Review Article

Understanding the trends of maternal mental health research in India through bibliometric analysis

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ABSTRACT

Pregnancy-related mental health issues are more common in low and middle-income countries (LMICs). Common mental health disorders are more prevalent among women than men. In LMIC countries, the prevalence of mental health disorders is higher, estimated at 15.6% among pregnant women and 19.8% among postpartum women. According to the studies, Antenatal depression prevalence in India ranged from 9.8% to 36.7%, while antenatal anxiety prevalence was 55.7%. This study performed bibliometric profiling to shed light on maternal mental health research conducted in India since 1979 and to present the research output in the field of maternal mental health in India. SCOPUS databases have been chosen for data retrieval due to their extensive coverage, high-impact journal inclusion and ease of access to quality publications. In total, 146 publications were found in the field. Maternal mental health research increased significantly in 2022. The peak number of publications occurred in 2022. There has been a lot of focus on maternal mental health. This is evidenced by the fact that there has been a significant increase in the number of scientific publications in India since 1979. The bibliometric indicators provided important information on the research contributions from different institutes and authors. The results of this study can serve as a reference for researchers and policymakers to plan future research.

Keywords: Bibliometric analysis, Maternal mental health, Pregnancy

INTRODUCTION

"Mental health represents a crucial aspect of overall well-being. According to the WHO, health includes "physical, mental and social wellbeing beyond the absence of disease or infirmity". This definition emphasizes that mental health is more than the absence of mental illnesses or disabilities. It denotes a state of well-being where individuals recognize their capabilities, effectively handle life's normal stresses, maintain productivity, and contribute positively to their community. Mental health issues can significantly impact various facets of life, including academic or professional performance, interpersonal relationships, and community involvement. Common conditions like depression and anxiety incur a staggering global economic cost of $1 trillion annually.

Furthermore, mental health conditions now account for one-fifth of years lived with disability, impacting approximately 20% of children and adolescents worldwide, with suicide being the second most common cause of death among adolescents aged 15-29. Even in post-conflict settings, one in five individuals grapples with mental health challenges. Despite these alarming statistics, governments worldwide allocate less than 2% of their health expenditure to mental health."[1]

Maternal health refers to women's overall well-being and healthcare during pregnancy, childbirth, and the postpartum period (after giving birth). It encompasses a range of physical, emotional, and social aspects crucial for ensuring a safe and healthy experience for the mother and her newborn child. The expectant mother experiences substantial structural and functional alterations

throughout pregnancy to support and adapt to the growing fetus. These transformations commence following conception and impact all bodily systems.[2]

Antenatal care ensures the well-being of the expectant mother and her unborn child throughout pregnancy. It involves not only medical assessments and tests but also addresses the emotional and mental preparation of women for childbirth.[3]

Maternal and child health represent critical global public health concerns. Despite their explicit inclusion in the millennium development goals, numerous LMICs have not met the intended reductions in maternal and child mortality rates.[4] It is now widely accepted that a variety of psychiatric disorders are present during pregnancy. Generally, the most common mental disorders (CMD) are those characterized by a high level of depression, anxiety and somatic symptoms. These disorders are prevalent in LMICs. According to research, the incidence of antenatal depression and/or anxiety is estimated to be between 8% and 30%.[3,4] There are chances that the prevalence rates will differ between studies and between different cultures due to the selection of measurements and socio-cultural factors.[5]

When considering factors like illness and impairment, mental and behavioural disorders emerge as the leading causes of health issues among women of reproductive age. A recent comprehensive review found that roughly 16% of women in LMICs faced depression during pregnancy and 20% experienced postnatal depression. These rates vary significantly depending on the specific location.[6] Emotional struggles and mental health issues during pregnancy and postpartum can adversely affect a child's development and behaviour.[5]

Poor maternal mental health has wide-ranging negative effects on mothers and their children. Mothers who experience CMD may struggle to prioritize their well-being and find it challenging to seek social support during the perinatal period. Moreover, research indicates that children born to mothers with depression face an elevated risk of experiencing poor physical growth. Research conducted in South Asian countries has indicated that mothers with a history of mental health issues, particularly depression, are more susceptible to giving birth to underweight babies with stunted growth in the early stages of life.[7] Maternal mental health issues have been associated with inadequate breastfeeding and supplementary feeding methods, poor parenting, reduced mother-child communication, and an increased risk of health and behavioral problems in children. Research conducted in India, Bangladesh, and Pakistan has consistently shown a connection between maternal CMD and child malnutrition.[8]

