RESEARCH CONTRIBUTION OF THE GOVERNMENT MEDICAL COLLEGE (GMC) SRINAGAR IN THE FIELD OF MEDICAL SCIENCES

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Abstract

Purpose: *The present paper study the research output of the Government Medical College Srinagar (GMC Srinagar), Jammu & Kashmir in terms of overall scholarly contributions, through departmental and disciplinary approaches; content type and period wise information; authorship patterns and citations received.*

Design/Methodology/Approach

Data was harvested from SCOPUS, one of the largest Indexing and Abstracting database by the Elsevier, from 1970 to 2011 (May). The affiliation search strategy was applied to obtain precise results. The Boolean operator "OR" was used to locate all variants of the Government Medical College Srinagar (i.e., Govt. Medical College Srinagar, Government Medical College Srinagar and GMC Srinagar)

Findings

The study revealed that the Government Medical College Srinagar made considerable research contribution with 596 publications. The departmental analysis reveals that the Department of General Medicine is leading with an output of 87 (14.6%) followed by the Department of Surgery with 85 (14.26%) and the Department of Dermatology including STD, Venereology, Leprosy with 60 (10.07%) respectively. The content analysis shows that articles are highest in number (443, 86.19%) followed by letters (31, 6.03%), reviews (27, 5.25%) and notes (22, 4.28%) respectively. The period wise results depict that the highest number of publications (202, 33.89%) are published from 2006-2011 (May), followed by 2001-2005 (185, 31.04%) and the minimum numbers between 1991-95 (11, 1.85%). The maximum number of the publications are contributed by multi-authors 541 (90.77%) and deal with the single discipline (390, 65.44%). The institution received 764 citations; the highest number of citations was received by publications from the Department of General Medicine followed by the Department of Surgery and Pediatrics. The paper concludes with

some imperative suggestions with the prime aim of promoting research in this vital sector to improvise the health care system in the state.

Keywords
Health Research, Medical Research, Medical Sciences, Government Medical College Srinagar

Paper type: *Research*

1. Introduction:

Life is the most important gift of the Almighty. The safeguarding of human life is the bedrock of humanity and a great pillar of morality. The medical professionals perform this sacred mission. In the modern knowledge based society, Medical professionals conduct research all over the world to find solutions to existing long-standing medical problems and newborn diseases. Research helps to discover new medicines for the betterment of human life and prolong the its lifespan. According to **Webster (2005), "**People often want to see the advances in the field of the medical research and its practices**"**. India has also a good number of the medical institutions under the umbrella of the Medical Council of India (MCI) providing education and conducting research on various fields of the Medical Sciences. The numbers of institutions providing medical education upto the bachelors level (MBBS) are 383, Post Graduate level (MD) are 61, Ph D level are 45 and DM level are 51 (http://www.mciindia.org/). Among these medical institutions, four institutions belong to the Jammu and Kashmir. These institutions also conduct research on vital aspects and their contributions in the medical research are gaining wide appreciation at national as well as international level. The Government Medical College, Srinagar (1959), is the first and the most prominent medical institution in Jammu and Kashmir concerned with imparting Health and Medical Education. The medical professionals of this institute spend nearly all their time in patient care, administration, teaching, or research. Thus keeping in view the above facts, the present study attempts to reveal the research output of the Government Medical Srinagar (GMC-S).

Table 1: Medical institutions in Jammu and Kashmir

S.NO.	Name of the Medical Institution	Affiliation	Year of inception	MCI Recognition
1	Acharya Shri Chander College of Medical Sciences, Jammu	Jammu University	1995	Yes
2	Government Medical College, Jammu	Jammu University	1972	Yes
3	Government Medical College, Srinagar	Kashmir University	1959	Yes
4	Sher-i-Kashmir Institute of Medical Sciences, Srinagar	Deemed University	1988	Yes

