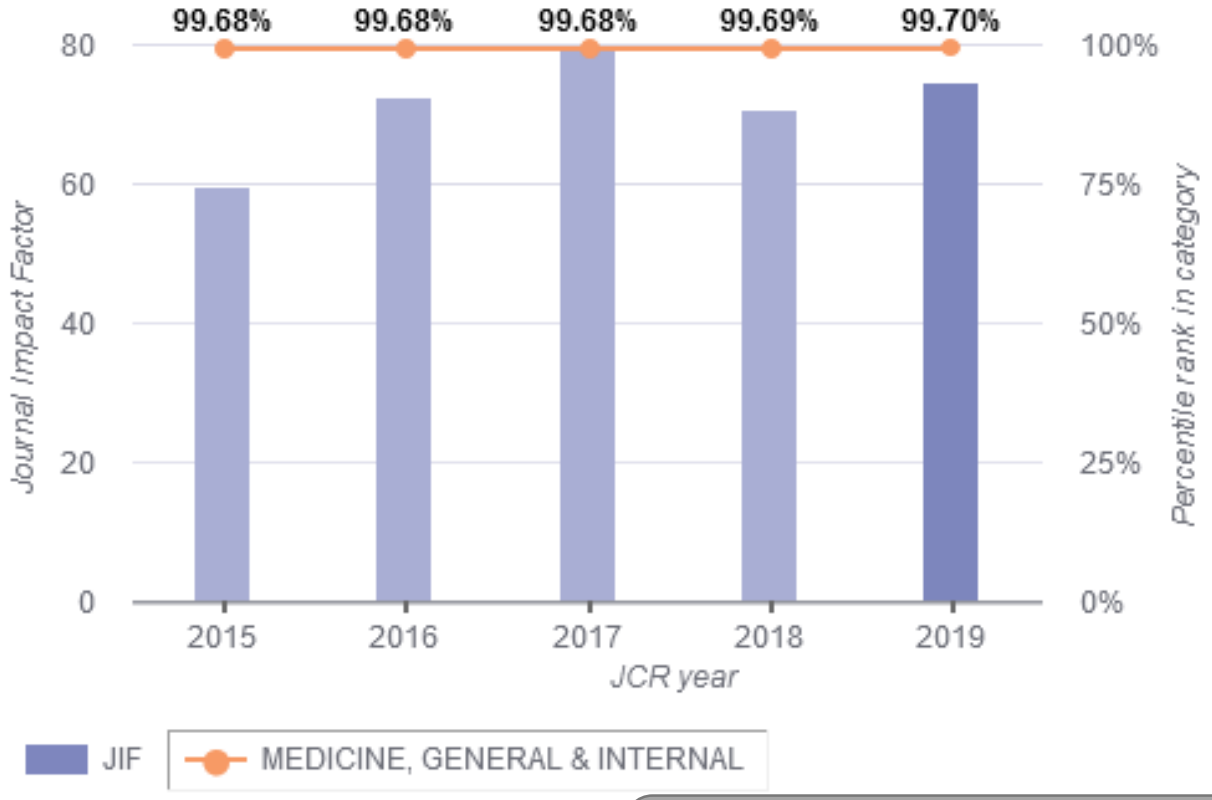
JIF 2019 : NEJM

74.699

2019 Journal Impact Factor



$$\text{2019 Journal Impact Factor} = \frac{48{,}405}{648} = 74.699$$

How is Journal Impact Factor Calculated?

$$\text{JIF} = \frac{\text{Citations in 2019 to items published in 2017 (25,326) + 2018 (23,079)}}{\text{Number of citable items in 2017 (327) + 2018 (321)}} = \frac{48{,}405}{648}$$

2Y citation window
Min. 3Y of indexing in WoS are necessary to obtain a JCR indexing and a JIF

JIF (and comparable metrics) Disadvantages

- A title change affects JIF for years after the change is made
- “Self–citation influence” (see also *JIF without self citations*)
- Citation Gaming
- JIF is not a field-normalized journal metric
- New journals cannot have an impact factor, it takes 3 years (or more) of indexing in WoS: after 3 years and further verifications, they may have a calculated JIF
- JIF is developed on traditional Academic Journal dissemination model (pre-internet era), with some recent updates