Although India initiated its national mental health program back in 1982, maternal mental health remains a less emphasized aspect of the program. Specialized maternal mental health services are notably lacking in healthcare facilities, and healthcare professionals often lack the necessary training in this area. Furthermore, mental health specialists are rarely available at peripheral healthcare facilities.

Additionally, there is currently no established screening tool for clinical use, and there is a lack of routine data collection to assess the prevalence of postpartum depression among perinatal women. India has been successful in steadily reducing maternal mortality rates, which means that future healthcare efforts should prioritize reducing maternal morbidity, including addressing mental health disorders. Despite an increasing number of research studies on postpartum depression in India, there is a notable absence of comprehensive systematic evidence that not only quantifies the overall prevalence of postpartum depression but also investigates its associated risk factors.[9]

MATERNAL MENTAL HEALTH RESEARCH

Pregnancy is a major physical, hormonal, and mental alteration, which increases the likelihood of nutritional deficiencies and psychiatric disorders. Mental health issues during pregnancy can considerably impact the overall health of both the mother and the infant, thus posing a major public health issue.[10] Psychological well-being during pregnancy has been the subject of increasing research in recent years. The prevalence of psychological issues during pregnancy has been found to be higher in developing countries compared to developed countries.[11]

Pregnancy-related psychiatric disorders are linked to complications such as premature babies, low-birth-weight babies, a higher postpartum risk of depression, poor bonding between mother and child, and poor maternal outcomes resulting in higher maternal mortality rates.[12] Mental health disorders and malnourishment can have long-term effects on pregnancy and the health of the baby. Women with chronic medical conditions (CMD) tend to be less likely to seek antenatal care. Women with CMD may gain less weight during pregnancy. This increases the risk of complications during delivery and poor outcomes for the baby, including low birth weight (LWB), prematurity and neonatal death.[12]

The neurobiological development of the fetus is adversely affected by CMD during pregnancy. If left untreated, maternal mental health issues can persist into the postpartum period, leading to reduced emotional involvement and hostility towards the newborn.[13] Different types of research can help us determine the cause of psychological illness and the epidemiological and demographic transitions. We can use research findings to support the development of different interventions and health policies. Identifying and recognizing the trends in maternal mental health in India Is necessary to inform public policy and medical training to implement policy-level changes.[14]

LITERATURE RESEARCH

From June 1979 to November 2023, all research results were extracted from Scopus using the search term "maternal and mental health". The number of publications by year, the network analysis between author linkage, research domain, articles from leading journals with high citations, and commonly used keywords were used to evaluate articles. The data was analysed using Microsoft excel, Biblioshiny with the aid of R studio, and visual basic for applications with the aid of VOS viewer. Independent searches were conducted by two authors to mitigate any potential bias (Dr. Alok and Dr. DV). The search for keywords was conducted in the titles and abstracts, as well as in the full text of the paper. The papers were initially examined for their eligibility for inclusion in the scope of the study and being reviewed in the case of ambiguities.

Articles primarily focusing on maternal mental health in India are included. Only English language studies are included in the analysis. Non-English-language studies published outside the scope of maternal mental health were excluded from the analysis. The analysis comprised 163 articles identified through a systematic search of maternal mental health.

