

# Citation Analysis Gastric Surgery Articles 2000-2005

## Abstract

Bibliometrics are used in quantitative research assessment. This method has been used to trace relationships among academic journal citations with the aim of improving collection development of the library.

In this study citation analysis of gastric surgery articles is done with subject dispersion, forms of literature etc: from six surgery journals for the period of 2000-2005. The bibliographical details of 7060 citations are recorded from 1532 articles/ papers on gastric surgery.

**Keywords:** Bibliometrics, Citation Analysis, Gastric Surgery.

## Introduction

Bibliometric studies reveal the publishing and literature patterns in a field. Citation analysis is used in the present study to understand the nature and characteristics of surgery. The analysis of citations has been established as a method of studying the journals as well as the people and the work of science. The citation links provide a quantitative picture of the journal utility and relationship that are useful in many ways.

According to Garfield, true citation analysis is one which deals with works cited as having actually been used in the preparation of or having otherwise contributed to the source papers, scientific productivity has been linked to various factors such as age and subject specialization, economic indicators such as government expenditure on civil research and development. This study aims to investigate the publication patterns of gastric surgery, presents the data collection and citation analysis.

## Objectives of the Study

This study has been undertaken to analyse the different aspects of the surgery papers published between years 2000-2005. The fundamental objective of Bibliometrics is the study of the size, growth and distribution of scientific documents. Bibliometric studies differentiate between citing publications and cited publications or references.

The objectives of the present study are.

## Analysis of Citations

1. Number of cited documents.
2. Number and form of cited document.
3. Most cited journals.
4. Subject dispersion of cited journals.

The purpose of this analysis as stated above is to calculate the frequency of text/topic, journals and subject dispersion of the journals.

## Review of Literature

Bibliometric methods have been used to trace relationships amongst academic journal citations, citation analysis which involves examining an item referring documents is used in searching for materials and analyzing their merit.

Kumber (M) and Akhtary (S) made Bibliometric analysis for references/citations appended to the articles published in the American Journal of Ophthalmology has been carried out to determine the average number of citations per article, types of literature cited, authorship pattern and ranked list of cited periodicals in the article. Bibliometrics of animal cell culture technology, the author Rama Krishna (NV) (1999) does the quantitative studies in science which have usually concentrated on data about formal communications, especially on publications in scientific journals as their empirical source. In this study, Animal cell biotechnology a review publication, published by Academic press (1983-1995) has been used as a source. Citations from each chapter of the publication were



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collected with adequate details such as journal name, year of publications, number of author etc for further analysis. The type of documents such as conference proceedings, reports, manuals, standard and patent etc. were also listed. Based on the analysis, it can be concluded that animal cell biotechnology is a collection of methods/techniques rather than a special discipline.

A Bibliometric study on publishing trends of Indian Chemical Scientists done by Surendra Kumar and S kumar (2004) explains the work, studies on citation and bibliometric analysis for finding out the extent of usage of journals, conference proceedings and other literature. In this study, productometric analysis of contributions of National Research Centre for Soybean, Indore has been carried out for the period 1987-2001 in terms of number of research articles produced by its scientists. The study is based on the chronological documentation list prepared for the purpose along with author and subject indexes. It also analyse average number of papers per year, types of document publishing papers along with names of journals, subject and language distribution.

In another Bibliometric study conducted by a Narnag (2004) on the topic Indian Journal of Pure and Applied Mathematics. In this paper bibliometric analysis of 8396 citations appended to 737 articles published in the. Indian journal of pure and applied Mathematics, from volume 29 to 33 during the years 1998-2002 and 470 citations appended to 70 articles published in the maiden volume 1 published in 1970 has been carried out to observe the distribution of contribution, authorship pattern, citation analysis, geographical distribution of contributions and number of pages used in each volume. A comparative study of articles published in five volumes via-a-vis those in volume 1 has been made.

Kademani (BS) and Kumar (V) (2006) conducted a scientometric study based on science citation index, on world literature on thorium research in which the author highlights on the quantitative growth and development of world literature on thorium in terms of publication.

**Methodology**

For the Bibliometric study the following selected journals are taken for the quantitative study.

1. American Journal of Surgery.
2. British Journal of Surgery.
3. Annals of Surgery.
4. Archive of Surgery.
5. ANZ Journal of Surgery.
6. Canadian Journal of Surgery

For the citation analysis articles on 'Gastric Surgery' are analyzed for the chosen period i.e. 2000-2005. In the above six Journals bibliographical details of total 6261 articles published in six journals were collected for the citation analysis mainly the printed version of the database was used, 7060 citations were analyzed from journals.

