

Bibliometric Analysis of the Scientific Production on Postabortion Syndrome

Erika Núñez-Lizárraga¹, Joel Figueroa-Alvarado², Karina Hammer-Arata³, John Barja-Ore⁴ 

Received on: 14 May 2024; Accepted on: 20 June 2024; Published on: 23 October 2024

ABSTRACT

Introduction: Postabortion syndrome (PAS) is a complex problem affecting women's reproductive health.

Aim: To analyze the bibliometric parameters of the scientific production indexed in Scopus on PAS.

Materials and methods: Cross-sectional study with a bibliometric approach that considered the inclusion of scientific articles on PAS indexed in Scopus. A search strategy using key terms and logical operators was designed for the search. VOSviewer and SciVal were used.

Results: The United States is the leading country in scientific productivity on PAS. The journal *Contraception* (14 articles, 7.2 citations per publication) is the most productive and has the highest average number of citations per article. In terms of institutions, the Guttmacher Institute, Ipas and Harvard University were the leading institutions in terms of productivity in this field of knowledge and had the largest number of authors. However, the University of California at San Francisco had the highest weighted impact. The subcategory of Obstetrics and Gynecology and Public Health (61), Environmental and Occupational Health (35), and Reproductive Medicine (30) had more articles published.

Conclusion: The main journals disseminating articles on PAS are of high impact. In addition, US institutions lead this field of knowledge with the largest output and the largest number of collaborative links with countries, such as the UK, Kenya, and Nigeria. There is a need for greater depth and new approaches to research on this topic.

Keywords: Bibliometric analysis, Postabortion, Postabortion syndrome.

Journal of South Asian Federation of Obstetrics and Gynaecology (2024): 10.5005/jp-journals-10006-2469

INTRODUCTION

Pregnancy is a stage in which different physiological modifications take place that prepare the maternal organism to ensure fetal wellbeing; however, during this period, women are more susceptible to infections, hemorrhages, among other complications, which can cause chronic pelvic pain, secondary infertility, and miscarriage.¹⁻³ The latter complication is defined as the spontaneous or induced termination of a pregnancy before 22 weeks or when the weight of the product is less than 500 grams.⁴

The cultural and social contexts of each environment can lead to the termination of unwanted pregnancies being performed by unqualified persons or in environments with low medical standards of quality and safety for the woman.⁵ Abortion accounts for 13% of all maternal deaths globally,⁶ especially in developing countries, whose impact is not only on the physical aspect of the woman, but also on her mental health, which leads to postabortion syndrome (PAS).⁷

Postabortion syndrome is a chronic disorder in which the woman presents insomnia, nightmares, chronic anxiety, mood swings, avoidance of places, associated with depression, neurosis, obsessive-compulsive disorder, feelings of shame and guilt, low self-esteem, lack of interest in sex among others,⁸ even involving severe feelings of guilt, problems with the bond with existing or future children, and addiction to drugs or alcohol.⁹ In this sense, this syndrome is recognized as another type of post-traumatic stress disorder, although with its own very relevant characteristics when it comes to understanding the patient's experience and psychotherapeutic intervention.¹⁰

Previous studies have shown that in women who had miscarriages, 55% had symptoms of depression, 27% reported perinatal grief and more than 18% reported moderate anxiety.¹¹

¹⁻⁴Department of Obstetrics, Research Direction, Universidad Privada del Norte, Lima, Perú

Corresponding Author: John Barja-Ore, Department of Obstetrics, Research Direction, Universidad Privada del Norte, Lima, Perú, Phone: +51 6165590, e-mail: john.barja@upn.edu.pe

How to cite this article: Núñez-Lizárraga E, Figueroa-Alvarado J, Hammer-Arata K, *et al.* Bibliometric Analysis of the Scientific Production on Postabortion Syndrome. *J South Asian Feder Obst Gynae* 2024;16(5):515-519.