RESULTS

Distribution of maternal mental health publications by year

Figure 1 shows how many articles have been published year-by-year since 1979 and how many have been published in the past year. In 1979, there was about 1 article published per year, and in 2021, there were almost 20 articles published, which is a big jump from 2019.
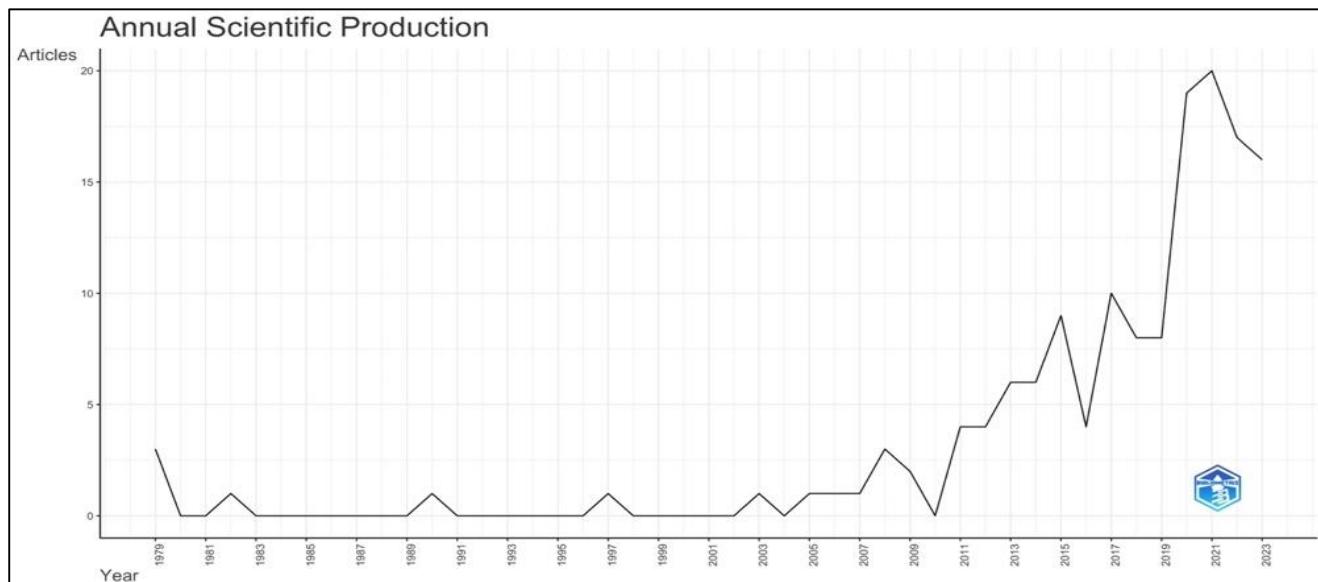
Figure 1: Year-wise distribution of maternal mental health related research publications, India, 1979-2023.

Top 25 maternal mental health publications in terms of total citations

The top 25 articles on maternal mental health based on the citations is interpreted by Table 1.

The article "no health without mental health", published September 8, 2007, in the Lancet, has nearly 2290 citations.

Table 1: Top 25 articles on maternal mental health with their total citations.

Authors, years and journals	Total citations
Prince, 2007, Lancet	2290
Kessler, 2010, Br J Psychiatry	1580
Ottersen, 2014, Lancet	374
Chapman, 2015, Kidney Int	363
Lund, 2012, Plos Med	342
Patel, 2007, Br Med Bull	300
Sarkar, 2008, J Obstet Gynecol	266
Patel, 2004, Br Med J	254
García-Moreno C, 2015, Lancet	235

Continued.

Authors, years and journals	Total citations
Patel, 2013, Plos Med	232
Rodrigues, 2003, Soc Sci Med	158
Mokdad, 2016, Lancet Global Health	143
Upadhyay, 2017, Bull Who	134
Hanlon, 2009, Trop Med Int Health	121
Chowdhary, 2014, Best Pract Res Clin Obstet Gynaecol	103
Baron, 2016, BMC Health Serv Res	85
Brockington, 2011, World Psychiatry	80
Chandra, 2006, Arch Women's Ment Health	73
Ryan, 2020, J Obstet Gynaecol Res	72
Satyanarayana, 2011, Indian J Psychiatry	72
Sivagurunathan, 2015, J Clin Diagn Res	68
Fuhr, 2014, Lancet Psychiatry	67
Shidhaye, 2015, Int J Ment Health Syst	67
Singhi, 1990, Br J Med Psychol	56
Nguyen, 2014, Public Health Nutr	50