2. Literature Review

Research in the biomedical field is gaining currency all over the globe. In 1996, **UHSO (1996)** published results of a poll that looked for the public opinion concerning various types of scientific research and biomedical research was more favoured over the rest. **Vartanian (1996)** opined that it is hard to imagine health and medical interventions to be effective without combining the achievements of the biomedical sciences with the disciplines health economics and management. **Webster (2005)** in his study tried to map UK's biomedical research output from 32 selected medical fields during the span of 12 years from 1989 till 2000 and revealed that the UK stand at the second place as the producer of the medical research with 17% world output in the field of Asthma and Malaria followed by surgery with 8%. India is also making serious attempts to boon the health sector. India has emerged as one of the preferred destinations for the clinical trials of drugs by multinational pharmaceutical companies in recent years. The reasons for this include reasonably high standards of quality healthcare and healthcare professionals, use of the English language and the sheer size of target populations available in our country **(Bhowmik, Chandira, and Chiranjib, 2010)**. **Dandona, (2004)** made a systematic assessment of recent health research output from India. They ranked Indian states as per research output with Delhi leading with 20.0% of the total production with state of Jammu & Kashmir occupying 17th position with an average of 0.4%. **Dalvi (2009)** opined that India is having far more potential for the biomedical research but it continues to rely on the research projects of the west. Citing a report from Thomson Reuters, which states that the research output in India has increased by over 80% in the last 10 years and expects that it will overtake majority of the developed countries by the year 2020? Author recommended that the medical education in India should be more pragmatic, innovative and compulsory exposure. **Mudasir, (2012)** conducted a survey to explore the information seeking behaviour of physicians and surgeons of J&K working in primary, secondary and tertiary health care institutions. She reveals that physicians and surgeons search for job specific information to keep themselves abreast with the latest available information and developments in their respective fields. The majority of them (95%) search for information regarding diagnosis and treatment of specific diseases or disorders. Most of them (69%) seek information to prepare for debates, meetings, seminars, conferences, etc. About 52% of professionals acquire information regarding administrative issues such as procedures and protocols relevant and applicable in a particular health care organization or settings. Besides, 47% and 36% of the professionals explore information to prepare for publications and resolve research issues respectively.

3. Problem statement

The well-known fact is that the medical knowledge becomes obsolete over a period of five to ten years from the time of generation. Therefore, research is possibly the only way to survive, sustain and evolve in this competitive world. It has undergone a sea of changes in the recent couple of decades. The research is being reported and carried out at global level and is always gained priority in almost all medical institutions. Numerous studies have been undertaken to reveal the research trends in different areas of the medical sciences. The present study aims to empirically assess and trace the growth and development research from the Government Medical College Srinagar (GMC-S), one of the leading medical institutions from Jammu and Kashmir.

4. Objectives

The study aims to explore the research contribution of the medical community of the GMC Srinagar in order to analyse their research contribution; research collaboration; authorship patterns; content types; interdisciplinary research approaches and citation trends of the publications.

5. Methodology

The data were harvested during April- May, 2011 from the source – SCOPUS, one of the largest Indexing and Abstracting database from Elsevier. The affiliation search feature was used to get precise results. The Boolean operator "OR" was used to locate all variants of the Government Medical College Srinagar (i.e., Govt. Medical College Srinagar, Government Medical College Srinagar, and GMC Srinagar). The retrieved contributions were thoroughly analyzed for preferred research patterns in terms of Collaboration, authorship patterns, cross disciplinary approaches as well as citation trends.

6. Scope and Limitations

The scope of the study is confined to the assessment of the research contributions from Government Medical College Jammu (GMC-Jammu), harvested through Elsevier's Indexing and Abstracting Database –Scopus, from 1970 till May 2011. Hence, the generalizations of the findings need to be cautioned.

7. Data Analysis and Interpretation

7.1. Content wise information

The Government Medical College Srinagar has contributed 596 research contributions in different formats (Articles, Notes, Reviews, etc.). The content analysis shows that articles are highest in number (443, 86.19%) followed by letters (31, 6.03%), reviews (27, 5.25%) and notes (22, 4.28%) respectively. However, no data were available regarding the content types of a good number of publications (45).

Table 2: Content wise information (n = 596)

Rank	Content Type	Number	Percentage
1	Articles	443	86.19
2	Letters	31	6.03
3	Reviews	27	5.25
4	Notes	22	4.28
5	Short Surveys	15	2.92
6	Articles in Press	8	1.56
7	Editorials	5	0.97
8	Unknown	45	8.75

7.2. Department wise information

The departmental analysis reveals that the Department of General Medicine is leading with an output of 87 (14.6%) followed by the Department of Surgery with 85 (14.26%) and Dermatology including STD, Venereology, Leprosy with 60 (10.07%) respectively. However, few departments show meek performance with only 2 (0.34%) publications like the Departments of Cardiology, Chest Disease and Nephrology