5 Year Impact Factor

$$\text{5 Year Impact Factor} = \frac{\text{Citations in 2019 to items published in [2014-2018] (120,476)}}{\text{Number of citable items in [2014-2018] (1,671)}} = \frac{120{,}476}{1{,}671} = 72.098$$

	Citations in 2019 to items published in 2014 - 2018	Number of citable items in 2014 - 2018
2018	23,079	321
2017	25,326	327
2016	23,256	328
2015	29,274	342
2014	19,541	353
Total:	120,476	1,671

5 years citational window

Journal quality, impact and prestige

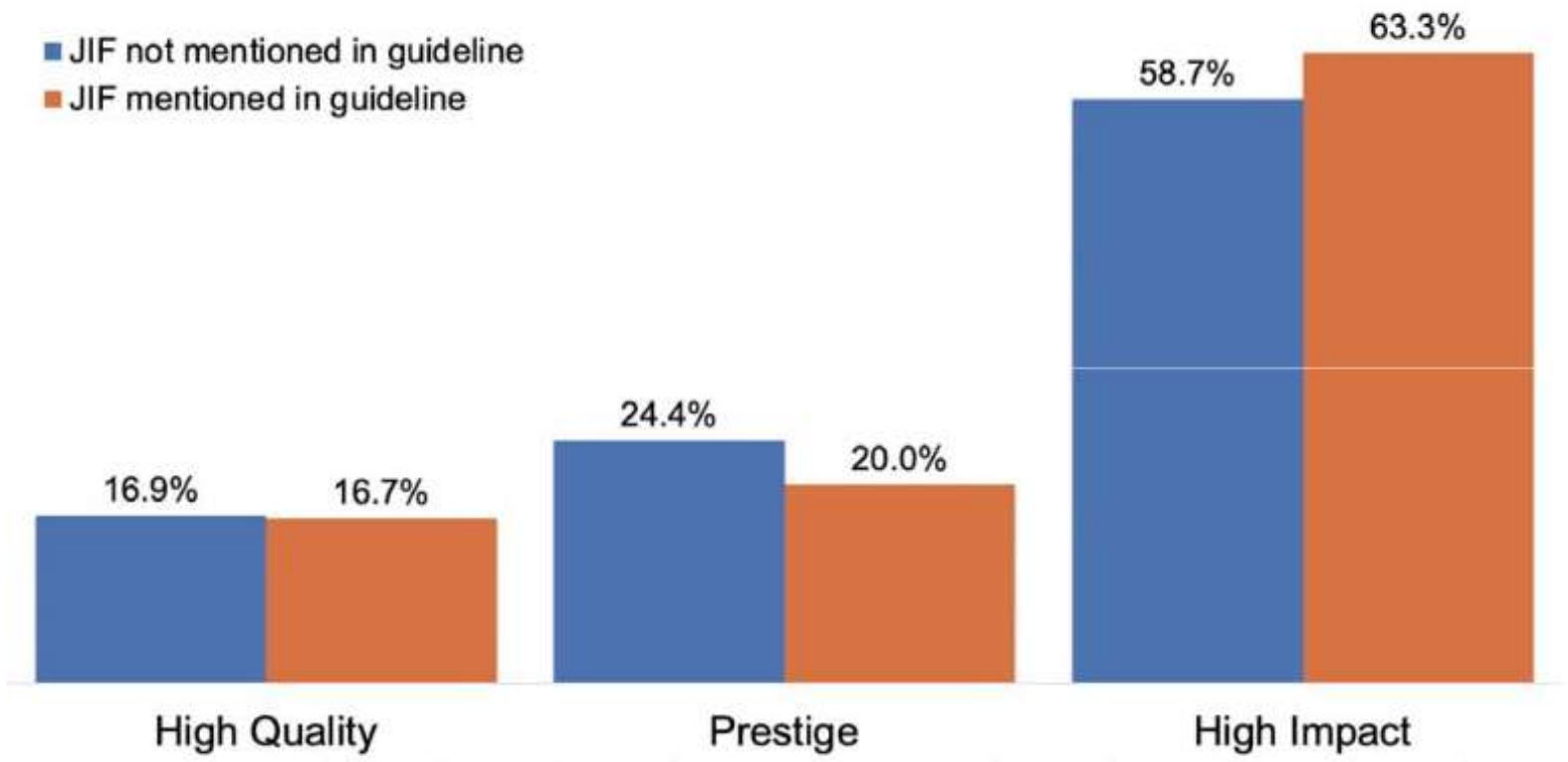


Figure 4. Use of "Impact Factor and Metrics" as a definition of various terms
Percentage of responses that contained at least one segment in participants' definitions of High Quality, Prestige and High Impact that relies on "Impact Factor and metrics", as a proportion of all the RPT guidelines that mentioned the JIF and of the guidelines that did not.