Top 5 journals on maternal mental health in India

Figure 2 explains that Asian journal of psychiatry published eight articles on maternal mental health. BMJ Open, Indian journal of psychiatry, Indian journal of psychological medicine, Indian journal of public health research and development, international journal of environmental research, international journal of mental health systems, and journal of SAFOG published four articles each. Archives of women's mental health and BMC pregnancy and childbirth published 3 articles each.
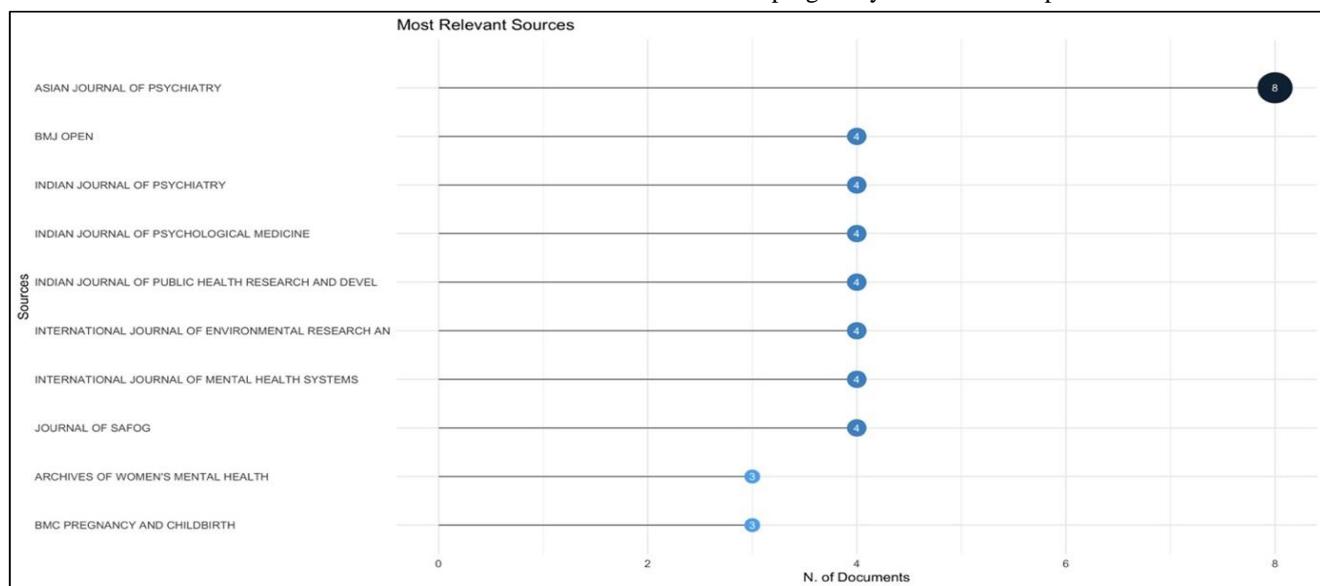
Figure 2: Top 5 journals on maternal mental health in India.

Research domains on maternal mental health

Figure 3 outlines the research domain in which the articles are published.

The majority (55.6%) of the articles are published in medicine. The second (11%) and third (7%) are published in psychology and social sciences, and the fourth (5%) is published in nursing.

Less than 5% of the articles have been published in the neuroscience biochemistry, environmental science pharmacology, toxicology and pharmaceutics, arts and humanities, agricultural and biological sciences.
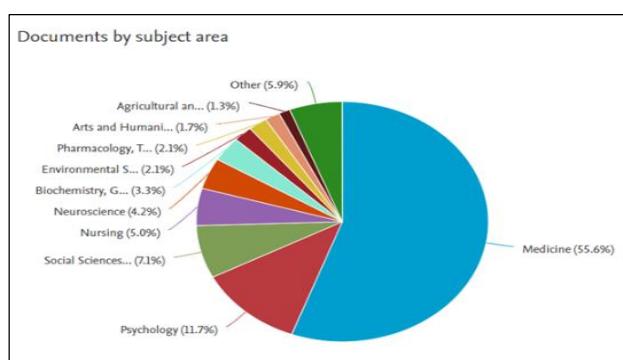
Figure 3: Research domains on maternal mental health.

