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Al-Imam Mohammad ibn Saud Islamic University: A Bibliometric Research Profile

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ABSTRACT

Aim: To investigate the status of research productivity and publication trends of Al-Imam Mohammad ibn Saud Islamic University (IMSIU) during the period of 2009 to 2018.

Method: A quantitative and retrospective research method was used. Publications data of IMSIU researchers have been retrieved from Scopus database published during the period of ten years from January 2009 to December 2018. The retrieved dataset has been transferred in Microsoft Excel spreadsheet to analyse the bibliometric indicators, as the growth of publications by year, subject stratification, national and international collaboration, frequently used journals and productive authors.

Results: IMSIU affiliated researchers have produced 2010 documents with an average of 201 documents per year. These documents received 12,594 citations, with citation impact of 6.26. Majority of the research has been conducted on the subjects of Engineering, Computer Sciences and Physics & Astronomy. King Saud University with 435 publications found top preference in research collaborative at the national level while at an international level, Université de Gabès, Tunisia with 159 publications stand on the top. Research collaboration analysis by country shows that Egypt is on the top 324 documents. Frequently used journals and 20 most productive authors in term of the number of publications have also been identified.

Conclusion: Growth in the tendency of publications was found by IMSIU expect the year 2017. Open access documents received a higher number of citations. The ratio of Scopus based publications in proportion to the number of faculty and students is not very encouraging. Young faculty and students should involve in the research process to enhance publication output.

Keywords: Research productivity; Al-Imam Mohammad ibn Saud Islamic University; Saudi Arabia; Publications

INTRODUCTION

The core activities associated with universities and higher educational institutes are to create, update and disseminate knowledge along with teaching and learning. Intellectual capital has been the key component in ever-changing information-based society and competitive global market (Rowley, 2000). Devenport et al. (1998) stated that university needs to perform four types of tasks in the knowledge management process. Firstly, creation and keeping the bibliographic control of their publications. Secondly, the provision of easy accessibility of knowledge. Thirdly, creating and enhancing research-oriented knowledge environment, and lastly, allocation of adequate funding for research, giving incentives to knowledge workers and values knowledge as assets. Merriam Webster Online Dictionary (2019) defines University as “*an institution of higher learning providing facilities for teaching, research and authorized to grant academic degrees*”. Research and academic performance in various branches of knowledge play a significant role in the socio-economic development of the country and improve the living standards of the community along with long term sustainable development (Meo et al. 2013).

Saudi Arabia has paid due attention towards higher education sector by establishing new universities in all corners of the country, upgrade the facilities of existing universities and create state of art, hi-tech research institutes in last two decades. These initiatives further improve the scientific and social research environment (Meo, 2015).

Al-Imam Mohammad ibn Saud Islamic University (IMSIU) is the Public Sector University, providing higher education from graduation to doctorate level. Its main campus is located in the Capital City, Riyadh, along with other campuses in Al-Qassim, Al-Ehsa, and Madina. Sixty Sharia institutes spread in various part of the Kingdom. IMSIU has six international institutions located in Ras Al-Khaima (UAE), Mauritania, Djibouti, Indonesia, USA, and Japan for teaching Islamic and Arabic Knowledge. It came into being by the amalgamation of two colleges, Islamic Law College and Arabic Language College at Riyadh in 1951. IMSIU granted university status in 1974 (<https://imamu.edu.sa>). IMSIU is standing on 801-1000 top universities of the world based upon QC Global World Ranking. IMSIU has 13 colleges, three institutions, where 6,258 faculty members are teaching the 1,98,676 students. Its research output status indicated medium (QC TopUniversities, 2019).

Bibliometric is a quantitative evaluation method used on published scientific and scholarly literature for research management, allocation of fund and policy-making. A bibliometric analysis provides scientific output, impact, collaboration and open access publishing (Waltman & Noyons, 2018).