Esteban Morales, Erin McKiernan, Meredith T. Niles, Lesley Schimanski, Juan Pablo Alperin
bioRxiv
2021.04.14.439880; doi: https://doi.org/10.1101/2021.04.14.439880

RPT = Research assessment, which is codified for faculty career progression in review, promotion, and tenure

Quantitative assesment: Author Level metrics

4. *h*-index

The *h*-index attempts to measure both the productivity and citation impact of the publications of a scientist or scholarly author

h-index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications

The index can also be applied to the productivity and impact of a scholarly journal[as well as a group of scientists, such as a department or university or country

The index was suggested in 2005 by Jorge E. Hirsch, a physicist at UCSD, as a tool for determining theoretical physicists' relative quality and is sometimes called the Hirsch index or Hirsch number

Author Level metrics: *h*-index

The Hirsch index of a researcher is the highest integer *h* such that *h* among this person's *N p* papers have collected at least *h* citations, while the remaining *N p-h* papers have less than h citations each

- A scientist has got an *h*-index of *X*, if has *X* papers, each of which has been cited at least *X* times.

i.e. An h-index of 25 means the researcher has 25 papers, each of which has been cited 25+ times.

Author level metrics: *h*-index

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i.e. An h-index of 25 means the researcher has 25 papers, each of which has been cited 25+ times.

h-index Advantages

- It combines a measure of quantity (publications) and impact (citations).
- It allows us to characterize the scientific output of a researcher with objectivity and, therefore, may play an important role when making decisions about promotions, fund allocation and awarding prizes.
- It performs better than other single-number criteria commonly used to evaluate the scientific output of a researcher (impact factor, total number of documents, total number of citations, citation per paper rate and number of highly cited papers).
- The h-index can be easily obtained by anyone with subscribed access to the Clarivate Analytics Web of Science or Scopus and, in addition, it is easy to understand.

h-index Advantages

1. There are inter-field differences in typical h values due to differences among fields in productivity and citation, so the *h*-index should not be used to compare scientists from different disciplines.

2. The *h*-index depends on the duration of each scientist's career because the pool of publications and citations increases over.

3. In order to compare scientists at different stages of their career, Hirsch (Hirsch JE (2005) presented the "m parameter", which is the result of dividing h by the *scientific age* of a scientist (= years since the author's first publication).

h-index Disadvantages

1. Highly cited papers are important for the determination of the *h*-index, but once they are selected to belong to the top *h* papers, it is unimportant the number of citations they receive. This is a disadvantage of the *h*-index which Egghe has tried to overcome through a new index, called g-index in *Theory and practice of the g-index*. Scientometrics 69(1):131-152, doi: 10.1007/s11192-006-0144-7).

2. Since the *h*-index is easy to obtain, we run the risk of indiscriminate use, such as relying only on it for the assessment of scientists. Research performance is a complex multifaceted endeavour that cannot be assessed adequately by means of a single indicator.

h-index Disadvantages

3. The use of the *h*-index could provoke changes in the publishing behaviour of scientists, such an artificial increase in the number of self-citations distributed among the documents on the edge of the h-index.

4. There are also technical limitations, such as the difficulty to obtain the complete output of scientists with very common names, or whether self-citations should be removed or not. Self-citations can increase a scientist's h, but their effect on h is much smaller than on the total citation count since only self-citations with a number of citations just > h are relevant (Hirsch JE 2005)

Hirsch JE (PNAS 2005)
h-Index: an index to quantify an individual's scientific research output

"Obviously **a single number can never give more than a rough approximation to an individual's multifaceted profile**, and many other factors should be considered in combination in evaluating an individual. This and the fact that there can always be exceptions to rules should be kept in mind especially in life-changing decision such as the granting or denying of tenure"

h-Index: calculation

In Clarivate WoS – Web of Science

In Elsevier Scopus

In Publons (from WoS database)

From Google Scholar (trustless)

Why it’s useful to know "who cites who"?