Co-occurrence of all keywords

In Figure 4, the networks between two bubbles represent all keyword co-occurrence, and the bubble size represents how many times a keyword appears in all publications.

Keywords such as anxiety, depression, stress, pregnancy, maternal mental health, antenatal, India, postpartum depression, and COVID-19 are commonly highly used with high-strength links.

Co-occurrence of author keywords

Figure 5 shows the network between the two bubbles that represent author keyword co-occurrence. The size of the bubble represents the number of times the author keyword appears in all the publications. The most popular author keywords with strong co-occurrence are India, human, female pregnancy, mental health, adult, and child.

Word cloud

A word cloud is a graphical representation of the frequency of words appearing in a collection. The larger the term in the generated image, the more frequently it appears in the analyzed text. This map highlights critical areas of research that have been done. The areas of the study highlighted in the map are significant for the medical fraternity because they can guide future research and interventions for maternal mental health.
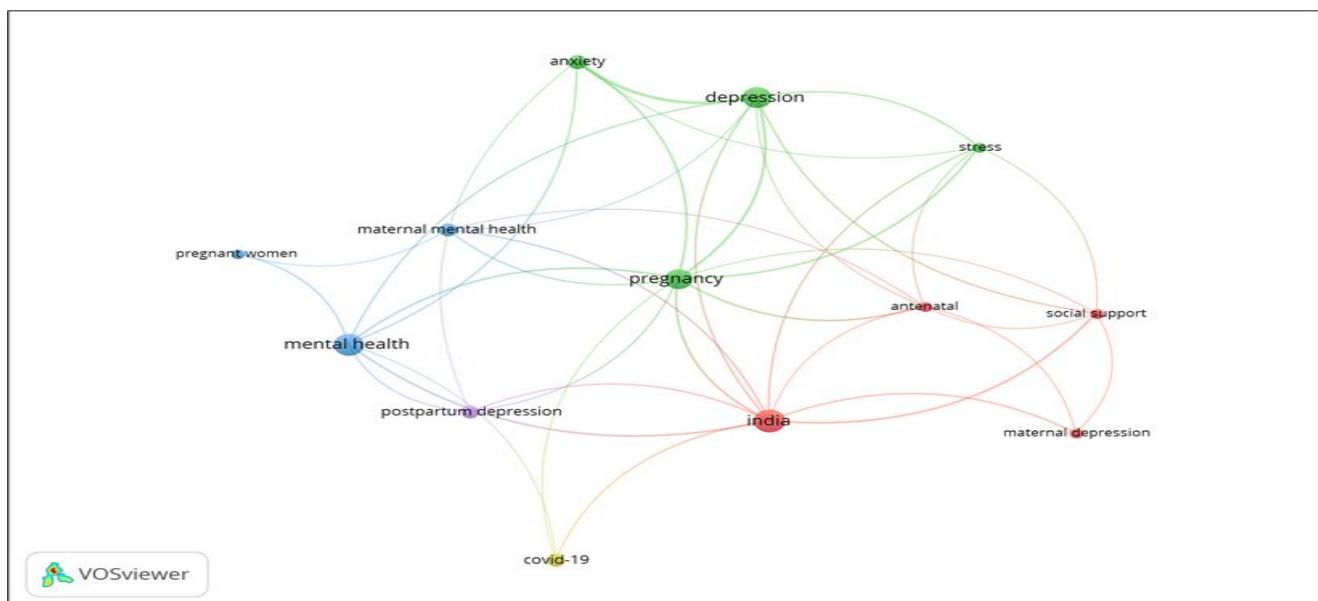
Figure 4: Network represents co-occurrence of all keywords in 2 bubbles, and the size of bubble refers to how often that keyword appears in all publications.
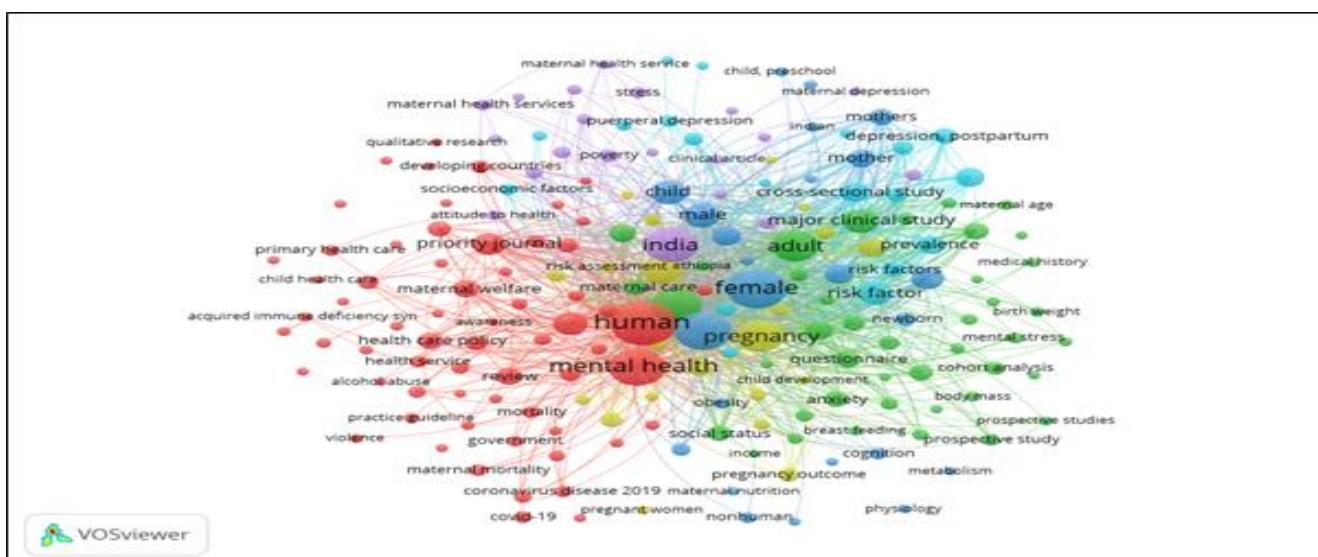
Figure 5: The network between the two bubbles represents the co-occurrence of the author keywords and the bubble size refers to how often that keyword appears in all the publications.

