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Research Article

A SCIENTOMETRIC ANALYSIS OF MALE INFERTILITY PUBLICATION FROM 2020 TO 2022

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Abstract

According to the International Committee for the Monitoring of Assisted Reproductive Technologies of the World Health Organization (WHO), infertility is a disease of the reproductive system defined by the inability to achieve a clinical pregnancy after 12 months or more of regular sexual intercourse, without protection. Infertility problems affect almost 15% of couples worldwide. This means that around 48 million couples around the world have difficulty conceiving a child despite trying for a year or more. Of these cases, almost 30% are due to male infertility problems. Articles on male infertility published between the years 2020 and 2022 were analyzed for information on the structure, history of the topic, and relationships between the articles. This article explains the top 10 categories of publications, such as sources, author, journal, geographic region, institution, and language. Male infertility in men depends on the continuous daily production of millions of sperm. Spermatogenesis is a highly complex sequence of steps by which an undifferentiated diploid spermatogonium matures into a specialized and genetically unique haploid spermatozoon. Infertility care includes the prevention, diagnosis, and treatment of infertility. Equal and equitable access to infertility care remains a challenge in most countries; especially in low- and middle-income countries. Infertility care is rarely a priority in national universal health coverage benefit packages. The present study explores the scientometric analysis of male fertility through publications. This study covered worldwide infertility records between 2020 and 2022. Data was compiled from the Web of Science database.

Keywords: Project-based learning, Mathematics teaching and learning, 21st century skills.

INTRODUCTION

Scientometrics is one of the techniques that constitutes a set of mathematical and statistical methods used to analyze and measure the quantity and quality of journals, articles and other forms of publications. Infertility can cause significant financial loss and emotional distress affecting one in seven people, or approximately 49-72 million people worldwide. According to a multicenter study conducted by WHO between 1982 and 1985, 20% of cases were attributed to male factors, 38% to female factors, 27% had causative factors identified in both partners, and 15% could not be satisfactorily attributed. . of couples. . Male infertility depends on the continuous daily production of millions of sperm. The process of spermatogenesis is extremely complex, taking 6 to 9 weeks to complete, and involves a coordinated series of mitotic and meiotic divisions, elaborate cytodifferential steps, and constantly changing intercellular interactions. Classically, it has been estimated that the duration of spermatogenesis, from the differentiation of pale spermatogonia to the ejaculation of mature spermatozoa, is about 3 months. Numerous articles related to male infertility have been published. Using the scientometric approach, this study aims to identify the most cited articles in the field of male infertility and to perform a detailed analysis of these most cited publications to study their characteristics. This implies a breakdown of the most cited articles by source, author, journal, geographic region, institution, and language. This will provide important information on highly referenced articles in the field of male infertility between the year of 2020-22.

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Objectives

To major objectives are formulated the present study as mentioned below:

1. Examine the results of research on male infertility during the study period.
2. Identify the sources of published research studies on male infertility.
3. Identify the pattern of authorship.
4. Study the results of national research on male infertility.
5. Study the results of research on male infertility in magazines.
6. I study published research on male infertility from a linguistic and institutional point of view.

MATERIALS AND METHODS

Methodology

The study assesses the contribution of countries to the pattern of growth and development of research productivity in this discipline over the past two years.

Data collection

The publication of the results of research on infertility in scientometrics comes from various sources, such as journal articles and conference proceedings. Review, short survey, memo, editorial press release, and letter. The research data required for this study is downloaded from the Web of Science database.

