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# Metric Analysis of Literature in the Field of Infertility

**J. Ramakrishnan[1], G. Ravi Sankar[2] and K. Thavamani[3]**
[1&2]S.G. Deputy Librarian, [3]Assistant Librarian,
Regional Medical Library, The Tamil Nadu Dr. M.G.R. Medical University, Chennai, Tamil Nadu, India
E-mail: dhanaram@yahoo.com, ravisankargovindan02@gmail.com, kottithavam@gmail.com
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***Abstract*** **- This paper offers a metric find out of literature in the field of Infertility. The publications distributed span of the year 2011 to 2020 was considered. The distributions in the field of Infertility which is shrouded in MEDLINE information included in the PubMed were considered. In general, it is seen that from the year 2011 onward there is a continuous make greater in research on Infertility without few years. A sum of 43229 publications on 'Infertility' is concealed in the MEDLINE data. It is observed that the most variety of 5999 publications was once posted throughout 2020. It used to be discovered that 45.95% are journal articles, 22.73% are Research Support, Non-U.S. Govt and 16.23% is Review. A total of 25 core journals grouped in zone-1 posted 6654 journal articles accounting for one third of the complete output. A whole of 237 journals has been recognized as core journals in the subject of Infertility. A complete of 6.46% of the distributions has been via single author distributions. A total of 92.98% of distributions is composed via multi-authors. A small rate (0.55%) represents anonymous initiation and the normal Degree of Collaboration showed up at 0.94 in the field of Infertility literature.**
***Keywords*****: Infertility, Metrics, Bradford's Law, Degree of Collaboration**

## I. INTRODUCTION

Infertility is the lack of ability of a person, animal or plant to reproduce by means of natural means. In humans, infertility is the incapacity to grow to be pregnant after one year of intercourse without contraception involving a male and female partner [1]. An enormous scope of articles, papers, reviews, etc is being posted on research work in Infertility. Since there are persistent examination distributions in this field, it is fundamental for learn about quantitatively the result of writing through utilizing metric methods. It would gain to pick out core journals and additionally to learn about the authorship pattern in the subject of Infertility. In this paper an attempt has been made to see the core journals and to learn about the authorship pattern in the discipline of Infertility.

## II. REVIEW OF LITERATURE

There are quantities of research carried out on Bradford's Law. Many studies, purposes and changes have been practiced on this regulation over the period. Heine [2] seen the extraordinary rating conventions which exist in the relationship between 'journal productivities' and 'journal ranking via productivity' of Bradford's distributions. Feicheng and Rui [3] used the frequency rank evaluation of Bradford's curve in a research on mechanism and, model of scattering distribution of scientific information. Bogaert, and other4 confirmed how Bradford curves, i.e. cumulative rank frequency function used in informatics can describe the fragment dimension distribution of percolation models. There are varieties of research on mapping and Bradford Law in health sciences [5-10]. Schloman [11] studied mapping the literature of allied health. Kundra [12] studied the behaviour of Bradford's Law closer to quotation information on Indian Medical Journal. Patra and Prakash Chand [13] considered HIV/AIDS research in India. They used Bradford's Law of scattering to become aware of core journals.

Ramakrishnan and Thavamani [14] studied on literature of Hepatitis C. A large variety of publications have been posted in the region of authorship patterns or productiveness in the bibliometric analysis. Farahat [15] investigated the authorship patterns in agriculture sciences in Egypt. Karisiddappa, Gupta, and Kumar [16] find out about used to be the scientific productiveness of authors in theoretical population genetics. Shirabe and Tomizawa [17] examined the possibility of distant places get admission to worldwide co-authorships. Dutt, Garg, and Bali [18] learn about was once the scientometrics of the International Journal Scientometrics. Ramakrishnan, Ravisankar, and Thavamani additionally viewed the authorship pattern and collaborative research in the area of Swine Flu Diseases [19].

## III. OBJECTIVES OF THE STUDY

The objectives of this study are

1. To scrutinize the growth of literature in the subject of Infertility.
2. To examine the Publication Types of literature in the area of Infertility.
3. To identify the core journals of literature in the subject of Infertility.
4. To analyze the authorship pattern of literature in the discipline of Infertility.

## IV. METHODOLOGY

The documents posted for the span of the year 2011 to 2020 in the subject of Infertility in the MEDLINE information which are covered in the PubMed [20] were retrieved. The

retrieved information had been changed into FoxPro and loaded in SPSS for the reason of investigation. The key-word 'Infertility' has been used for extracting the wide variety of data on hand in the above said database. The facts was once analyzed to discover core journals and to learn about the authorship pattern in the discipline of Infertility. To decide the core journals Bradford's law [21] of scattering has been utilized to convey the core journals and the Degree of Collaboration has been measured with the assist of the method created with the aid of K. Subramaniam [22] in the area of Infertility.