Figure 6: Word cloud of most used keywords.

DISCUSSION

The current study shows that the main focus of the researchers is on psychology and social sciences, followed by nursing and neurosciences for several significant reasons. Maternal health is a critical component of public health, as it directly impacts the well-being of mothers and infants.[15] High maternal mortality rates compared to other countries, inadequate access to prenatal and postnatal care, and disparities in healthcare services in India make it an important area of research and intervention. India has diverse cultural and societal norms that influence women's behaviour during pregnancy and childbirth. Research in psychology helps understand these factors and how they can be leveraged to improve maternal health outcomes. Pregnancy and childbirth can be stressful and emotionally challenging.[16] There are significant health disparities in India based on socioeconomic status, geographic location, and caste.[17] Research can help identify and mitigate these disparities, ensuring all women receive appropriate care and providing evidence-based insights to inform policy development and healthcare strategies. It can lead to the formulation of better healthcare programs and interventions targeted at improving maternal health outcomes. Researchers can collaborate with local healthcare providers and communities to conduct studies and implement interventions. India is a populous country, and maternal health issues in India can substantially impact global maternal health statistics. Addressing these issues is crucial for achieving global health goals, such as those outlined in the sustainable development goals (SDGs).[18]

Research in maternal mental health in India often focuses on anxiety, depression, and stress, as they are among the most common mental health issues experienced by pregnant and postpartum women worldwide, including in India.[19]

Maternal mental health issues can lead to various adverse outcomes for mothers, including reduced quality of life, impaired functioning, and maternal suicide. Addressing these mental health concerns is essential to improve overall maternal health. Maternal anxiety, depression, and stress can affect bonding with the child, infant feeding practices, and overall caregiving, potentially influencing the child's emotional and cognitive development.[20]

In many societies, including India, there is still a stigma associated with mental health issues. Pregnancy and postpartum can be particularly vulnerable times for developing or exacerbating mental health issues. Factors such as hormonal changes, sleep disturbances, and the stress of childbirth can contribute to these conditions. Maternal mental health conditions can also impact healthcare utilization during pregnancy and postpartum.[21] Women with these conditions may be less likely to seek prenatal and postnatal care, which can negatively affect maternal and child health. Anxiety, depression, and stress can be effectively managed and treated with appropriate interventions, including psychotherapy and, in some cases, medication.[22]