Table 3: Department wise information (n=596)

Rank	Department	Number	Percentage
1	General Medicine	87	14.60
2	Surgery	85	14.26
3	Dermatology /STD /Venereology/leprosy	60	10.07
4	ENT/Otorhinolaryngology /Head/Neck surgery	54	9.06
5	Pathology	49	8.22
6	Ophthalmology	29	4.87
7	Psychiatry	28	4.70
8	Pediatrics	25	4.19
9	Gynaecology and Obstetrics	23	3.86
10	Radiology /Radio Diagnosis and Imaging	22()	3.69
11	Anatomy	19	3.19
11	Microbiology	19	3.19
12	Orthopaedics	18	3.02
13	Pharmacology	16	2.68
14	Social and Preventive Medicine	14	2.35
15	Physiology	11	1.85
16	Gastroenterology	8	1.34
17	Anesthesiology and Critical care	7	1.17

17	Biochemistry	7	1.17
18	Blood Transfusion and Hematology	6	1.01
19	Neurology	3	0.51
20	Cardiology	2	0.34
20	Chest Disease	2	0.34
20	Nephrology**	2	0.34

7.3. Period wise information

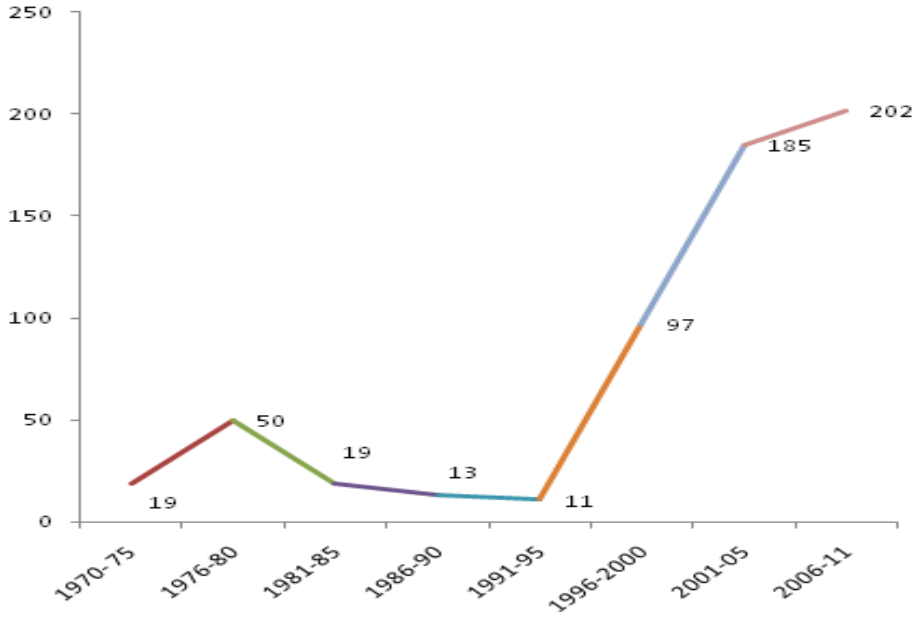
The period wise results depict that the highest number of publications (202, 33.89%) are published from 2006-2011 (May), followed by 2001-2005 (185, 31.04%) and the minimum numbers between 1991-95 (11, 1.85%) (Table 4).

Table 4: Period wise information (n=596)

S. No	Time period	Number	Percentage
1.	1970-75	19	3.19
2.	1976-80	50	8.39
3.	1981-85	19	3.19
4.	1986-90	13	2.18
5.	1991-95	11	1.85
6.	1996-00	97	16.27
7.	2001-05	185	31.04
8.	2006-11 (May)	202	33.89

The institute began slowly with 19 publications in first five years from 1970-75 and with the passage of time; the research output had shown the growing trend especially since 1996-2000. *(Fig. 1).*

Fig.1: Period wise information (n=596)