*A. Quantum of Infertility Research Productivity*

The research productiveness on 'Infertility' covered in the database is given in Table I. It is revealed that a complete of 43229 publications on 'Infertility' are concealed in the MEDLINE database which included in PubMed for a duration of ten years from the year 2011 to 2020. The year-wise dispersion of literature on 'Infertility' in accordance to supply database MEDLINE is shown in Table I. It is found that the most extreme number of records (5999) was distributed during the year 2020, followed by 5390 records in year 2019 and 4711 records in the year 2017. Overall, it is seen that from the year 2011 onward there is a steady increment of Infertility research efficiency consistently with the exception of the years for example 2014, 2016, and 2018 where the distributions were less contrasted with the earlier years. (Figure 1)

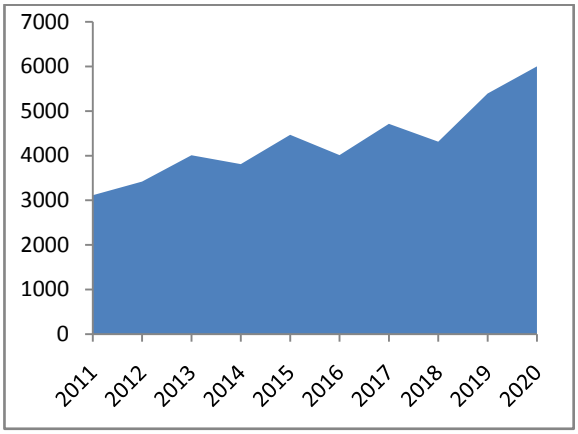


Fig. 1 Year-wise Productivity of Infertility Research

TABLE I QUANTUM OF LITERATURE PUBLISHED IN INFERTILITY BY YEAR-WISE

| Year | Frequency | % | Cumulative Frequency | Cumulative % |
|---|---|---|---|---|
| 2011 | 3111 | 7.20 | 3111 | 7.2 |
| 2012 | 3417 | 7.90 | 6528 | 15.10 |
| 2013 | 4007 | 9.27 | 10535 | 24.37 |
| 2014 | 3808 | 8.81 | 14343 | 33.18 |
| 2015 | 4465 | 10.33 | 18808 | 43.51 |
| 2016 | 4010 | 9.28 | 22818 | 52.78 |
| 2017 | 4711 | 10.90 | 27529 | 63.68 |
| 2018 | 4311 | 9.97 | 31840 | 73.65 |
| 2019 | 5390 | 12.47 | 37230 | 86.12 |
| 2020 | 5999 | 13.88 | 43229 | 100.00 |
| Total | 43229 | 100.00 | | |

*B. Publication Types of Infertility Research*

Table-II displays the distribution of the 'Infertility' research 'output in accordance to a variety of publication types of MEDLINE. It was once determined that 45.95% are journal articles, 22.73% are Research Support, Non-U.S. Gov't and 16.23% is Review. The literature posted as other publication types is 15.09%. (Figure 2)

TABLE II PUBLICATION TYPES OF INFERTILITY RESEARCH

| Publication Type | No. of records | % | Cumulative No. of records | Cumulative % |
|---|---|---|---|---|
| Journal Article | 19862 | 45.95 | 19862 | 45.95 |
| Research Support, Non-U.S. Gov't | 9825 | 22.73 | 29687 | 68.67 |
| Review | 7014 | 16.23 | 36701 | 84.90 |
| Systematic Review | 967 | 2.24 | 37668 | 87.14 |
| Research Support, N.I.H., Extramural | 932 | 2.16 | 38600 | 89.29 |
| Randomized Controlled Trial | 748 | 1.73 | 39348 | 91.02 |
| Letter | 573 | 1.33 | 39921 | 92.35 |
| Editorial | 570 | 1.32 | 40491 | 93.67 |
| Case Reports | 554 | 1.28 | 41045 | 94.95 |
| Observational Study | 436 | 1.01 | 41481 | 95.96 |

| | | | | |
|---|---|---|---|---|
| Research Support, U.S. Gov't, Non-P.H.S. | 338 | 0.78 | 41819 | 96.74 |
| Multicenter Study | 230 | 0.53 | 42049 | 97.27 |
| Validation Study | 176 | 0.41 | 42225 | 97.68 |
| Introductory Journal Article | 162 | 0.37 | 42387 | 98.05 |
| Research Support, N.I.H., intramural | 138 | 0.32 | 42525 | 98.37 |
| Meta-Analysis | 111 | 0.26 | 42636 | 98.63 |
| Video-Audio Media | 109 | 0.25 | 42745 | 98.88 |
| Practice Guideline | 94 | 0.22 | 42839 | 99.10 |
| Research Support, U.S. Gov't, P.H.S. | 78 | 0.18 | 42917 | 99.28 |
| News | 72 | 0.17 | 42989 | 99.44 |
| Published Erratum | 71 | 0.16 | 43060 | 99.61 |
| Portrait | 20 | 0.05 | 43080 | 99.66 |
| Retracted Publication | 20 | 0.05 | 43100 | 99.70 |
| Book Chapter | 18 | 0.04 | 43118 | 99.74 |
| Historical Article | 16 | 0.04 | 43134 | 99.78 |
| Twin Study | 16 | 0.04 | 43150 | 99.82 |
| Congress | 10 | 0.02 | 43160 | 99.84 |
| Legal Case | 10 | 0.02 | 43170 | 99.86 |
| Other Publication Types | 59 | 0.14 | 43229 | 100.00 |
| Total | 43229 | 100.00 | | |