Scopus is a commercially based, multidisciplinary, largest abstract and citation database of peer-review scholarly publications includes 24,000 titles, including 2400 open-access journals from more 5000 worldwide publishers. There are more than 60 million records and approximately 3 million records are added annually. Scopus is an Elsevier product launched in 2004 with comprehensive coverage of global research productivity; provide bibliographical citations and other bibliometric indicators (Elsevier, 2019). The aim is this study is to present a bibliometric portrait of research output and contemporary publication trends of IMSIU during the period of 2009 to 2018 as reflected in Scopus.

OBJECTIVES

Following are the objectives of this study:-

1. To assess and compare the citation impact of open access and subscription-based publications of IMSIU
2. To examine the chronological growth of publications
3. To find out the strong and weak areas of research publications
4. To calculate the national and international collaboration pattern
5. To highlights the frequently used journals and productive authors

RESEARCH METHODOLOGY

Publications data for this quantitative study of IMSIU has been retrieved from Scopus database on 29 April 2019. Scopus compiled the research with an affiliated address to Al-Imam Muhammad Ibn Saud Islamic University in affiliation ID 60005880. The timespan of 2009 to 2018 was used. Data has been downloaded in Microsoft Excel format to analysis the bibliometric indicators set in the objectives of the study.

STUDY LIMITATION

This study is limited to documents published in Scopus indexed journals with affiliation address to Al-Imam Mohammad ibn Saud Islamic University, Saudi Arabia during the period of January 1st, 2009 to 31st December 2018. The actual quantity of publications by IMSIU researchers is more than these numbers.

REVIEW OF RELEVANT LITERATURE

A recent study was conducted by [Ahmed and Al-Rayaee \(2019\)](#) on research contributions of Al-Jouf University, Saudi Arabia published during the time span of 2006 to 2017. Al-Jouf University came into being in 2005, now 1,300 faculty members are teaching the nearly 30,000 male and female students. A total of 801 papers were produced by the authors of Al-Jouf University during the period of 12 years with an average of 66.75 papers per years. Citation impact shows that various scholars cited 801 papers in 3,631 times with an average of 4.53 citations per paper. National Research Centre, Cairo Egypt found most research collaborating institute with 62 publications. Almost half of the research (n=388; 48.43%) produced with the collaboration of researchers belong to Egypt. Subject stratification found that most of papers written on Medicine (n=160; 19.98%) followed by Chemistry (n=140; 17.48%) and Biochemistry, Genetics and Molecular Biology (n=138; 17.23%). Frequently used journals and productive authors have also been indicated in the study.

Another article was written by [Haq & Al Fouzan \(2017\)](#) on the research productivity of King Saud bin Abdulaziz University for Health Sciences published from 2005 to 2015 as reflected on Web of Science. A total of 775 papers published with an average of 70.45 papers per year. Most of the papers (n=46; 6.13%) published in the “Saudi Medical Journal” and the subject of “Medicine” found frequent preference with 119 (15.35%) articles. Majority of papers (n=729; 94%) have been written by multi-authors and the United States found most research collaborating country.

Hugar (2019) presented a research profile of Goa University India. Publications indexed in the Web of Science database published during the period of ten years from 2008 to 2017 have been selected for data analysis. A total of 801 publications published with the compound annual growth rate of 9.31%. Most of the research collaboration (n=119; 9.77%) carried out with Council of Scientific Industrial Research, India. The distribution of articles by subjects has revealed that Chemistry, Physics and Mycology are strong areas of research. China is found on the top in research collaborating countries with 93 publications.

Mera & Sahu (2014) analyzed the 2,557 documents produced by the University College of Medical Sciences University of Delhi, India during the period of 1975 to 2013. There was slow growth of publications (n=820; 32%) recorded during the first 26 years from 1975 to 2001 while the remarkable growth of publications (n=1737; 68%) has been found during the last eleven years from 2002 to 2013. Majority of documents have been written on the subjects of Medicine followed by Biochemistry, Genetics and Pharmacology. Benerjee, B. D. found a most productive author with 102 publications and his citation impact recorded 16.16 citations per paper. Three-author pattern contributed the highest number of papers (n=655; 25.6%). A total of 151 (5.90%) papers have been produced with the collaboration of 37 countries, the United States is on the topmost preference (n=43) followed by United Kingdom (n=22) and Nepal (n=19). There are 18 countries with one paper each in research collaboration.