Source of support: Nil

Conflict of interest: None

Depressive symptoms are more intense in the last 6 months, while the level of anxiety and perinatal grief do not vary according to the time since the miscarriage. However, it should also be considered that there are protective factors that would reduce the likelihood of these consequences after abortion, such as a high level of education, being a non-immigrant, having good marital relations and being satisfied with the health care received.¹² Research involving women diagnosed with PAS reported that the reasons for resorting to this procedure were partner pressure (44%), disruption of personal plans (38%) and lack of money (35%); in addition, it was noted that 56% had no real desire to have an abortion.¹³

Postabortion syndrome requires health professionals to be trained in the recognition and follow-up of this complex problem of women to contribute to the improvement of quality of life and avoid potential long-term and even irreversible damage, such as suicide. Research on this topic has contributed to the improvement of clinical practice; however, it is necessary to explore and generate

new perspectives of analysis, based on a bibliometric review, which allows us to evaluate the productivity, impact and visibility of the existing scientific literature.¹⁴ Therefore, this study aims to analyze the bibliometric parameters of the scientific production indexed in Scopus on PAS.

MATERIALS AND METHODS

Cross-sectional study carried out using a bibliometric methodology in which publications in Scopus related to the subject of PAS were analyzed. No review by a research ethics committee was required, as the information was available in digital databases.

Key and indexed terms were identified, which together with the Boolean operator "OR", allowed us to design the search equation limited to the abstract and title in order to make it more specific. The strategy was as follows: TITLE-ABS ("Postabortion" OR "Postabortal Programs" OR "Postabortal Program" OR "Program Postabortal" OR "Programs Postabortal" OR "Postabortion Syndrome" OR "Post abortion Syndrome" OR "Post-abortion Syndrome") AND [LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017)].

On 09 May 2023, with the previously presented strategy, the Scopus search was carried out and a total of 210 published documents were obtained as a result. The criteria for including studies were: original manuscripts on PAS, published in the period 2017–2022 and in any language; while the exclusion criteria were: review articles (28), errata (5), book chapters (4), conference papers (3), letters (3), notes (3) and editorial (1). After the application of these criteria, 163 publications remained, which were reviewed autonomously by one author (JBO). At the end of this process, the sample for this study was 129 manuscripts (Fig. 1).

For the network analysis, the data of the selected articles were exported in .csv format, to generate a visualization of co-authorship networks by country with the VOSviewer version 1.6.20 software. In addition, the data export was also carried out with the SciVal tool, which interoperates with the Scopus database, to estimate the bibliometric indicators of visibility, impact, and productivity.

As this was a study that analyzed secondary data and did not consider the participation of human subjects, review by a research ethics committee was not necessary.

RESULTS

In the co-authorship network by country, six clusters can be visualized, the yellow cluster, with an important and evident dominance by the United States; among the other main clusters, the red and purple clusters can be mentioned, with countries such as the United Kingdom and Kenya concentrating more publications in these groups. The strong linkage of publications between these countries is noteworthy. Nigeria and Switzerland are countries that stand out among those with the lowest number of publications (Fig. 2).

The five journals with the highest activity in PAS reporting were high impact, positioned in the Q1 quartile. Of these journals, Contraception (14 articles, 7.2 citations per publication) and International Journal of Gynecology and Obstetrics (12 articles, 6.5 citations per publication) have the most publications and the highest average number of citations per article. Reproductive Health is one of the journals with the best CiteScore 2021 (5.2) and SCImago Journal Rank (1.042) (Table 1).