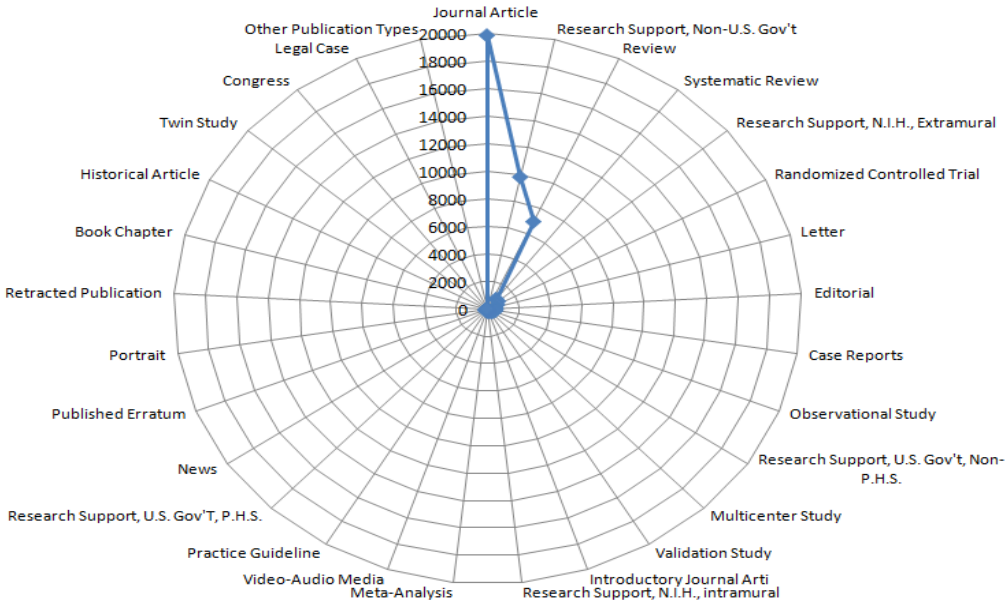


Fig. 2 Publication Types of Infertility Research

### *C. Distribution of Journals in Infertility Based on Bradford Law of Scattering*

According to the Bradford Law, an entire of 19862 journal articles have been decided for this study. The journals which included journal article are grouped into three zones producing comparable wide variety of articles. The distribution of journal with the aid of quarter sensible is given in the Table III. It is considered from Table III that 25 core journals grouped in zone-1 posted 6654 journal articles accounting for 1/3 of the complete output. Similarly the 2nd quarter involves of 212 journals and produced 6746 journal articles and 2331 journals grouped in third sector and produced 6462 journal articles. A whole of 237 journals in the zone-1 and zone-2 have been recognized as core journals in the area of Infertility. (Figure 3)

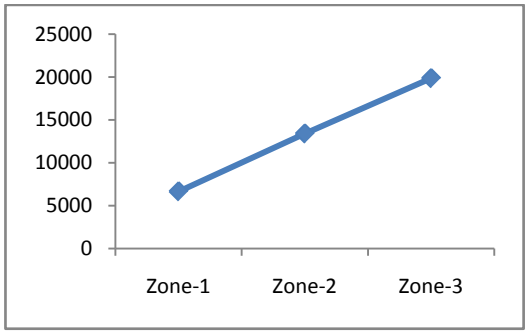


Fig. 3 Distributions of Journal articles by Zones

TABLE III DISTRIBUTION BY ZONE OF CITED JOURNALS AND JOURNAL ARTICLES ININFERTILITY

| Sl. No. | Zone | No. of Journals | | No. of Journal Articles | | Cumulative No. of Journal Articles | |
|---|---|---|---|---|---|---|---|
| | | No. | (%) | No. | (%) | No. | (%) |
| 1 | Zone 1 | 25 | 0.97 | 6654 | 33.50 | 6654 | 33.50 |
| 2 | Zone 2 | 212 | 8.26 | 6746 | 33.96 | 13400 | 67.47 |
| 3 | Zone 3 | 2331 | 90.77 | 6462 | 32.53 | 19862 | 100.00 |
| | Total | 2568 | 100.00 | 19862 | 100.00 | | |

*D. Core Journals in the Area of Infertility Research*

There are 237 journals contributed journal article for Zone 1 and Zone 2. Those journals are recognized as core journals in the area of Infertility. Core journals based totally on the research output on Infertility at some stage in the find out about length has been presented in the Table IV. There are 2568 journals contributed 19862 journal articles. The incredibly productive journals up to 5 ranks are as follows.

1. 'Fertility and Sterility' 843 contributions amounting to 4.24% of whole contributions.
2. 'Andrologia' 697 contributions amounting to 3.51%.
3. 'Journal of Assisted Reproduction and Genetics' 656 contributions amounting to 3.30%.
4. 'Reproductive Biomedicine Online' 455 contributions amounting to 2.29%.
5. 'Gynecological Endocrinology' 390 contributions amounting to 1.96%.

TABLE IV CORE JOURNALS IN INFERTILITY RESEARCH

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 1 | Fertility and Sterility | 843 | 4.24 |
| 2 | Andrologia | 697 | 3.51 |
| 3 | Journal of Assisted Reproduction and Genetics | 656 | 3.30 |
| 4 | Reproductive Biomedicine Online | 455 | 2.29 |
| 5 | Gynecological Endocrinology | 390 | 1.96 |
| 6 | International Journal of Fertility & Sterility | 310 | 1.56 |
| 7 | Human Reproduction (Oxford, England) | 282 | 1.42 |
| 8 | The Journal of Urology | 260 | 1.31 |
| 9 | International Journal of Reproductive Biomedicine | 225 | 1.13 |
| 10 | European Journal of Obstetrics, Gynecology, and Reproductive Biology | 215 | 1.08 |
| 11 | Iranian Journal of Reproductive Medicine | 214 | 1.08 |
| 12 | Human Fertility (Cambridge, England) | 187 | 0.94 |
| 13 | ZhonghuaNan KeXue = National Journal of Andrology | 186 | 0.94 |
| 14 | Archives of Gynecology and Obstetrics | 179 | 0.90 |
| 15 | Plos One | 167 | 0.84 |
| 16 | Reproductive Biology and Endocrinology: RB&E | 164 | 0.83 |
| 17 | Journal of Minimally Invasive Gynecology | 158 | 0.80 |
| 18 | Journal of Human Reproductive Sciences | 157 | 0.79 |
| 19 | Systems Biology in Reproductive Medicine | 152 | 0.77 |
| 20 | Andrology | 142 | 0.71 |
| 21 | Clinical and Experimental Obstetrics & Gynecology | 135 | 0.68 |
| 22 | Clinical and Experimental Reproductive Medicine | 122 | 0.61 |
| 23 | International Journal of Molecular Sciences | 120 | 0.60 |
| 24 | Journal of Reproduction & Infertility | 119 | 0.60 |
| 25 | The Journal of Obstetrics and Gynaecology Research | 119 | 0.60 |
| 26 | Asian Journal of Andrology | 115 | 0.58 |