Research in these areas can help identify effective intervention strategies tailored to the Indian context to screen, diagnose, and treat mental health conditions in pregnant and postpartum women. It can also highlight the need for mental health services within the broader healthcare system. Focusing on anxiety, depression, and stress in maternal mental health research can lead to increased advocacy efforts and support for women experiencing these conditions. It can encourage healthcare providers and policymakers to prioritize mental health as integral to maternal care. Treatment of mental health disorders is of utmost importance. It calls for comprehensive promotion, prevention, treatment and recovery strategies through a whole-of-government approach.

In the current study, mental health is associated with citations. The article "no health without mental health", published September 8, 2007, in the Lancet, has nearly 2290 citations. Nearly eight articles on Maternal mental health from 1979 to August 13 2023, were published in the "Asian journal of psychiatry".

Neuropsychiatric disorders account for approximately 14% of global disease burden, largely due to the long-term disability of depression and other prevalent mental disorders, alcohol and substance use issues, and psychoses.[23]

These estimates have highlighted the public health implications of mental disorders. However, by emphasizing the unique relationship between mental and physical disorders in terms of disability and mortality, these estimates may have further entrenched the marginalization of mental health in the context of mainstream efforts to enhance health and alleviate poverty. Since these interactions are permeable, no health can exist without mental health.

Mental disorders increase the risk of both communicable and non-communicable diseases and contribute to accidental and intentional injury. On the other hand, many health conditions also increase the risk of mental disorders, and co-occurring conditions complicate help-seeking, diagnosis, and treatment and affect prognosis.[24]

Psychosocial interventions must be developed and evaluated to incorporate them into managing communicable and non-communicable diseases. Healthcare systems must be reinforced to provide better mental healthcare by concentrating on existing programs and activities. It may be necessary to allocate a specific mental health budget. Mental health impacts progress towards several SDGs, such as gender equality and women's empowerment, reducing child mortality, improving maternal health and reversing the spread of the HIV/AIDS pandemic. Mental health needs to be mainstreamed into all aspects of health and social policies, health-system design, and primary and secondary overall healthcare provision.

In accordance with WHO's advocacy of "no health without mental health", much attention should be given to improving maternal mental health. With the development of modern social medicine, more attention is being paid to maternal mental health benefits. With the global population and economic growth increase, mental health has attracted increasing attention. The current study was conducted to provide a comprehensive overview of mental health-related studies and assess the nationwide research activity on this topic to better understand the reasons for this.

In conclusion, research in maternal mental health in India emphasizes anxiety, depression, and stress due to their prevalence, significant impact on maternal and child health, and the opportunity to raise awareness and reduce stigma.

Strength and limitations

This study looks at the research that's been done on the mental health of mothers in India. It looks at what's been published so far, including information on authors, institutions, publication years, total citations, top five journals, research domains, co-occurrence of keywords, co-occurrence of author keywords and word cloud for maternal mental health. Since the data was only collected from Scopus, which is the most popular repository, there's a slight chance that the metrics shared would be different if other sources were involved in the data collection.

CONCLUSION

While the number of people suffering from perinatal mental health issues is increasing, India has no specific policies to deal with it. However, more scientific studies are needed to address maternal mental health in India. Priorities are to be given more for applying health policy in future research implications. Findings indicated an increasing trend in research on maternal mental health. The current health system, followed by Indian population, needs to be reviewed carefully and improve the health of India's maternal population, focusing on mental health. It is critical to raise awareness about the importance of maternal mental health among the Indian population and encourage them to use it to improve their health.