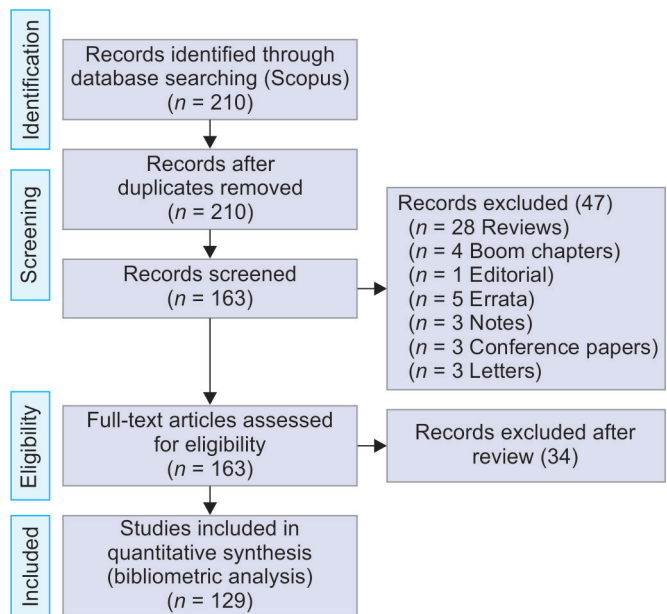


Fig. 1: Flowchart for the selection of scientific publications

Among the 10 most productive institutions, the majority were from the United States, of which the Guttmacher Institute, Ipas, and Harvard University were the leading institutions in terms of productivity in this field of knowledge and had the highest number of authors. However, the University of California at San Francisco in the United States and Karolinska Institute in Sweden had the highest impact and 65 and 37% more expected citations than the world average (Table 2).

Publications on PAS were mostly in the field of medicine, with the subcategory of Obstetrics and Gynecology and Public Health (61), Environmental and Occupational Health (35), and Reproductive Medicine (30) having the most publications. The highest average number of citations per article was in Psychiatry and Mental Health (7.3) and Pediatrics, Perinatology and Child Health (7). The subcategory with the most expected citations was Emergency Medicine (FWCI: 2.61) (Table 3).

DISCUSSION

Cases of PAS are diagnosed as post-traumatic stress disorder associated with dreams or nightmares related to abortion and feelings of guilt in women who sought abortion in a moment of crisis. After a spontaneous abortion, the risk of presenting anxiety and depression is higher, especially if there was a mental health affection prior to the event.^{15–17} Thus, its scientific exploration is relevant, but still growing, which demands that research teams show greater interest and willingness to generate scientific knowledge on this subject.

A study that analyzed the scientific activity on abortion from a scientometric approach showed that the United States is the country with a representative production and the most cited articles.¹⁸ In agreement with this information, our study found that among the 10 most productive institutions, the majority were from the United States; of these, Guttmacher Institute, Ipas, and Harvard University were the ones leading in productivity.

Collaborative networks promote the development of research, the integration of new researchers, and the consolidation of national and international interdisciplinary teams that can be sustained over