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 27 | Journal of Obstetrics and Gynaecology | 108 | 0.54 |
| 28 | Urology | 107 | 0.54 |
| 29 | Theriogenology | 103 | 0.52 |
| 30 | JBRA Assisted Reproduction | 88 | 0.44 |
| 31 | Reproductive Sciences (Thousand Oaks, Calif.) | 88 | 0.44 |
| 32 | Gynecologie, Obstetrique&Fertilite | 80 | 0.40 |
| 33 | International Journal of Gynaecology and Obstetrics | 76 | 0.38 |
| 34 | Reproduction, Fertility, and Development | 74 | 0.37 |
| 35 | The Journal of Maternal | 74 | 0.37 |
| 36 | Reproductive Medicine and Biology | 71 | 0.36 |
| 37 | Cell Journal | 69 | 0.35 |
| 38 | Journal of Obstetrics and Gynaecology of India | 69 | 0.35 |
| 39 | Reproductive Biology | 69 | 0.35 |
| 40 | Taiwanese Journal of Obstetrics & Gynecology | 67 | 0.34 |
| 41 | Journal of Obstetrics and Gynaecology Canada: JOGC = Journal D'obstetrique Et | 65 | 0.33 |
| 42 | Biomed Research International | 64 | 0.32 |
| 43 | BJOG : An International Journal of Obstetrics and Gynaecology | 63 | 0.32 |
| 44 | Journal of Ovarian Research | 63 | 0.32 |
| 45 | Biology of Reproduction | 62 | 0.31 |
| 46 | Frontiers in Endocrinology | 61 | 0.31 |
| 47 | Journal of Clinical and Diagnostic Research: JCDR | 61 | 0.31 |
| 48 | Medicine | 61 | 0.31 |
| 49 | The Journal of Reproductive Medicine | 61 | 0.31 |
| 50 | American Journal of Obstetrics and Gynecology | 59 | 0.30 |
| 51 | Reproduction in Domestic Animals = Zuchthygiene | 59 | 0.30 |
| 52 | Oncotarget | 58 | 0.29 |
| 53 | Gene | 57 | 0.29 |
| 54 | Obstetrics and Gynecology | 56 | 0.28 |
| 55 | GinekologiaPolska | 54 | 0.27 |
| 56 | Urologiia (Moscow, Russia : 1999) | 54 | 0.27 |
| 57 | American Journal of Reproductive Immunology (New York, N.Y. : 1989) | 53 | 0.27 |
| 58 | Gynecologic and Obstetric Investigation | 52 | 0.26 |
| 59 | Journal of Gynecology Obstetrics And Human Reproduction | 52 | 0.26 |
| 60 | Facts, Views & Vision in Obgyn | 50 | 0.25 |
| 61 | Basic and Clinical Andrology | 49 | 0.25 |
| 62 | Journal of Clinical Medicine | 49 | 0.25 |
| 63 | Acta Obstetricia Et Gynecologica Scandinavica | 48 | 0.24 |
| 64 | Human Reproduction Open | 47 | 0.24 |
| 65 | Tag. Theoretical and Applied Genetics. Theoretische Und Angewandte Genetik | 47 | 0.24 |
| 66 | Translational Andrology and Urology | 47 | 0.24 |
| 67 | The Australian & New Zealand Journal of Obstetrics & Gynaecology | 45 | 0.23 |
| 68 | The Journal of International Medical Research | 45 | 0.23 |