- Knowing who have cited yr. items it’s a measure of the impact that the work is having on the research community
- To measure the influence of the work of your colleagues and competitors
- To follow the trail of ideas and the most important and emerging research topics
- To determine if a theory has been confirmed, changed or implemented
- To view as a basic research concept has been applied
- To evaluate yearly development of a specific research topic in the literature
- To verify the accuracy of references
- To retrieve the most relevant articles "lost" in the bibliographic search

Citation indexing databases: "hands on"

Web of science
http://apps.webofknowledge.com

Scopus
http://www.scopus.com

Scopus based Metrics

Scopus®

New England Journal of Medicine

Scopus coverage years: from 1945 to Present

Publisher: Massachusetts Medical Society

ISSN: 0028-4793 E-ISSN: 1533-4406

Subject area: Medicine: General Medicine

Source type: Journal

View all documents > | Set document alert | Save to source list | Source Homepage | Cerca con Galileo

CiteScore 2019
66.1

SJR 2019
18.291

SNIP 2019
13.212

Citescore = 4Y citational timespan

CiteScore 2019

66.1 = 152.040 Citations 2016 - 2019 / 2.301 Documents 2016 - 2019

Calculated on 06 May, 2020

CiteScoreTracker 2020

2.374 Documents to

Last updated on 06 April, 2021 • Updated monthly

All Citations from peer reviewed contents / All peer reviewed content

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CiteScore

Scopus®

From 2019

- Only peer-reviewed publication types (articles, reviews, conference papers, book chapters and data papers) are included in both the citation numerator and publication denominator
- Citations are now be counted cumulatively, from the year of publication until the end of the calculation window, which is up to four years. This means that all citations received by publications in this period are counted towards CiteScore values. In the past, citations were counted for the previous year only.
- Publications in the four years up to and including the calculation year will now be included. This means that CiteScore can be calculated for journals with just a single year of publication, giving new journals – including many Open Access (OA) and China-focused journals – a first indication of their citation impact one year earlier.
- CiteScore values is now displayed to one decimal place in order to avoid an impression of precision, in line with industry best-practice. Previously, CiteScore values were displayed to two decimal places

CiteScore

Scopus®

CITESCORE criticism http://eigenfactor.org/projects/posts/citescore.php

“Impact Factor is often criticized because citations to front matter and other "non-citeable items" count toward the numerator but not the denominator of the score.

As a result, journals that produce large amounts of front matter are probably receiving a bit of an extra boost from the Impact Factor score.

The CiteScore measure eliminates this boost, at the expense of including all of the front-matter articles, however rarely cited, in the denominator.

(…) The best argument we see for taking the CiteScore approach is that front matter and regular research articles are not as easily distinguished as one might think (…)

Scopus *article-level metrics*

Field Weighted Citation Impact (FWCI) is a Scopus metric that shows how well cited this article is when compared to similar articles. A FWCI greater than 1.00 means the article is more cited than expected according to the world average. FWCItakes into account the year of publication, document type, and the disciplines associated with its source.

$$FWCI_i = \frac{c_i}{e_i}$$

- c_i: Citations received by publication i in the publication year plus following 3 years
- e_i: Expected number of citations per publication received in the same time period by similar publications. Similar publications to publication i is defined by all publications that are in the same All Science Journal Classification(ASJC) category as i (Berkvens, 2012)

A similar metric is developed by Clarivate: *Impact Relative to World* shows the citation impact of a set of publications as a ratio of world average

$$Impact\ relative\ to\ World = \frac{Citation\ Impact}{Baseline\ (world\ citation\ impact)}$$

Web of Science & other JCR metrics

NEW ENGLAND JOURNAL OF MEDICINE

Impact Factor

74.699	72.098
2019	*5 year*

JCR® Category	*Rank in Category*	*Quartile in Category*
MEDICINE, GENERAL & INTERNAL	1 of 165	Q1