For every cited paper, the details of the citation i.e. citing author, citing journal cited year were recorded on cards. It covers original articles, including proceedings of symposium/ Seminar / workshop, Bulletin/ Reports, books, Thesis and Dissertation. In

addition to this document analysis, calculations of percentage, statistical analysis are also used.

**Reference Card**

ZIEREN (HU), MULLER (JM). PICHLMAIER (H) Prospective randomized.....
Br J Surg
1993

**Data Analysis and Interpretation**

Citation provides 'a connection between two documents, one which cites and the other which is cited'. Gastric Surgery 1532 articles are analyzed for the period 2000-2005. 7060 citations are reported from 1532 papers/ article. Citation analysis is useful because of the interdisciplinary nature of new discipline and the heavy reliance on journals in a way helpful in the collection management and decisions in the future.

The primary purpose of citation is to enable a reader to go to the referred document for information about a point or check the authenticity of a particular view, finding or method.

**Chronological Citation Analysis of Gastric Surgery Article**

The gastric surgery articles cited in 205 Journals with 7060 citations. The number of articles on gastric surgery were 1532. The number of citations cover the period from 1950-2005, maximum number of citations are from 1991-2000 followed by 2001-2005.

1991-2000 produce the maximum number of citations i.e. 50.64%, second is 2001-2005 with 17.76% followed by 1981-1990 with 16.03%. other three decades produce less citation.

**Table 1**

**Chronological citation Analysis of Gastric surgery Article**

S. No.	Period	No. of Citation	Percentage
1	1950-1960	205	2.90%
2	1961-1970	342	4.84%
3	1971-1980	553	7.83%
4	1981-1990	1132	16.03%
5	1991-2000	3575	50.64%
6	2001-2005	1253	17.76%
	Total	7060	100%

**Average Citation Per Article**

**Table 2**

Article With Citation	Article Without Citation	Total No. of Citations	Average Citation Per Article
1532	0	7060	21.69%

Above Table 2 shows the breakup of the citation structure of gastric surgery articles. The total citation for 1532 articles in gastric surgery is 7060 and the average citation per article is 21.69%. There is no article without a citation:

**Formwise Distribution of Citations****Table 3**

S.No	Forms of Literature	Rank	00	01	02	03	04	05	Total	%
1	Journal Articles	I	1112	1159	1034	1050	1063	1039	6457	91.46%
2	Books	II	89	54	63	28	53	21	308	4.36%
3	Proceedings of Symposium/ Seminar/ Workshop	III	24	28	24	21	16	22	135	1.91%
4	Bulletin/ Reports	IV	12	18	14	17	19	12	92	1.30%
5	Thesis/Dissertation	II	11	9	12	13	10	13	68	.96%
Total									7060	100%

From the above table 3, it appears that the surgeons in Gastric surgery use periodicals more often than any of the available sources. In order of preference periodicals are the major source of citation (91.46%) followed by books (4.36%). Thesis is the least cited source with .96%.

The other forms which author uses are proceeding of symposium/ Seminar/ workshop and bulletin/reports. Together they constitute 4.17%.

**Subject Dispersion of Gastric Surger Articles**

The dispersion of subjects in gastric surgery articles are analyzed.

**Table 4**

S.No	Rank	Subjects	Percentage	No. of Articles
1	I	Surgery	35.31%	2493
2	II	Medicine	22.99%	1623
3	III	Gastroenterology	11.99%	847
4	IV	Cancer/Oncology	8.20%	579
5	V	Endocrinology	4.56%	322
6	VI	Cardiothoracic	3.03%	214
7	VII	Physiology	2.08%	147
8	VIII	Nutrition	1.88%	133
9	IX	Pathology	1.78%	126
10	X	Hepatology	1.52%	108
11	XI	Radiology	1.28%	91
12	XII	Biochemistry	1.19%	84
13	XIII	Neurology	.88%	62
14	XIV	Nephrology	.86%	61
15	XIV	Immunology	.86%	61
16	XV	Pediatric Surgery	.55%	39
17	XVI	Gynaecology	.44%	31
18	XVII	Anaesthesia	.27%	19
		Other	.28%	20
Total				7060

The result shows that the surgery journals are cited frequently and produced the largest amount of citations. Medicine journals is second to surgery in terms of citations numbers followed by gastroenterology journals which is also cited in good numbers. Gastric surgery articles are cited in 205 journals which is divided into 18 subjects. Subjects

like surgery, Medicine Gastroenterology and oncology constitute the maximum number of citations followed by the subjects which is less cited. Major subjects are surgery (35.31%), Medicine (22.99%) and Gastroenterology (11.99%). Together they form 70.29% of the citations thus proving to be the major subjects in gastric surgery.