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 69 | ZhonghuaFu Chan KeZaZhi | 45 | 0.23 |
| 70 | GeburtshilfeUnd Frauenheilkunde | 44 | 0.22 |
| 71 | Molecular Medicine Reports | 44 | 0.22 |
| 72 | Scientific Reports | 43 | 0.22 |
| 73 | Jpma. The Journal of the Pakistan Medical Association | 42 | 0.21 |
| 74 | BMJ Case Reports | 41 | 0.21 |
| 75 | Experimental and Therapeutic Medicine | 41 | 0.21 |
| 76 | Fertility Research and Practice | 41 | 0.21 |
| 77 | Methods in Molecular Biology (Clifton, N.J.) | 40 | 0.20 |
| 78 | Journal of the Turkish German Gynecological Association | 39 | 0.20 |
| 79 | Reproductive Health | 38 | 0.19 |
| 80 | Minerva Ginecologica | 37 | 0.19 |
| 81 | Journal De Gynecologie, Obstetrique Et Biologie De La Reproduction | 36 | 0.18 |
| 82 | Life Sciences | 36 | 0.18 |
| 83 | Reproductive Biomedicine & Society Online | 36 | 0.18 |
| 84 | ArchivioItaliano Di Urologia, Andrologia : Organo Ufficiale [Di] Societa Italiana | 35 | 0.18 |
| 85 | International Journal of Clinical and Experimental Medicine | 35 | 0.18 |
| 86 | Iranian Journal of Basic Medical Sciences | 35 | 0.18 |
| 87 | Obstetrics and Gynecology International | 35 | 0.18 |
| 88 | Turkish Journal of Urology | 35 | 0.18 |
| 89 | ZhonghuaYi Xue ZaZhi | 35 | 0.18 |
| 90 | Animal Reproduction Science | 34 | 0.17 |
| 91 | Journal of Endocrinological Investigation | 34 | 0.17 |
| 92 | Journal of Family & Reproductive Health | 34 | 0.17 |
| 93 | Journal of Pediatric and Adolescent Gynecology | 34 | 0.17 |
| 94 | Journal of Psychosomatic Obstetrics and Gynaecology | 34 | 0.17 |
| 95 | Georgian Medical News | 33 | 0.17 |
| 96 | Molecular Biology Reports | 33 | 0.17 |
| 97 | Medical Science Monitor | 32 | 0.16 |
| 98 | Urology Journal | 32 | 0.16 |
| 99 | Clinical Endocrinology | 31 | 0.16 |
| 100 | Pakistan Journal of Medical Sciences | 31 | 0.16 |
| 101 | European Review for Medical and Pharmacological Sciences | 30 | 0.15 |
| 102 | Genetics and Molecular Research : GMR | 30 | 0.15 |
| 103 | Journal of Ethnopharmacology | 30 | 0.15 |
| 104 | The Journal of Clinical Endocrinology and Metabolism | 30 | 0.15 |
| 105 | The Journal of Reproduction and Development | 30 | 0.15 |
| 106 | BMC Genomics | 29 | 0.15 |
| 107 | Case Reports in Obstetrics and Gynecology | 29 | 0.15 |
| 108 | Endocrine | 29 | 0.15 |
| 109 | Evidence | 29 | 0.15 |
| 110 | The World Journal of Men’s Health | 29 | 0.15 |
| 111 | BMC Women’s Health | 28 | 0.14 |

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 112 | Environmental Science and Pollution Research International | 28 | 0.14 |
| 113 | International Journal of Endocrinology | 28 | 0.14 |
| 114 | International Journal of Women's Health | 28 | 0.14 |
| 115 | Journal of Medical Case Reports | 28 | 0.14 |
| 116 | Reproduction (Cambridge, England) | 28 | 0.14 |
| 117 | Seminars in Reproductive Medicine | 28 | 0.14 |
| 118 | Chinese Medical Journal | 27 | 0.14 |
| 119 | Journal of Andrology | 27 | 0.14 |
| 120 | Zygote (Cambridge, England) | 27 | 0.14 |
| 121 | Journal of Adolescent and Young Adult Oncology | 26 | 0.13 |
| 122 | Medical Hypotheses | 26 | 0.13 |
| 123 | Turkish Journal of Obstetrics and Gynecology | 26 | 0.13 |
| 124 | African Journal of Reproductive Health | 25 | 0.13 |
| 125 | Biological Trace Element Research | 25 | 0.13 |
| 126 | CeskaGynekologie | 25 | 0.13 |
| 127 | MymensinghMedical Journal : MMJ | 25 | 0.13 |
| 128 | Iranian Journal of Nursing and Midwifery Research | 24 | 0.12 |
| 129 | Journal of Pediatric Urology | 24 | 0.12 |
| 130 | Journal of Women's Health (2002) | 24 | 0.12 |
| 131 | Oxidative Medicine and Cellular Longevity | 24 | 0.12 |
| 132 | RevistaBrasileira De Ginecologia E Obstetricia: Revista Da FederacaoBrasileira | 24 | 0.12 |
| 133 | Archives of Medical Science : AMS | 23 | 0.12 |
| 134 | BMC Pregnancy and Childbirth | 23 | 0.12 |
| 135 | Cellular and Molecular Biology | 23 | 0.12 |
| 136 | Electronic Physician | 23 | 0.12 |
| 137 | Journal of Pediatric Surgery | 23 | 0.12 |
| 138 | Journal of Research in Medical Sciences | 23 | 0.12 |
| 139 | ZhonghuaYi Xue Yi Chuan Xue ZaZhi = Zhonghua Yixue Yichuanxue Zazhi = Chinese | 23 | 0.12 |
| 140 | Biomedicine & Pharmacotherapy = Biomedecine&Pharmacotherapie | 22 | 0.11 |
| 141 | Caspian Journal of Internal Medicine | 22 | 0.11 |
| 142 | GinecologiaY Obstetricia De Mexico | 22 | 0.11 |
| 143 | Indian Journal of Endocrinology And Metabolism | 22 | 0.11 |
| 144 | Iranian Journal of Public Health | 22 | 0.11 |
| 145 | Iranian Red Crescent Medical Journal | 22 | 0.11 |
| 146 | Journal of Medical Ethics | 22 | 0.11 |
| 147 | Journal of Reproductive Immunology | 22 | 0.11 |
| 148 | Revue Medicale Suisse | 22 | 0.11 |
| 149 | The Science of the total Environment | 22 | 0.11 |
| 150 | Toxicology and Industrial Health | 22 | 0.11 |
| 151 | Urologia | 22 | 0.11 |
| 152 | Urologia Internationalis | 22 | 0.11 |
| 153 | Advanced Biomedical Research | 21 | 0.11 |
| 154 | AkusherstvoI Ginekologiia | 21 | 0.11 |