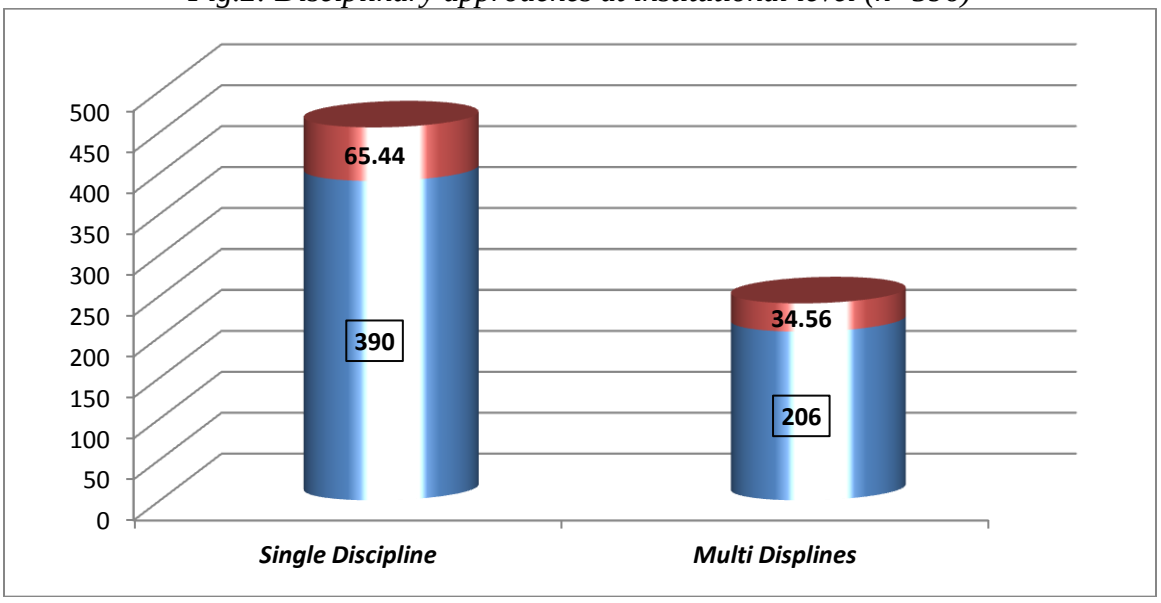


7.4. Disciplinary approaches

(I). Institutional approach

The maximum number of the publications deal with the single discipline (390, 65.44%) whereas multidisciplinary account for 206 (34.56%) publications (Fig. 2).

Fig.2: Disciplinary approaches at institutional level (n=596)



(II). Departmental approach

The data reveal that all the departments have contributed single as well as multi-disciplinary publications except the Department of Cardiology. The Departments of Surgery, ENT and Dermatology are having 67, 49 and 47 as single disciplinary publications, and 18, 5, and 13 as multidisciplinary respectively. However, the Departments of General Medicine and the Departments of Ophthalmology have adopted a neutral approach towards both whereas the Departments of Pathology and the Departments of Radiology are more inclined towards multidisciplinary approach with 30 and 17 publications respectively.

Table 5: Disciplinary approaches at departmental level (n=596)

S. No	Department	Multi Disciplinary	Single Discipline
1.	General Medicine	43	44
2.	Pathology	30	19
3.	Surgery	18	67
4.	Radiology /Radio Diagnosis and Imaging	17	5
5.	Dermatology /STD/ Venereology/leprosy	13	47
6.	Microbiology	12	7
7.	Psychiatry	11	17
8.	Pediatrics	10	15
9.	Pharmacology	8	8
10.	Ophthalmology	6	23
11.	Social and Preventive Medicine	6	8
12.	ENT/Otorhinolaryngology /Head/Neck surgery	5	49
13.	Blood Transfusion and Hematology	5	1
14.	Gynaecology and Obstetrics	4	19
15.	Physiology	3	8
16.	Biochemistry	3	4