REFERENCES

1. Health and Well-Being. Available at: https://www.who.int/data/gho/data/major-themes/health-and-well-being. Accessed on 12 September, 2023.
2. Soma-Pillay P, Nelson-Piercy C, Tolppanen H, Mebazaa A. Physiological changes in pregnancy. Cardiovasc J Afr. 2016;27(2):89.
3. Shrivastava SR, Shrivastava PS, Ramasamy J. Antenatal and postnatal depression: A public health perspective. J Neurosci Rural Pract. 2015;6(1):116.
4. Sahoo KC, Pati S, Negi S, Patel K, Mishra BK, Palo SK. Challenges in Maternal and Child Health Services Delivery and Access during Pandemics or Public Health Disasters in Low-and Middle-Income Countries: A Systematic Review. Healthcare. 2021;9(7).
5. Roy R, Chakraborty M, Bhattacharya K, Roychoudhury T, Mukherjee S. Impact of perinatal maternal depression on child development. Indian J Psychiatr. 2022;64(3):284.
6. Koblinsky M, Chowdhury ME, Moran A, Ronsmans C. Maternal Morbidity and Disability and Their

Consequences: Neglected Agenda in Maternal Health. J Health Popul Nutr. 2012;30(2):124.

7. Satyanarayana VA, Lukose A, Srinivasan K. Maternal mental health in pregnancy and child behavior. Indian J Psychiatry. 2011;53(4):351.

8. Nguyen PH, Saha KK, Ali D, Menon P, Manohar S, Mai LT et al. Maternal mental health is associated with child undernutrition and illness in Bangladesh, Vietnam and Ethiopia. Public Health Nutr. 2014;17(6):1318.

9. Priyadarshini U, Rao AP, Dash S. Recommendations for maternal mental health policy in India. J Public Health Policy. 2023;44(1):90.

10. Choedon T, Sethi V, Killeen SL, Ganjekar S, Satyanarayana V, Ghosh S et al. Integrating nutrition and mental health screening, risk identification and management in prenatal health programs in India. Int J Gynaecol Obstet. 2023;162(3).

11. Manjrekar S, Patil S. Perception and Attitude toward Mental Illness in Antenatal Mothers in Rural Population of Southern India: A Cross-Sectional Study. J Neurosci Rural Pract. 2018;9(4):473.

12. Maternal depression and child development. Paediatr Child Health. 2004;9(8):575.

13. Aktar E, Qu J, Lawrence PJ, Tollenaar MS, Elzinga BM, Bögels SM. Fetal and infant outcomes in the offspring of parents with perinatal mental disorders: Earliest influences. Front Psychiatry. 2019;10(6):452083.

14. Wainberg ML, Scorza P, Shultz JM, Helpman L, Mootz JJ, Johnson KA et al. Challenges and Opportunities in Global Mental Health: a Research-to-Practice Perspective. Curr Psychiatry Rep. 2017;19(5):28.

15. Ahmad K, Kabir E, Keramat SA, Khanam R. Maternal health and health-related behaviours and their associations with child health: Evidence from an Australian birth cohort. PLoS One. 2021;16(9).

16. Meh C, Sharma A, Ram U, Fadel S, Correa N, Snelgrove JW et al. Trends in maternal mortality in India over two decades in nationally representative surveys. Bjog. 2022;129(4):550.

17. Balarajan Y, Selvaraj S, Subramanian S. Health care and equity in India. Lancet. 2011;377(9764):505.

18. Mohapatra A, Gomare M. A critical appraisal of the maternal and child health scenario in a metropolitan city in India with reference to achievements of millennium development goals. J Family Med Prim Care. 2019;8(3):995.

19. Biaggi A, Conroy S, Pawlby S, Pariante CM. Identifying the women at risk of antenatal anxiety and depression: A systematic review. J Affect Disord. 2016;191:62.

20. Madlala SS, Kassier SM. Antenatal and postpartum depression: effects on infant and young child health and feeding practices. 2017;31(1):1-7.

21. Rai S, Pathak A, Sharma I. Postpartum psychiatric disorders: Early diagnosis and management. Indian J Psychiatry. 2015;57(2):S216.

22. Dunkel Schetter C, Tanner L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. Curr Opin Psychiatry. 2012;25(2):141.

23. Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR et al. No health without mental health. Lancet. 2007;370(9590):859-77.

24. Sartorius N, Holt RIG, Maj M. Comorbidity of Mental and Physical Disorders. Indian J Med Res. 2016;144(5):786-7.