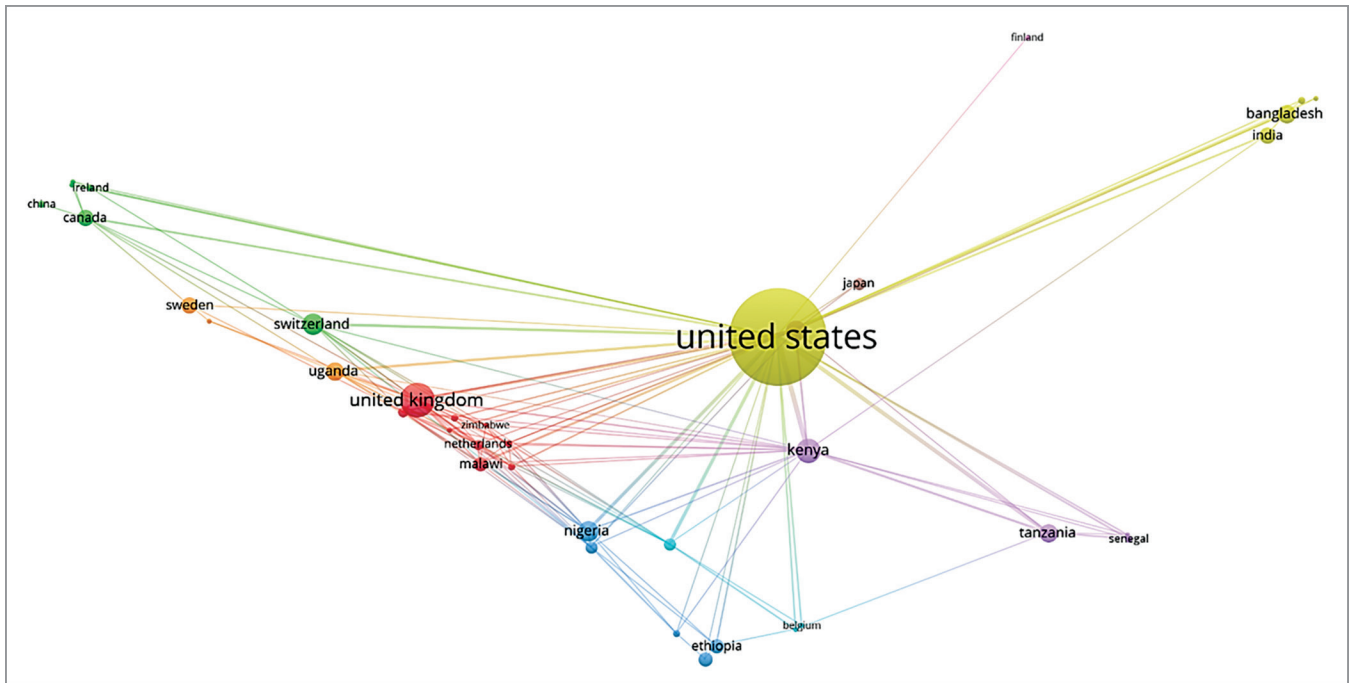


Fig. 2: Co-authorship by country

Table 1: Top 5 scientific journals with the highest scientific production on postabortion syndrome

Scopus source	Quartile	Publications	Citations	Citations per publication	SNIP	CiteScore 2021	SJR
Contraception	Q1	14	101	7.2	1.362	4.6	1.071
International Journal of Gynecology and Obstetrics	Q1	12	78	6.5	1.775	5.7	0.956
Global Health, Science and Practice	Q1	8	48	6	1.192	3.8	0.966
Reproductive Health	Q1	6	23	3.8	1.802	5.2	1.042
International Perspectives on Sexual and Reproductive Health	Q1	6	41	6.8	1.013	2.4	0.492

SJR, SCImago Journal Rank; SNIP, source-normalized impact per paper

Table 2: Top 10 institutions with the highest scientific production on postabortion syndrome

Institution	Country	Scholarly output	Citations	Authors	Citations per publication	FWCI
Gutmacher Institute	United States	18	163	28	9.1	0.83
Ipas	United States	14	101	28	7.2	0.64
Harvard University	United States	8	34	6	4.3	0.32
University of California at San Francisco	United States	7	94	19	13.4	1.65
London School of Hygiene and Tropical Medicine	United Kingdom	6	40	12	6.7	1.32
World Health Organization	Switzerland	5	31	13	6.2	1.05
Karolinska Institutet	Sweden	5	52	6	10.4	1.37
Johns Hopkins University	United States	5	19	9	3.8	0.61
University of British Columbia	Canada	4	20	10	5	0.43
University of Texas at Austin	United States	4	35	5	8.8	1.05

FWCI, field-weighted citation impact

time. In this regard, we have shown that the United States is the country that concentrates most scientific activity and that has dense cooperation links with other countries such as Nigeria and Kenya, which have an insufficient legal framework to provide postabortion health services, in addition to presenting considerable gaps in their health system to provide comprehensive care to women with this problem.^{19,20}