Darmadji et al. (2018) presented a bibliometric analysis of publications produced by the Islamic University of Indonesia (IUI) during the period of 2005 to 2017. Data were retrieved from Scopus database. The researchers of IUI produced 600 papers with an average of 46.15 papers per year. These papers received 1066 citations with 1.78 citations per paper. Total 443 researchers involved in writing these papers and more than half of papers were produced by the top twenty authors. Most of the articles were written on the subjects of Engineering, (n=237; 22.42%), followed by Computer Science (n=172; 16.27%) and Material Science (n=85; 8.04%). Analysis of source publications showed that majority of papers (n=64; 10.66%) published IOP Conference Series Materials Science and Engineering followed by AIP Conference Proceedings (n=41; 6.83%). Gadjah Mada University, Indonesia found most research collaborative organization with 81 publications. The study suggested that more incentive should be given to researchers and incensement the ratio of international collaboration to further boost the research activities.

RESULTS

Here are the results and their analysis. Table-1 presents the comparison of citation impact between open access documents and other (closed access) documents. The citation impact of open access documents found higher with 7.01 citations per documents, while the other documents received 6.10 citations per document. The overall citation impact of IMSIU publications recorded 6.26 with 42 papers in H-Index scale.

Table-1; Citations Analysis of IMSIU Publications

Document Types	Total Documents	Citations	Citation Impact	H-Index
Open Access	359 (17.86%)	2,517	7.01	24
Other	1,651 (82.13%)	10,077	6.10	41
Total	2,010 (100%)	12,594	6.26	42

Figure-1 states that a total of 2,010 research publications produced by IMSIU during the period of ten years from January 2009 to December 2018 with an average of 201 publications per year. There were only 41 documents produced by the researchers of IMSIU in 2009 while the number of documents reached on 378 the calendar year 2018. An increasing trend of research publications found in all years except 2017.

Figure 1; Growth of Publications by Year

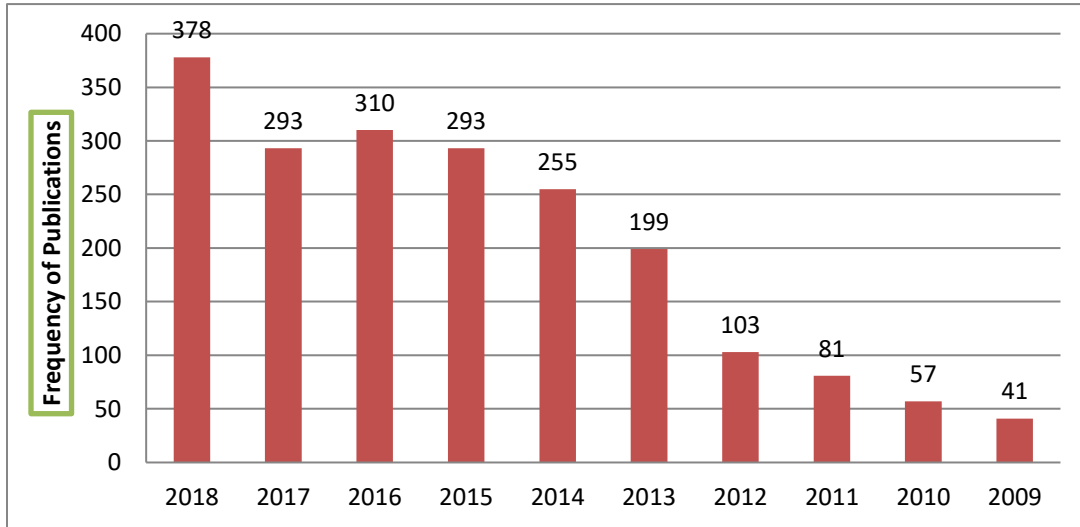


Table-2 describes the subject dispersion of publications. Scopus divided all 2,010 documents into 27 subjects. Majority of publications (n=540; 26.86%) have been written about Engineering followed by Computer Science (n=517; 25.72%) and Physics & Astronomy (n=503; 25.02%). Scopus indices sometimes assigned more than one subject to one document, so 2,010 publications allotted 3,641 subject headings. There only nine subjects on which more than one hundred publications have been written and five subjects have publications between 50-99. This table highlights the strong areas of research at IMSIU.