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 155 | Biomedical Reports | 21 | 0.11 |
| 156 | BJU International | 21 | 0.11 |
| 157 | Journal of Education and Health Promotion | 21 | 0.11 |
| 158 | Narrative Inquiry in Bioethics | 21 | 0.11 |
| 159 | The American Journal of Bioethics : AJOB | 21 | 0.11 |
| 160 | The Pan African Medical Journal | 21 | 0.11 |
| 161 | WiadomosciLekarskie (Warsaw, Poland : 1960) | 21 | 0.11 |
| 162 | Best Practice & Research. Clinical Obstetrics &Gynaecology | 20 | 0.10 |
| 163 | Canadian Urological Association Journal = Journal De l'Association Des Urologues Du | 20 | 0.10 |
| 164 | Cellular Physiology and Biochemistry | 20 | 0.10 |
| 165 | Gynecologie, Obstetrique, Fertilite&Senologie | 20 | 0.10 |
| 166 | International Braz J Urol | 20 | 0.10 |
| 167 | Supportive Care In Cancer | 20 | 0.10 |
| 168 | Turkish Journal of Medical Sciences | 20 | 0.10 |
| 169 | BMC Research Notes | 19 | 0.10 |
| 170 | Chemosphere | 19 | 0.10 |
| 171 | Cytogenetic and Genome Research | 19 | 0.10 |
| 172 | Ecotoxicology and Environmental Safety | 19 | 0.10 |
| 173 | Endocrinology | 19 | 0.10 |
| 174 | Frontiers in Physiology | 19 | 0.10 |
| 175 | Journal of Reproductive and Infant Psychology | 19 | 0.10 |
| 176 | Nature Reviews. Urology | 19 | 0.10 |
| 177 | Obstetrics & Gynecology Science | 19 | 0.10 |
| 178 | Orvosi Hetilap | 19 | 0.10 |
| 179 | The Aging Male | 19 | 0.10 |
| 180 | The European Journal of Contraception & Reproductive Health Care | 19 | 0.10 |
| 181 | Indian Journal of Urology: IJU | 18 | 0.09 |
| 182 | International Journal of Andrology | 18 | 0.09 |
| 183 | Journal of Family Medicine and Primary Care | 18 | 0.09 |
| 184 | Journal of Ultrasound in Medicine | 18 | 0.09 |
| 185 | Nigerian Journal of Clinical Practice | 18 | 0.09 |
| 186 | Reproductive Toxicology (Elmsford, N.Y.) | 18 | 0.09 |
| 187 | Arab Journal of Urology | 17 | 0.09 |
| 188 | Balkan Journal of Medical Genetics : BJMG | 17 | 0.09 |
| 189 | BMC Plant Biology | 17 | 0.09 |
| 190 | Expert Review of Endocrinology & Metabolism | 17 | 0.09 |
| 191 | Frontiers in Cell and Developmental Biology | 17 | 0.09 |
| 192 | Genetic Testing and Molecular Biomarkers | 17 | 0.09 |
| 193 | Journal of Clinical Laboratory Analysis | 17 | 0.09 |
| 194 | Journal of the Endocrine Society | 17 | 0.09 |
| 195 | Nan Fang Yi Ke Da XueXue Bao = Journal of Southern Medical University | 17 | 0.09 |
| 196 | Nutrients | 17 | 0.09 |
| 197 | Peerj | 17 | 0.09 |

| S. No. | Name of the Journal | No. of Records | % |
|---|---|---|---|
| 198 | The Journal of Sexual Medicine | 17 | 0.09 |
| 199 | BMC Urology | 16 | 0.08 |
| 200 | Bulletin of Experimental Biology and Medicine | 16 | 0.08 |
| 201 | Environmental Pollution (Barking, Essex : 1987) | 16 | 0.08 |
| 202 | European Journal of Medical Genetics | 16 | 0.08 |
| 203 | Frontiers in Genetics | 16 | 0.08 |
| 204 | International Journal of Environmental Research and Public Health | 16 | 0.08 |
| 205 | International Journal of Urology | 16 | 0.08 |
| 206 | International Urology and Nephrology | 16 | 0.08 |
| 207 | Journal of Cellular Biochemistry | 16 | 0.08 |
| 208 | Journal of the Chinese Medical Association: JCMA | 16 | 0.08 |
| 209 | Molecular Cytogenetics | 16 | 0.08 |
| 210 | Pediatric Blood & Cancer | 16 | 0.08 |
| 211 | ProgresEn Urologie : Journal De l'AssociationFrancaiseD'urologie Et De La Societe | 16 | 0.08 |
| 212 | ZhongguoZhongXi Yi Jie He ZaZhiZhongguoZhongxiyiJieheZazhi = Chinese Journal | 16 | 0.08 |
| 213 | American Journal of Medical Genetics. Part A | 15 | 0.08 |
| 214 | Antioxidants (Basel, Switzerland) | 15 | 0.08 |
| 215 | Clinical Laboratory | 15 | 0.08 |
| 216 | Food and Chemical Toxicology | 15 | 0.08 |
| 217 | Irish Journal of Medical Science | 15 | 0.08 |
| 218 | Journal of Robotic Surgery | 15 | 0.08 |
| 219 | Oman Medical Journal | 15 | 0.08 |
| 220 | Saudi Medical Journal | 15 | 0.08 |
| 221 | Sexual Development: Genetics, Molecular Biology, Evolution, Endocrinology | 15 | 0.08 |
| 222 | Trials | 15 | 0.08 |
| 223 | ZhongNan Da XueXueBao. Yi Xue Ban = Journal of Central South University. Medical | 15 | 0.08 |
| 224 | Acta Histochemica | 14 | 0.07 |
| 225 | African Health Sciences | 14 | 0.07 |
| 226 | Bioethics | 14 | 0.07 |
| 227 | European Journal of Endocrinology | 14 | 0.07 |
| 228 | International Journal of Gynecological Cancer | 14 | 0.07 |
| 229 | Iranian Journal of Medical Sciences | 14 | 0.07 |
| 230 | Journal of Health Psychology | 14 | 0.07 |
| 231 | Journal of Human Genetics | 14 | 0.07 |
| 232 | JSLS: Journal of the Society of Laparoendoscopic Surgeons | 14 | 0.07 |
| 233 | La Tunisie Medicale | 14 | 0.07 |
| 234 | Scandinavian Journal of Urology | 14 | 0.07 |
| 235 | Spermatogenesis | 14 | 0.07 |
| 236 | The Linacre Quarterly | 14 | 0.07 |
| 237 | Ultrasound in Obstetrics & Gynecology | 14 | 0.07 |