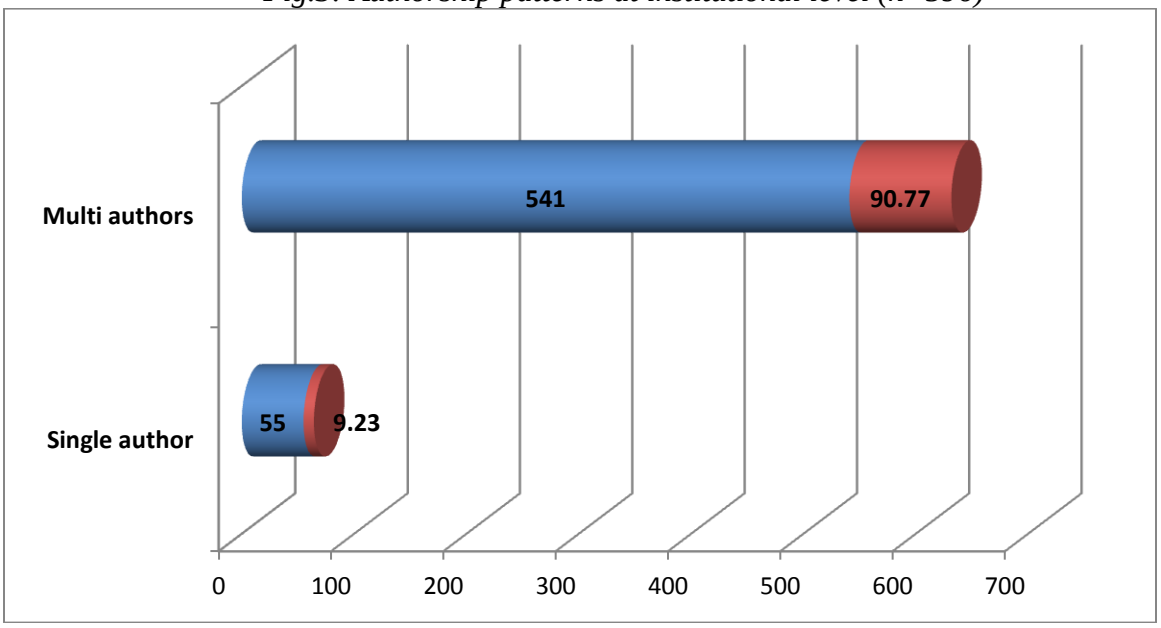
S. No	Department	Multi Disciplinary	Single Discipline
17.	Gastroenterology	3	5
18.	Anatomy	2	17
19.	Orthopaedics	2	16
20.	Neurology	2	1
21.	Anesthesiology and Critical care	1	6
22.	Chest Disease	1	1
23.	Nephrology	1	1
24.	Cardiology	0	2
	Total	**206**	**390**

7.5. Authorship patterns

(I). Institutional assessment

The authorship assessment of the publications shows that 541 (90.77%) are contributed by multi-authors and 9.23% (55) are single author *(Fig. 3)*.

Fig.3: Authorship patterns at institutional level (n=596)



(II). Departmental assessment

Multi-author research is preferred in almost every department. The Department of General Medicine ranks the highest with 84 publications followed by the Departments of Surgery and Dermatology with 80 and 54 publications each. The Departments of ENT and Pathology are following the trend with 47 and 44 respectively. Single author research is less favourable in almost all the departments, and come in the range of 1-10 with the Departments of ENT (7), having the highest number of publications followed by the Departments of Dermatology with 6. The Departments of Gynaecology and Obstetrics, Pediatrics, Biochemistry, Nephrology has no single author document (Table 6)

Table 6: Authorship patterns at departmental level (n=596)

S. No.	Department	Single Author	Multi Author
1.	Anesthesiology and Critical care	2	5
2.	Anatomy	3	16
3.	Dermatology /STD /Venereology/leprosy	6	54
4.	ENT/Otorhinolaryngology /Head/Neck surgery	7	47
5.	General Medicine	3	84
6.	Gynaecology and Obstetrics	0	23
7.	Ophthalmology	1	28
8.	Orthopaedics	1	17
9.	Pathology	5	44
10.	Pediatrics	0	25
11.	Physiology	1	10
12.	Social and Preventive Medicine	1	13
13.	Pharmacology	2	14
14.	Psychiatry	1	27
15.	Radiology /Radio Diagnosis and Imaging	1	21