Table-2, Distribution of Publications by Subjects

S.No.	Subjects	Publications
1.	Engineering	540
2.	Computer Science	517
3.	Physics and Astronomy	503
4.	Materials Science	397
5.	Mathematics	383
6.	Medicine	255
7.	Chemistry	189
8.	Biochemistry, Genetics and Molecular Biology	123
9.	Social Sciences	107
10.	Economics, Econometrics and Finance	88
11.	Environmental Science	88
12.	Chemical Engineering	85

13.	Business, Management and Accounting	76
14.	Pharmacology, Toxicology and Pharmaceutics	60
15.	Energy	47
16.	Decision Sciences	38
17.	Arts and Humanities	27
18.	Agricultural and Biological Sciences	26
19.	Earth and Planetary Sciences	26
20.	Multidisciplinary	24
21.	Psychology	11
22.	Immunology and Microbiology	8
23.	Neuroscience	8
24.	Nursing	7
25.	Health Professions	4
26.	Dentistry	3
27.	Veterinary	1

Table-3 explains the types of documents that majority of documents (n=1556; 77.41%) are written in the form of original research articles, followed by conference papers (n=320; 15.92%) and review articles (n=47; 2.33%). Some book chapters have also been written by IMSIU researchers. Letters, editorials, short surveys and books got a minimum score in publication types.

Table-3; Document Types

Type of publications	Publications	Percentage
Original Articles	1556	77.41%
Conference Papers	320	15.92%
Review Articles	47	2.33%
Book Chapters	28	1.39%
Article in Press	24	1.19%
Erratum (9), Note (9), Letter (8), Editorial (4), Short Survey (3), and Book (2)	35	1.74%

Table-4 presents the list 21 journals with at least 10 publications each by the researchers of IMSIU. Optik stands on the top with 55 publications by IMSIU researchers. This journal is related to engineering science published from the Netherlands, having Q3 Quartile in SJR 2017. Forty-one articles published in Lecture Notes in Computer Science followed by the Journal of Material Science Material in Electronics with 33 papers during the study period. Amongst the top 21 journals, only one Saudi journal ranked on no. 9 with 14 publications.

Tables -4; Publication / Source Titles

S. No.	Journal Name	Publications
1.	Optik	55
2.	Lecture Notes in Computer Science; Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	41
3.	Journal of Materials Science; Materials in Electronics	33
4.	Superlattices and Microstructures	17
5.	Advances in Intelligent Systems and Computing	16
6.	Construction and Building Materials	15
7.	Journal of Computational and Theoretical Nanoscience	15
8.	Procedia Computer Science	15
9.	Saudi Medical Journal	14
10.	Applied Mathematics and Computation	13
11.	International Journal of Electrochemical Science	12
12.	Digest Journal of Nanomaterials and Biostructures	11
13.	European Physical Journal Plus	11
14.	Laser Physics	11
15.	Life Science Journal	11
16.	Medical Teacher	11
17.	ACM International Conference Proceeding Series	10
18.	Desalination and Water Treatment	10
19.	Journal of Russian Laser Research	10
20.	Physica E Low Dimensional Systems and Nanostructures	10
21.	Studies in Computational Intelligence	10

Table-5 explains the research collaboration of IMSIU researchers at the national level. Majority of documents (n=435; 21.64%) have been written in collaboration with King Saud University. The collaborative share of other organizations is very little as compared to King Saud University. IMSIU researchers collaborated with King Abdulaziz University in 66 documents, and King Abdulaziz City for Science and Technology in 60 documents.