The five journals with the highest activity in scientific dissemination on PAS were high-impact Q1 quartile journals, such as Contraception (14 articles, 7.2 citations per publication) and the International Journal of Gynecology and Obstetrics (12 articles, 6.5 citations per publication). This evidence the preference of researchers about the medium to disseminate their research, and considering the visibility and impact of these journals, to

Table 3: Top 10 subcategories with the highest scientific production on postabortion syndrome

Subcategory	Scholarly output	Citations	Authors	Citations per publication	FWCI
Obstetrics and Gynecology	61	348	277	5.7	0.63
Public Health, Environmental and Occupational Health	35	238	186	6.8	0.85
Reproductive Medicine	30	173	165	5.8	0.65
Health Policy	23	157	144	6.8	0.92
General Medicine	13	29	46	2.2	0.2
Health Informatics	5	17	18	3.4	0.21
Medicine (miscellaneous)	4	8	29	2	0.16
Psychiatry and Mental Health	4	29	38	7.3	0.7
Pediatrics, Perinatology and Child Health	3	21	15	7	0.75
Emergency Medicine	2	45	4	22.5	2.61

FWCI, field-weighted citation impact

achieve that the studies can be evidence for future public health measures of each country. In the analysis of another database such as LILACS, Lima Dias et al. found that the journals with more studies were *Science and Public Health* (25.3%) and *Brazilian Journal of Gynecology and Obstetrics* (10.9%).²¹

It is important that researchers focus their efforts on generating scientific evidence that can have a positive impact on the area of health education for the prevention of PAS, but especially abortion as a public health problem.²² And at the same time, it should be of great scope and of good methodological quality in order to achieve publication in prestigious journals widely recognized in the academic and scientific community.

The study has limitations; in principle, it can be taken into account that the search in a single database may not represent the global production on the subject, so it is necessary to include studies indexed in other databases to evaluate variations in bibliometric parameters. It should be noted that self-citation has not been excluded from the citation count. Given the methodology employed, it is feasible that there may have been errors in the metadata of the articles selected in the study. Conceptually, it can also be mentioned that the term PAS is difficult to delimit theoretically because it is considered with other diagnoses such as post-traumatic stress disorder.

The bibliometric characterization of the scientific production on PAS leads to the conclusion that the high impact Q1 quartile journal with the greatest scientific dissemination activity has been *Contraception*. In addition, the United States is the country with the greatest scientific participation in scientific dissemination on PAS with evidence of collaboration with other countries such as Kenya and Nigeria. At present, more research is needed on this issue that affects women's sexual and reproductive health, as well as new approaches for prevention and comprehensive management.