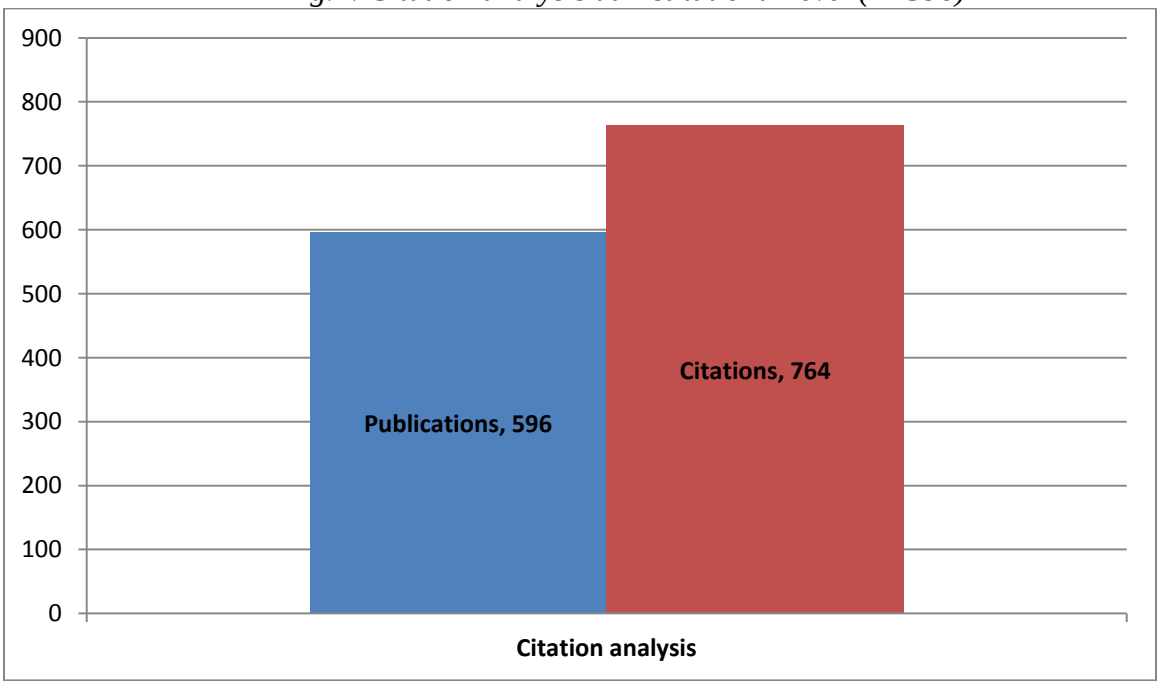
16.	Microbiology	2	17
17.	Surgery	5	80
18.	Biochemistry	0	7
19.	Blood Transfusion and Hematology	0	6
20.	Cardiology	2	0
21.	chest Disease	0	2
22.	Gastroenterology	0	8
23.	Nephrology	1	1
24.	Neurology	0	3

7.6. Citation profile

(I). Citation analysis at institutional level

The institution has received 764 citations for 596 publications as an average of 1.28 citations per paper.

Fig.4: Citation analysis at institutional level (n=596)



(II). Citation analysis at departmental level

The Faculty of General Medicine has received 365 (47.77%) citations for 87 publications, followed by 81 citations (10.60%) for 85 papers from the Department of Surgery. On the other hand, the departments of Biochemistry, Cardiology, Chest Disease and Nephrology didn't receive any citation at all. Average citations received by the Departments also give murky account except for the Department of General medicine, which has received (4.20) citations per paper followed by the Department of Gastroenterology (2.25), Anatomy (2.21) and Pediatrics (2.12) (Table 7).

Table 7: Citation analysis at departmental level (n=596)

Rank	Department	Number	Citations Received	Average Citation
1	General Medicine	87	365 (47.77)	4.20
2	Surgery	85	81 (10.60)	0.95
3	Pediatrics	25	53 (6.94)	2.12
4	Anatomy	19	42 (5.50)	2.21
5	Psychiatry	28	38 (4.97)	1.36
6	Pathology	49	36 (4.71)	0.73
7	Gynaecology and Obstetrics	23	26 (3.40)	1.13
8	Social and Preventive Medicine	14	25 (3.27)	1.79
9	ENT/Otorhinolaryngology /Head/Neck surgery	54	23 (3.01)	0.43
10	Gastroenterology	8	18 (2.36)	2.25
11	Dermatology/STD /Venereology/leprosy	60	15 (1.96)	0.25
12	Microbiology	19	13 (1.70)	0.68
13	Orthopaedics	18	7 (0.92)	0.39
13	Physiology	11	7 (0.92)	0.64
14	Neurology	3	4 (0.52)	1.33
14	Radiology /Radio Diagnosis and Imaging	22	4 (0.52)	0.18

Rank	Department	Number	Citations Received	Average Citation
15	Ophthalmology	29	3 (0.39)	0.10
16	Anesthesiology and Critical care	7	2 (0.26)	0.29
17	Blood Transfusion and Hematology	6	1 (0.13)	0.17
17	Pharmacology	16	1 (0.13)	0.06
18	Biochemistry	7	-	-
18	Cardiology	2	-	-
18	Chest Disease	2	-	-
18	Nephrology	2	-	-
	Total	**596**	**764**	