Table-5; Research Collaboration at National Level

S. No.	University Name	Publications
1.	King Saud University	435
2.	King Abdulaziz University	66
3.	King Abdulaziz City for Science and Technology	60
4.	King Saud University College of Science	47
5.	Taif University	45
6.	King Saud University Medical College	32
7.	Taibah University	25
8.	Prince Sultan University	24
9.	Jazan University	22
10.	King Saud bin Abdulaziz University for Health Sciences	19

Table-6 describes the research collaboration of IMSIU researchers with international organizations. Amongst the top-ten universities, four belong to Egypt, two from Tunisia, and one each from South Africa, Italy, United States, and China. Université de Gabès of Tunisia found on the top in 159 documents, followed by Benha University Egypt (n=79), and Cairo University Egypt (n=75). There are only six international universities with more than fifty documents each shows IMSIU researchers strong intellectual ties with these universities.

Table-6; Research Collaborating Organizations/Universities at International Level

S.No.	Organization name and country	Publications
1.	Université de Gabès, Tunisia	159
2.	Benha University, Egypt	79
3.	Cairo University, Egypt	75
4.	Tshwane University of Technology, South Africa	63
5.	Benha University Faculty of Science, Egypt	61
6.	Abdus Salam International Centre for Theoretical Physics, Italy	53
7.	National Research Centre, Egypt	47
8.	Alabama A and M University, USA	39
9.	University of Sfax, Tunisia	38
10.	Wuhan Donghu University, China	35

IMSIU researchers collaborated with the researchers of 116 countries of the world in the period of 2009 to 2018 as reflected in the Scopus database. List of top 20 research collaborating countries along with the number of publications shown as Figure-2. There are only five countries with more than one hundred documents each and eleven counties with 50 to 100 document each in research collaboration. Egypt is on the top with 324 documents, followed by Tunisia (n=305) United States (n=196), France (n=105) and Italy (n=101) in international co-author publications.

Figure-2; List of Major Research Collaborative Countries

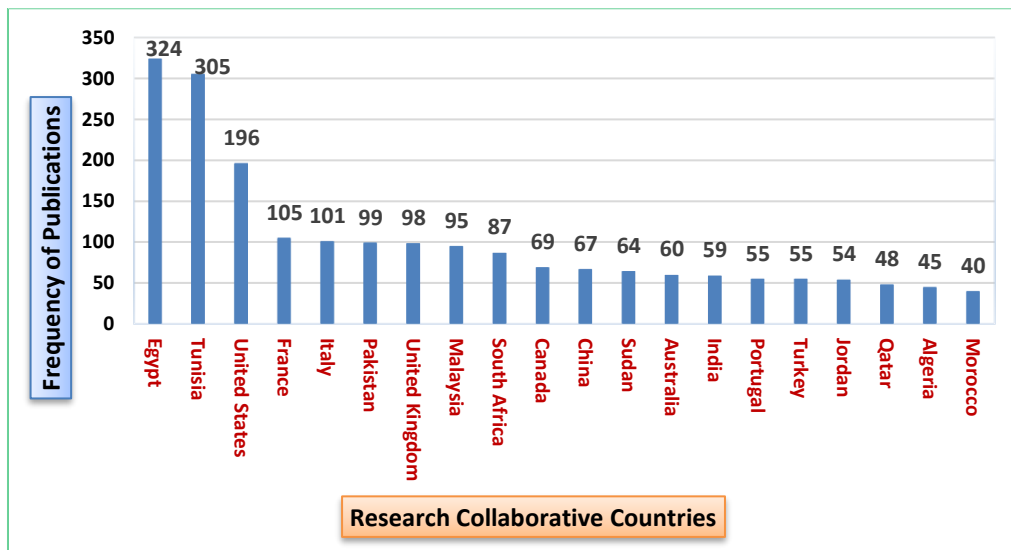


Table-7 presents the list of productive researchers of IMSIU along with their departments and number of publications. One thing should be kept in mind that these researchers produced more papers than showed in table-7, this list of documents is limited to the timespan of ten selected years and published in Scopus indexed journals. Amongst the top twenty authors, seven belong to the Department of Physics and six belongs to the Mathematics and Statistics department. This indicates the strong areas of research. Dr. L. El Mir found a most productive author with 115 documents followed by Anjan Biswas with 65 and Kamal Berrada with 63 publications.