ORCID

John Barja-Ore  <https://orcid.org/0000-0002-9455-0876>

REFERENCES

- Carrillo-Mora P, García-Franco A, Soto-Lara M, et al. Cambios fisiológicos durante el embarazo. *Rev Fac Med Univ Nac Auton Mex* 2021;64(1):39–48. DOI: 10.22201/fm.24484865e.2021.64.1.07.
- Ferro HP, Williams K, Holbrook DS, et al. Disproportionate impact of abortion restriction: Implications for emergency department clinicians. *Am J Emerg Med* 2023;69:160–166. DOI: 10.1016/j.ajem.2023.04.022.
- Baguiya A, Mehrtash H, Bonet M, et al. Abortion-related infections across 11 countries in Sub-Saharan Africa: prevalence, severity, and management. *Int J Gynecol Obstet* 2022;156(S1):36–43. DOI: 10.1002/ijgo.14032.
- Bennett M. Abortion. In: Hacker N, Moore JG, editors. *Essentials of Obstetrics and Gynecology*. 3rd edition. Philadelphia: Saunders Co.; 1998. pp. 477–486.
- Tran NT, Greer A, Dah T, et al. Strengthening healthcare providers' capacity for safe abortion and post-abortion care services in humanitarian settings: Lessons learned from the clinical outreach refresher training model (S-CORT) in Uganda, Nigeria, and the Democratic Republic of Congo. *Confl Health* 2021;15(1):1–12. DOI: 10.1186/s13031-021-00344-x.
- Sihaloho ED, Habibie I, Kamilah FZ, et al. The cost of post-abortion care (PAC): A systematic review. *BMC Health Serv Res* 2022;22(1):1–11. DOI: 10.1186/s12913-022-07765-1.
- Nguyen BT, Jacobsohn TL. Post-abortion contraception, an opportunity for male partners and male contraception. *Contraception* 2022;115:69–74. DOI: 10.1016/j.contraception.2022.07.004.
- Zareba K, La Rosa VL, Ciebiera M, et al. Psychological effects of abortion. An updated narrative review. *East J Med* 2020;25(3): 477–483. DOI: 10.5505/ejm.2020.82246.
- Kelly K, Gochanour AA. Men and 'post abortion syndrome': Claims versus evidence. *Eur J Contracept Reprod Health Care* 2019;24(1): 13–17. DOI: 10.1080/13625187.2018.1563066.
- Gómez Lavín C, Zapata García R. Diagnostic categorization of post-abortion syndrome. *Actas Esp Psiquiatr* 2005;33(4):267–272.
- Demontigny F, Verdon C, Meunier S, et al. Protective and risk factors for women's mental health after a spontaneous abortion. *Rev Lat Am Enfermagem* 2020;28:1–11. DOI: 10.1590/1518-8345.3382.3350.
- Cuenca D. Pregnancy loss: Consequences for mental health. *Front Glob Womens Health* 2023;3:1032212. DOI: 10.3389/fgwh.2022.1032212.
- Gómez Lavín C, Uroz Martínez V, Zapata García R. Precedentes del aborto provocado en mujeres con síndrome posaborto. *Salud(i) Ciencia* 2018;23:27–33. DOI: 10.21840/siic/122432.
- Ullah R, Asghar I, Griffiths MG. An integrated methodology for bibliometric analysis: A case study of internet of things in healthcare applications. *Sensors (Basel)* 2022;23(1):67. DOI: 10.3390/s23010067.
- Bakchi J, Kundu S, Ghosh S, et al. Intimate partner violence in Bangladesh: A scoping review. *Bangladesh J Bioeth* 2018;9(3):15–27. DOI: 10.3329/bioethics.v9i3.48913.
- Koly KN, Saba J, Billah MA, et al. Depressive symptoms and anxiety among women with a history of abortion living in urban slums of Bangladesh. *BMC Psychol* 2023;11(1):197. DOI: 10.1186/s40359-023-01224-0.
- Farren J, Mitchell-Jones N, Verbakel JY, et al. The psychological impact of early pregnancy loss. *Hum Reprod Update* 2018;24(6):731–749. DOI: 10.1093/humupd/dmy025.

18. Sivankalai S, Virumandi A, Balamurugan B, et al. Scientometric analysis of the research on the abortion: 2015–2019. *Turk J Comput Math Educ* 2021;21(4):115–124. DOI: 10.17762/turcomat.v12i4.482.
19. Mutua MM, Manderson L, Musenge E, et al. Policy, law and post-abortion care services in Kenya. *PLoS One* 2018;13(9):e0204240. DOI: 10.1371/journal.pone.0204240.
20. Juma K, Ouedraogo R, Amo-Adjei J, et al. Health systems' preparedness to provide post-abortion care: Assessment of health facilities in Burkina Faso, Kenya and Nigeria. *BMC Health Serv Res* 2022;22(1):536. DOI: 10.1186/s12913-022-07873-y.
21. Lima Dias P, Correa de Freitas A, De Assis Veiga M. Bibliometrics study of nacional publications about abortion. *J Nurs* 2014;8(Suppl. 3): 4028–4037. DOI: 10.5205/reuol.5353-44734-1-RV.0811supl 201401.
22. Grange C. Health education and prevention of abortions in schools. *Rev Infirm* 2015;(216):27. DOI: 10.1016/j.revinf.2015.10.007.