*E. Authorship Pattern in the Area of Infertility Research*

This paper has also attempted to investigate the scope of initiation design viz. Single Vs. Multiple authors, and Degree of Collaboration (DC). The result of Infertility literature has been presented in the table V from the year 2011 to 2020. The year-wise distribution of contributions in understanding to the wide assortment of authors is introduced. It is presented from the Table V that a total of 6.46% of the distributions had been by utilizing single author distributions. A total of 92.98% of distributions signifies two and more authors' distributions, which expose that the cooperative research is clear in the Infertility literature (Figure 4).

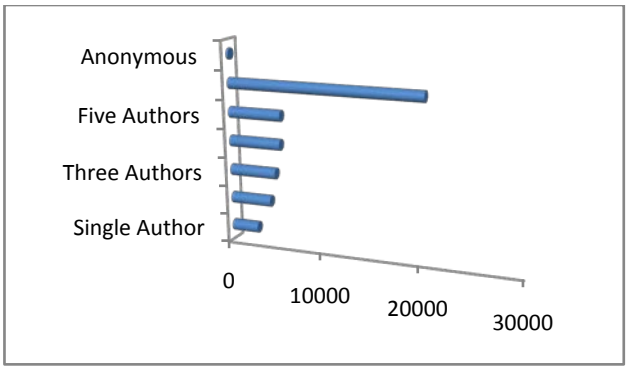


Fig. 4 Authorship Pattern in the area of Infertility Research

TABLE V AUTHORSHIP PATTERN IN THE AREA OF INFERTILITY RESEARCH

| Authors | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | No. of Publications | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single Author | 260 | 291 | 353 | 271 | 333 | 270 | 272 | 243 | 246 | 255 | 2794 | 6.46 |
| Two Authors | 386 | 418 | 465 | 418 | 451 | 374 | 450 | 391 | 426 | 486 | 4265 | 9.87 |
| Three Authors | 393 | 415 | 493 | 442 | 477 | 481 | 542 | 476 | 557 | 588 | 4864 | 11.25 |
| Four Authors | 380 | 450 | 492 | 517 | 569 | 506 | 552 | 510 | 688 | 762 | 5426 | 12.55 |
| Five Authors | 399 | 424 | 498 | 474 | 609 | 530 | 586 | 561 | 685 | 755 | 5521 | 12.77 |
| Five Authors | 1277 | 1378 | 1672 | 1661 | 2005 | 1830 | 2291 | 2110 | 2758 | 3138 | 20120 | 46.54 |
| Anonymous | 16 | 41 | 34 | 25 | 21 | 19 | 18 | 20 | 30 | 15 | 239 | 0.55 |
| Total | 3111 | 3417 | 4007 | 3808 | 4465 | 4010 | 4711 | 4311 | 5390 | 5999 | 43229 | 100.00 |

*F. Single Vs. Multi Authored Publications in the Area of Infertility Research*

Table VI suggests that the authorship pattern of research output of Infertility literature. As already cited that the multi-authors' papers determined the principle percentage. A complete of 92.98% of publications is written by way of multi-authors. The proportion of single and multi-authors' distributions is 1:14 seen in the subject of Infertility. However, it used to be viewed that meager percentage (0.55%) signify nameless authorship. The excessive incidence via multi-authors' publications is the phenomenon of scientific research (Figure 5).

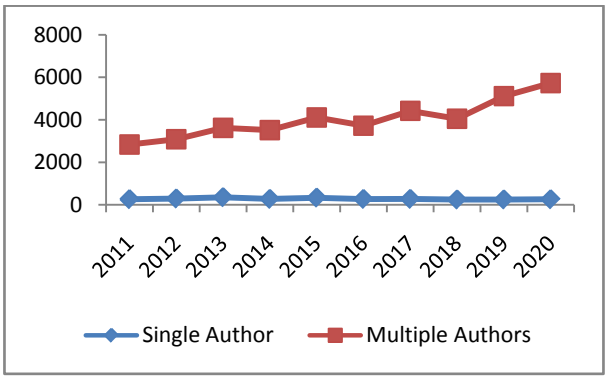


Fig. 5 Single Vs. Multi authored publications in the area of Infertility Research

TABLE VI SINGLE VS MULTI AUTHORED PUBLICATIONS IN THE AREA OF INFERTILITY RESEARCH

| Year | Anonymous | | Single Authored | | Multi Authored | | Total | % |
|---|---|---|---|---|---|---|---|---|
| | Papers | % | Papers | % | Papers | % | | |
| 2011 | 16 | 6.69 | 260 | 9.31 | 2835 | 7.05 | 3111 | 7.20 |
| 2012 | 41 | 17.15 | 291 | 10.42 | 3085 | 7.67 | 3417 | 7.90 |
| 2013 | 34 | 14.23 | 353 | 12.63 | 3620 | 9.01 | 4007 | 9.27 |
| 2014 | 25 | 10.46 | 271 | 9.70 | 3512 | 8.74 | 3808 | 8.81 |
| 2015 | 21 | 8.79 | 333 | 11.92 | 4111 | 10.23 | 4465 | 10.33 |
| 2016 | 19 | 7.95 | 270 | 9.66 | 3721 | 9.26 | 4010 | 9.28 |
| 2017 | 18 | 7.53 | 272 | 9.74 | 4421 | 11.00 | 4711 | 10.90 |
| 2018 | 20 | 8.37 | 243 | 8.70 | 4048 | 10.07 | 4311 | 9.97 |
| 2019 | 30 | 12.55 | 246 | 8.80 | 5114 | 12.72 | 5390 | 12.47 |
| 2020 | 15 | 6.28 | 255 | 9.13 | 5729 | 14.25 | 5999 | 13.88 |
| Total | 239 | 100.00 | 2794 | 100.00 | 40196 | 100.00 | 43229 | 100.00 |