ANALYSIS AND INTERPRETATION

Table 1. Year wise publication male infertility research

S. No	Publication Year	Recs	Percent	TLCS	TGCS
1	2020	1416	39.7	1640	7713
2	2021	1588	44.5	808	3581
3	2022	565	15.8	41	255

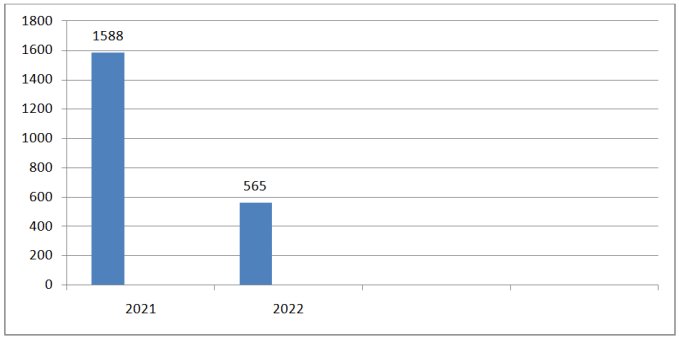

Fig. 1. Year wise output in male infertility research

The annual productivity of male infertility research publications during the year 2020 to 2022 is presented in Table 1. It is shown that the production of publications has a gradual tendency to increase and decrease. In 2021 it maintained the first position in terms of production increase (44.5%) compared to 2020 and 2022.

Table 2. Source wise output in male infertility research

S. No	Document Type	Recs	Percent	TLCS	TGCS
1	Article	2510	70.3	1675	7438
2	Review	653	18.3	732	3733
3	Article; Early Access	129	3.6	0	51
4	Meeting Abstract	104	2.9	2	6
5	Editorial Material	80	2.2	32	133
6	Review; Early Access	44	1.2	0	80
7	Letter	22	0.6	7	19
8	Correction	7	0.2	0	0
9	Article; Proceedings Paper	5	0.1	27	53
10	Review; Book Chapter	5	0.1	14	31
11	Article; Book Chapter	3	0.1	0	0
12	Editorial Material; Early Access	3	0.1	0	0
13	Correction; Early Access	1	0.0	0	3
14	Hardware Review	1	0.0	0	2
15	Letter; Early Access	1	0.0	0	0
16	News Item	1	0.0	0	0

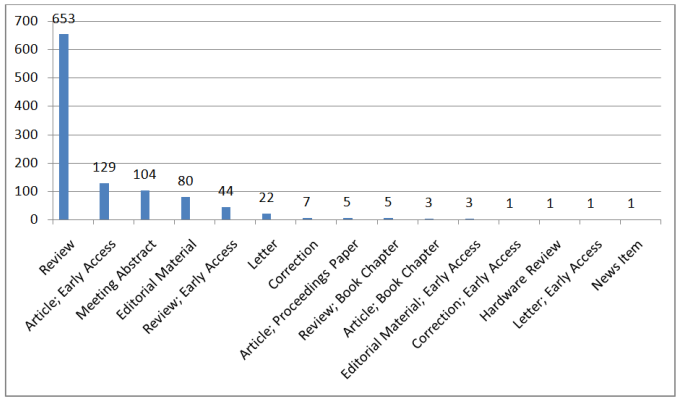

Fig. 2. Sources wise output in male infertility research

The source of the results of the research on male infertility is shown in Table 2. It should be noted that the Article occupies the first position (70.3%), in second place is the Review Article (18.03%), followed by the Article of Assembly; early access; Meeting summary, meeting summary, etc.

Table 3. Top 10 authors in male infertility research (15808)

S. No	Author	Recs	Percent	TLCS	TLCS/t
1	Agarwal A	70	2.0	186	81.17
2	Henkel R	46	1.3	118	50.50
3	Calogero AE	40	1.1	44	19.67
4	Zhang H	40	1.1	40	18.17
5	Cao YX	34	1.0	197	70.83
6	Cannarella R	32	0.9	15	6.83
7	He XJ	32	0.9	197	70.83
8	La Vignera S	32	0.9	29	12.67
9	Wu H	32	0.9	192	69.17
10	Condorelli RA	31	0.9	18	7.83

Table 3 shows the top 10 authors of research on male infertility. It should be noted that Agarwal A ranked first (8.0%) against Henkel R in second (1.3), followed by Calogero AE et al. Cannarella R and others occupy the last position (0.9%).