Table-7; Productive Researchers of IMSIU

S. No.	Authors' Name	Department	Publications
1	L. El Mir	Physics	115
2	Anjan Biswas	Mathematics & Statistics	65
3	Kamal Berrada	Physics	63
4	Mohamed Meabed Khader	Mathematics and Statistics,	47
5	Lazhar Bougoffa	Mathematics	41
6	Rubayyi Turki Alqahtani,	Mathematics and Statistics	39
7	O.M. Lemine,	Physics	37
8	Ammar Houas,	Chemistry	35
9	Jaber El Ghoul,	Physics	32
10	Khalid H. Ibnaouf	Physics	30
11	Mohammed M. Babatin	Mathematics and Statistics	27
12	Nader Naifar	Dept Finance & Investment	25
13	M. Arfan Jaffar,	Computer Science	27
14	A. Eid	Physics	24
15	A. Alyamani	Radiation and Environmental Pollution Protection	22
16	Hajo Idriss	Radiation and Environmental Pollution Protection	21
17	L. Khezami	Chemistry	21
18	M. A. Abdelkawy,	Mathematics and Statistics	19
19	Mohamed A. El-Zawawy	Computer Science	19
20	Imed Ghiloufi	Physics	19

Discussion

The researchers affiliated to IMSIU produce a remarkable number of publications in different areas of research during the projected period. They produced 2,010 documents during the period of ten years. The citation analysis of open access and closed access documents reveals that the open access document received a higher number of citations. Overall growing tendency of publications found, little deterioration of publications noted during the year 2017. All 2,010 documents have been stratified into 27 subjects. Most of the research carried out on the subjects of Engineering, Computer Sciences and Physics. The scrutiny of documents type shows that the share of original research articles consisted of more than three-fourths (77.41%) of the total publications followed by conference papers (n=320; 15.92%). There are 21 journals with ≥ 10 papers each and Netherlands' journal "Optik" related to engineering sciences found frequent preference of IMSIU.

The researchers of Al-Jouf University, Saudi Arabia produced 66.75 articles per year with an average of 4.53 citations per paper. Medicine has been the dominant area of research and the majority of research carried out with the researchers of Egypt (Ahmed and Al-Rayaee 2019). King Saud bin Abdulaziz University for Health Sciences produced 775 papers during the period from 2005 to 2015 with an average of 70.45 papers per year. Most of the papers published on the subject of “Medicine” and United States found most research collaborating country (Haq & Al Fouzan, 2017). The ratio of average article per year of IMSIU (n=201) has been found higher as compare to two previous bibliometric studies of Saudi Universities (Ahmed and Al-Rayaee 2019; Haq & Al Fouzan, 2017). Goa University India produced 80.1 articles per year while University College of Medical Sciences University of Delhi, India 65.56 articles per year (Hugar, 2019; Mera & Sahu 2014). Islamic University of Indonesia produced 600 publications with an average of 46.15 papers per year. The citation impact of these publications recorded 1.78 citations per paper (Darmadji et al. 2018).

Reviewing the relevant studies, it is found that IMSIU shows promising attitude towards quality research published in Scopus indexed journals. This study would assist the university authorities to formulate, revise existing policies to further enhance and maintain the momentum of the quality and quantity of research publications as well as the budgetary allocation for research activities.

Conclusion

The growing tendency of research publications has been found by IMSIU except for one year, 2017. Open access documents received a higher number of citations. The ratio of Scopus based publications in proportion to the numbers of faculty and students is not very encouraging. Young faculty and students should be involved in the research process to enhance publication output. Researchers should be encouraged to write on innovative and unique ideas with senior local and international researchers. The study has proved that government concert efforts are fruitful towards improving the standard of higher education and enhance research publications.

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