*G. Degree of Collaboration in the Area of Infertility Research*

The Degree of Collaboration of authors through year-wise is presented in Table VII. The Degree of Collaboration in the discipline of Infertility has been estimated with the help of the definition made by utilizing K. Subramaniam. In this way, the Degree of Collaboration has been respected for the year 2011 is as per the following:

$$C = \frac{2835}{2835 + 260}$$

$$= \frac{2835}{3095} = 0.92$$

Additionally, the Degree of Collaboration is respected for every single year and introduced in Table VII. It is considered from the work area that the year-wise Degree of Collaboration shows the ratio in-between 0.92 to 0.96 in the concentrate about of the degree of collaboration in the discipline of Infertility. (Figure 6).

The normal Degree of Collaboration showed up at 0.94. At the equivalent time the year-wise Degree of Collaboration falls more prominent than 0.5 and exposed that the multi-authors' papers are ruled in the subject of Infertility.

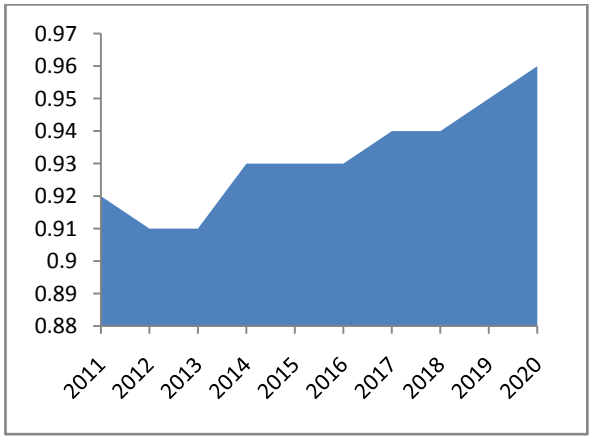


Fig. 6 Degree of Collaboration in the area of Infertility Research

TABLE VII DEGREE OF COLLABORATION IN THE AREA OF INFERTILITY RESEARCH

| Year | Anonymous | Single author | Two authors | Three Authors | Four Authors | Five Authors | More than Five author | Total | More than one author | Degree of Collaboration |
|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 16 | 260 | 386 | 393 | 380 | 399 | 1277 | 3111 | 2835 | 0.92 |
| 2012 | 41 | 291 | 418 | 415 | 450 | 424 | 1378 | 3417 | 3085 | 0.91 |
| 2013 | 34 | 353 | 465 | 493 | 492 | 498 | 1672 | 4007 | 3620 | 0.91 |
| 2014 | 25 | 271 | 418 | 442 | 517 | 474 | 1661 | 3808 | 3512 | 0.93 |
| 2015 | 21 | 333 | 451 | 477 | 569 | 609 | 2005 | 4465 | 4111 | 0.93 |
| 2016 | 19 | 270 | 374 | 481 | 506 | 530 | 1830 | 4010 | 3721 | 0.93 |
| 2017 | 18 | 272 | 450 | 542 | 552 | 586 | 2291 | 4711 | 4421 | 0.94 |
| 2018 | 20 | 243 | 391 | 476 | 510 | 561 | 2110 | 4311 | 4048 | 0.94 |
| 2019 | 30 | 246 | 426 | 557 | 688 | 685 | 2758 | 5390 | 5114 | 0.95 |
| 2020 | 15 | 255 | 486 | 588 | 762 | 755 | 3138 | 5999 | 5729 | 0.96 |
| Total | 239 | 2794 | 4265 | 4864 | 5426 | 5521 | 20120 | 43229 | 40196 | 0.94 |

## V. FINDINGS OF THE STUDY

1. An entire of 43229 documents on 'Infertility' is included in the MEDLINE database.
2. It is resolved that the most quantity of 5999 distributions was distributed during the year 2020.
3. It was once resolved that 45.95% are journal articles, 22.73% are Research Support, Non-U.S. Govt and 16.23% is Review.
4. A complete of 25 core journals grouped in zone-1 published 6654 journal articles accounting for 1/3 of the entire output.
5. The second zone incorporates of 212 journals and delivered 6746 journal articles.
6. A complete of 2331 journals produced 6462 journal articles in third zone.
7. A total of 237 journals have been recognized as core journals in the subject of Infertility.
8. A complete of 6.46% of the publications has been with the aid of single author publications.
9. A total of 92.98% of publications is written by way of multi-authors.
10. A meager percentage (0.55%) symbolizes nameless authorship; and
11. The normal Degree of Collaboration showed up at 0.94 in the Infertility literature.

## VI. CONCLUSION

It is concluded from this study that Infertility research writing is growing consistently with the exception of few years where the records were less contrasted with the earlier years. It is also concluded that most quantity of publications covered with journal articles in the subject of Infertility literature. An entire of 237 journals have been distinguished as core journals in the subject of Infertility literature. The multi-authors' papers are ruled in the subject of Infertility literature.

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