Table 4. Top 10 Journals in male infertility research

S. No	Journal	Recs	Percent	TLCS	TGCS
1	Andrologia	232	6.5	0	628
2	Human reproduction	111	3.1	102	277
3	Infertility and sterility	110	3.1	230	635
4	Andrology	104	2.9	187	531
5	Journal of assisted reproduction and genetics	92	2.6	116	228
6	International journal of molecular sciences	75	2.1	0	272
7	Reproductive sciences	56	1.6	41	129
8	Journal of clinical medicine	48	1.3	0	255
9	World journal of mens health	46	1.3	133	334
10	Journal of urology	45	1.3	33	74

The results of the male infertility research journal are shown in Table 4. It can be seen that Andrology magazine occupies the first position (232), Human Reproduction magazine occupies the second position (111) followed by others.

Table 5. Top ten Country wise of male Infertility research (107)

S. No	Country	Recs	Percent	TLCS	TGCS
1	Peoples R China	847	23.7	700	2915
2	USA	747	20.9	900	3576
3	Italy	329	9.2	290	1469
4	Iran	241	6.8	241	856
5	UK	200	5.6	304	1010
6	India	165	4.6	169	652
7	Germany	164	4.6	165	716
8	Turkey	144	4.0	96	302
9	France	143	4.0	294	781
10	Australia	142	4.0	163	626

The country wise output in country level of male Infertility research is given in table-5. It could be noted that the Peoples China is occupies in first position (847) compared to USA (747); Italy (329) followed by Iran and etc.

Table 6. Languages wise of male infertility research output

S. No	Language	Recs	Percent	TLCS	TGCS
1	English	3549	99.4	2488	11544
2	French	7	0.2	0	4
3	German	5	0.1	1	1
4	Spanish	5	0.1	0	0
5	Chinese	1	0.0	0	0
6	Hungarian	1	0.0	0	0
7	Polish	1	0.0	0	0

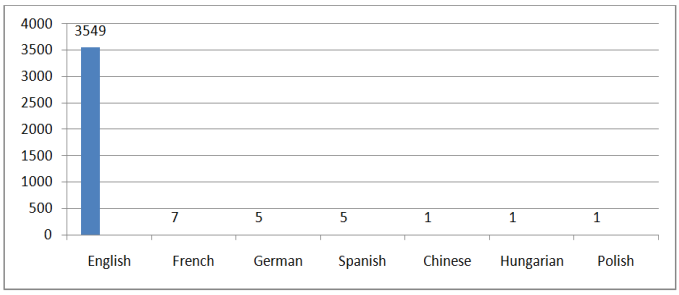

Fig. 3. language wise output male infertility research

The linguistic result of the research on male infertility is shown in Table 6. It can be seen that the English language has published only 2361 publications. Chinese, Hungarian and Polish languages published a unique number of publications.

Table 7. Top ten Institutions wise of male Infertility research

S. No	Institution	Recs	TLCS	TGCS
1	Cleveland Clin	82	197	657
2	Nanjing Med Univ	80	196	418
3	Shanghai Jiao Tong Univ	56	58	140
4	Univ Catania	54	56	266
5	Univ Western Cape	52	119	455
6	ACECR	51	28	151
7	Univ Copenhagen	51	58	202
8	Anhui Med Univ	49	202	278
9	MonashUniv	49	81	182
10	Univ Utah	49	150	482

The institution's results in male infertility research are shown in Table 7. It should be noted that Johns Cleveland Clin ranks first (82); second Nanjing Med Univ (80) followed by Shanghai Jiao Tong Univ etc.

Conclusion

This is due to the fundamental place that the journal occupies as a means of scientific communication compared to any other form of publication; Most research results are published in general articles. From the discussion it is clear that, in the study period, the trend of publication of research articles is increasing. The highest percentage of publications published in 2021. The lowest percentage of research articles published in 2022. Male infertility is the main concern of society and also of future generations.

Different types of research are needed for the diagnosis, prevention, and treatment related to male infertility. This article may provide the information that researchers need.

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