**List Of Cited Periodical In Gastric Surgery Papers****Table 5**

S.No	Rank	Periodical	2000	2001	2002	2003	2004	2005	TOTAL
01	1	AM J SURG	28	42	48	68	75	34	295
02	2	BR. J. SURG	28	38	47	64	65	32	274
03	3	ANN SURG	36	48	46	48	49	35	262
04	4	ARCH SURG	32	48	46	44	44	35	249
05	5	YALE J BIOL MED	37	45	42	45	33	32	234

Above table 5 shows the first five cited periodicals in Gastric Surgery. 1532 articles on Gastric surgery were reported which constitute 7060 citations. The citations were distributed among 205 journals. Four top cited journals form 15% (1080 citations out of 7060) of citations.

The rest 201 journals have 85% of citations. The top four journals are the core journals in the discipline.

**Findings**

The citations analysis of gastric surgery articles carried out for the period of 2000-2005. The bibliographical details of 7060 citations are recorded from 1532 articles/papers on gastric surgery. Data

from the study shows in Table 1, that the period 1991-2000 produced maximum citations i.e. half of the citations (50.64%) Table 2 shows that the collected data consists of 7060 citations. The number of articles searched were 1532. The average citation per article is 21.69%.

In the study 91.46% of articles are in journals, with books forming 4.36% of the citations and the other 4.17% comprised of proceeding of

S.No.	Zone	Subjects Dispersion	No. Of Citations	Percentage
1	I	Top 3 Rank Subjects	4963	70.30%
2	II	Journals Rank From 4 To 9	1521	21.54%
3	III	Journals Rank From 10 To 18	556	7.88%
4		Others	20	.28%
		Total	7060	100%

Zone 2 consists of 6 subjects forming 21.54% of the citation Zone 3 forms 7.88% of the citations in a subject. On the whole it can be perceived that gastric surgery is concentrated in top 3 subjects i.e. surgery, medicine and gastroenterology.

Since the journal articles formed the major sources of information in gastric surgery the rank list of cited journal is shown in Table 5. The gastric surgery citations are scattered in 205 journals in which the top 10 journals constitute 30% of the citations i.e. Am J. Surg, Br J Surg, Ann Surg, Arch Surg, Yale J Biol Med, Obes Surg, J Gastrointest Surg, Hepatogastroenterology, Surgery and J Am Coll Surg. Thus they proved to be the core journals of the subject gastric surgery. 195 cited journals constitute the remaining 70% of the citations.

The above analysis may be considered as a practical tool to select journals of maximum utility for the gastric surgery surgeons. By doing this the librarian can tide the price hike to journals and limitations of resources. The ranking of journal provides an approach for inclusion or exclusion of how much the budget allows.

#### Conclusion

The citation analysis of Gastric Surgery for the year 2000-2005 in six Journals with 1532 articles are analyzed 7060 citations are reported from the articles. The period 1991-2000 provides the maximum citations i.e. 50.64% Each article on Gastric Surgery has citations appended to it with an average of 21.69% citation per article. Cited documents include journals, books, conference proceedings, bulletins, reports, thesis and dissertations. The majority of the cited documents are in Journal which forms 91.46%. 7060 citations are distributed among 18 subjects. First three subjects forms the maximum number of citations (70.29%) and the rest are distributed among 15

symposium/ seminar/ workshop bulletin. In order to determine the subjects discussed in the gastric surgery citations, the citations are 7060, scattered in 205 journals, which is under 18 subjects as shown in table 4.

Subjects are divided into 3 zone, zone 1 consists of 3 subjects which forms 70.30%.

subjects. Among the cited Journals American Journal of Surgery, British Journal of Surgery, Annals of Surgery and Archive of Surgery are the most cited journals in gastric surgery. Together they form 15% of citations. Total number of cited journals is 205. The use of Medline database, Pub Med is an advantage as it provides access to national and international journals, that too at low cost.

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