Data from the 2019 edition of Journal Citation Reports

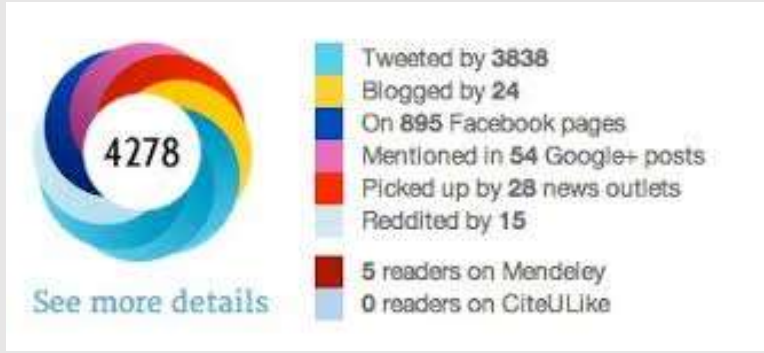
Key Indicators 2019

IMPACT METRICS		
Total Cites	347,450	✓Trend
Journal Impact Factor	74.699	Trend
5 Year Impact Factor	72.098	Trend
Immediacy Index	19.003	Trend
Impact Factor without Journal Self Cites	73.983	Trend

INFLUENCE METRICS		
Eigenfactor Score	0.66180	Trend
Article Influence Score	31.294	Trend
Normalized Eigenfactor	80.65467	Trend

SOURCE METRICS		
Citable Items	328	Trend
% Articles in Citable Items	84.45	Trend
Average JIF Percentile	99.697	Trend
Cited Half-Life	8.7	Trend
Citing Half-Life	4.9	Trend

Altmetrics



Altmetrics are metrics and qualitative data that are complementary to traditional, citation-based metrics.

They can include (but are not limited to) peer reviews on Faculty of 1000, citations on Wikipedia and in public policy documents, discussions on research blogs, mainstream media coverage, bookmarks on reference managers like Mendeley, and mentions on social networks such as Twitter.

Sourced from the Web, altmetrics can tell you a lot about how often journal articles and other scholarly outputs like datasets are discussed and used around the world. For that reason, altmetrics have been incorporated into researchers' websites, institutional repositories, journal websites, and more.