8. Findings

With every passing day, research in biomedical sciences is mounting rapidly as more contents are available through open as well as commercial publisher sites. The inclination in the growth of quanta of literature in biomedicine can well be traced by the increasing number of citations available through Medline, Pubmed, Scopus, and Google Scholar etc. The present work was an attempt to explore and analyse the different patterns of research contributions in the biomedical literature contributed reputed medical institutions of Jammu & Kashmir State viz. Government Medical College Srinagar. The major findings are enumerated as follows:

- The Government Medical College Srinagar has contributed 596 research contributions in different formats (articles, notes, reviews, etc.). The content analysis shows that articles are highest in number followed by letters and reviews respectively.
- The departmental analysis reveals that the Department of General Medicine is leading with an output of 87 followed by the Department of Surgery with 85 and the Department of Dermatology with 60 respectively.
- The results show the considerable fluctuations in the research output trend of the GMC-Srinagar was found when analyzed for the subsequent time period of 5 years from 1970 till May 2011. From 1970 to 1980 there is considerable increase in number of publications. The trend seems to decrease from 1981-1995. While as from 1996 onwards considerable inclination was found in terms of productivity.
- The maximum number of the publications deals with the single discipline (390) as compared to multidisciplinary (206). However, all the departments have contributed single as well as multi-disciplinary publications except the Department of Cardiology.

- The authorship assessment of the publications show that multi-authorship is more prominent as compared to single authorship. Multi-author research is preferred in almost all departments with the Department of General Medicine ranks the highest with 84 publications followed by the Departments of Surgery and Dermatology with 80 and 54 publications respectively.
- The papers from GMC– Srinagar were found to be highly cited with a total of 764 citations. Single Disciplinary Research and multi-authorship patterns were found to be more prominent.
- The institution has received 764 citations for 596 publications as an average of 1.28 citations per paper. The Faculty of General Medicine has received 365 (47.77%) citations for 87 publications with average citations of 4.20.

Conclusion

The Jammu and Kashmir has the potential to deliver and sustain even much higher publications growth in biomedicine but there is need to provide consistent support for promoting research. The need of the hour is to draw up a strategic plan for catalysing biomedical research. It is realized that improving the strategies and methods of research, personnel development through continuing education philosophy, advanced training of research workers, implementation of creative technologies, optimization of health services development may lead to further progress in biomedical sciences and technology in Jammu and Kashmir. The funding agencies need to gear up to support research both at undergraduate and postgraduate levels. The institutions need to promote their research contributions in highly cited journals with better impact factors. The need is to invest money, time and talent in research to gear up the speed in the biomedical research in twenty first century.

References:

Bhowmik, D., Chandira, M. and Chiranjib.B (2010). Emerging trends of scope and opportunities clinical trials in India. *International Journal of Pharmacy and Pharmaceutical Sciences, 2(1):7-20.* Retrieved January 05, 2014 from http://www.ijppsjournal.com/Vol2Suppl1/215R.pdf

Dalvi, B. (2009). Are we shy of clinical research in India? *Annals of Pediatric Cardiology*, 2(2), 109–110. Retrieved January 05, 2014 from http://www.ncbi.nlm.nih.gov/pmc/

Dandona, L. et. al. (2004). The lack of public health research output from India. *BMC Public Health*, 4(55), 5-12. Retrieved January 05, 2014 from http://www.biomedcentral.com/1471-2458/4/55

Mudasir, A. (2012). Information seeking behaviour of the physicians and surgeons in Jammu & Kashmir: an exploratory study. 2(2), 19-34. Retrieved June 15, 2013 from http://www.ijodls.in/uploads/3/6/0/3/3603729/dr._mudasir_ashraf_19-34_.pdf

UHSO (1996). Health and career issues. Retrieved on April 13, 2011 from http://www.ph.ucla.edu/umso/english/medres_des.PDF.

Vartanian, F. (1996). Development of human resources for medical research. *Journal of management in medicine*. 10(1), 26-29. Retrieved February 03, 2014 from http://www.emeraldinsight.com/journals.htm?issn=02689235&volume=10&issue=1&articleid=1411402&show=pdf

Webster, B. M. (2005). International presence and impact of the UK biomedical research, 1989-2000. *Aslib Proceedings*, 57 (1), 22-47.