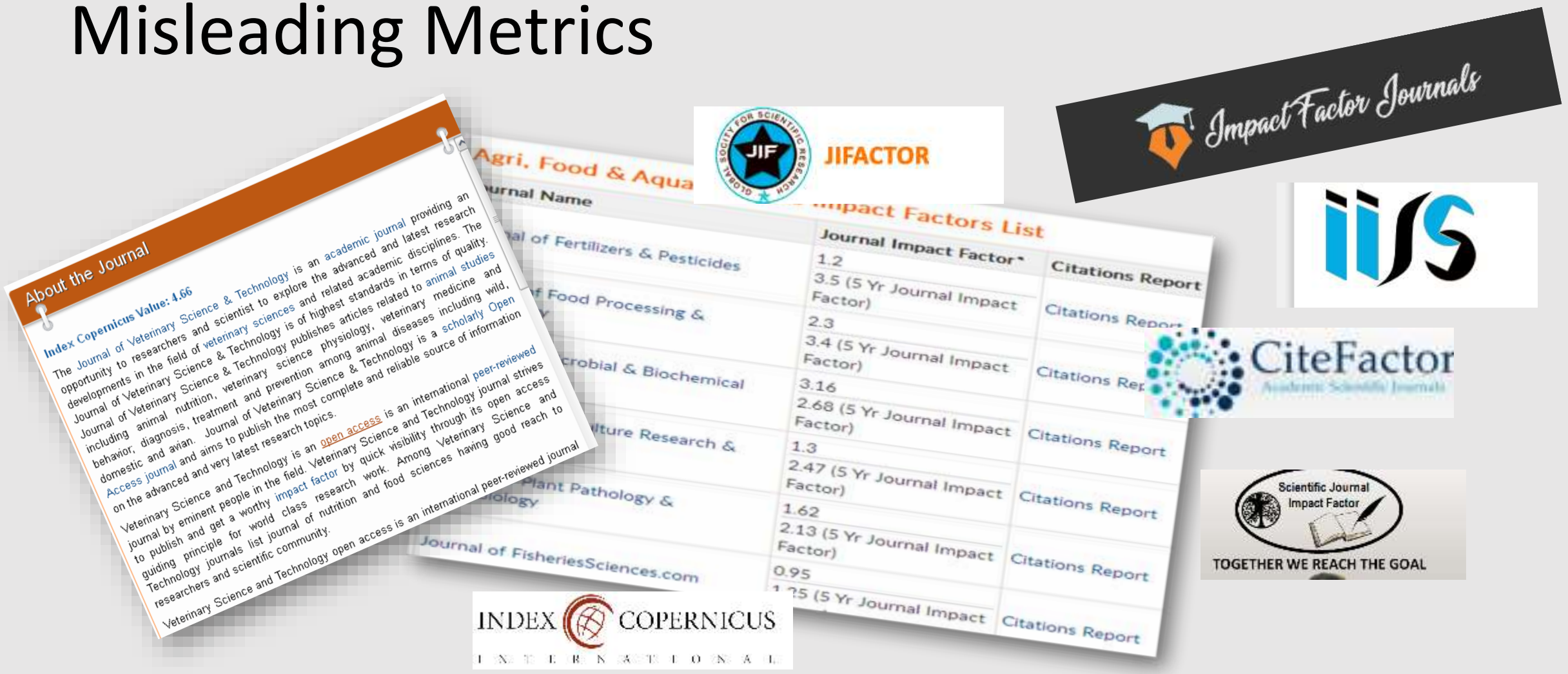
Altmetric

Altmetrics and Elsevier's PlumX metrics (categorized into 5 separate categories: Citations, Usage, Captures, Mentions, and Social Media) give an indication of how others are interacting with a research work.

PLUM ANALYTICS

Researchers can find Plumx metrics in Scopus and download the Altmetric browser plugin to find Altmetrics scores for individual research outputs.

Misleading Metrics



*2017 Journal Impact Factor was established by dividing the number of articles published in 2015 and 2016 with the number of times they are cited in 2017 based on Google Scholar Citation Index database. If 'X' is the total number of articles published in 2015 and 2016, and 'Y' is the number of times these articles were cited in indexed journals during 2017 then, journal impact factor = Y/X

Misleading Metrics = false metrics

Misleading Metrics	
Year	Number of companies
2015	26
2016	38
2017	53

53 Misleading Metrics companies
(Beall 2017)

https://beallslist.net/misleading-metrics

Misleading Metrics

1. The website for the metric is non-transparent and provides little information about itself such as location, management team and its experience, other company information, and the like
2. The company charges journals for inclusion in the list.
3. The values (scores) for most or all of the journals on the list increase each year.
4. The company uses Google Scholar as its database for calculating metrics (**Google Scholar does not screen for quality and indexes predatory journals**)
5. The metric uses the term "impact factor" in its name.
6. The methodology for calculating the value is contrived, unscientific, or unoriginal.
7. The company exists solely for the purpose of earning money from questionable journals that use the gold open-access model. The company charges the journals and assigns them a value, and then the journals use the number to help increase article submissions and therefore revenue. Alternatively, the company exists as a front for an existing publisher and assigns values to that publisher's journals.

https://beallslist.net/misleading-metrics

How much is too much? The difference between research influence and self-citation excess

Citations can be an indicator of publication significance, utility, attention, visibility or short-term impact but analysts need to confirm whether a high citation count for an individual is a genuine reflection of influence or a consequence of extraordinary, even excessive, self-citation. It has recently been suggested there may be increasing misrepresentation of research performance by individuals who self-cite inordinately to achieve scores and win rewards.

Szomszor, M., Pendlebury, D.A. & Adams, J. How much is too much? The difference between research influence and self-citation excess. *Scientometrics* **123,** 1119–1147 (2020). https://doi.org/10.1007/s11192-020-03417-5

Bibliometrics & CV

Impact factor	H-index	Publications	IF & metrics
Report Impact Factor edition year	Cite calculation database and date of calculation	You must not mix full-articles & abstract	Sum of Impact Factors are non-sense metrics
You can normalize all'IF edition to last year edition available	Report all the items and citations used for h-index calculation	You must report & distinguish the different document types	Report metrics useful for evaluators like: total num. of citable items, tot. Citations..
You must not report fake impact factor or other metrics than Clarivate Analytics impact factor	Pay attention to homonyms and grouped-author/appendix author items	You must not insert in your CV publications in fake or scam journals, or (if this kind of items are a small %)in Journals not-indexed in JCR, PubMed, Web of Science, or Scopus	Check the indicators provided by the journal homepage, and the effectiveness of JCR, WoS or Scopus indexing

Thank you!

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Support:

https://bibliotecadigitale.cab.unipd.it/en/helpline

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