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Maternal Morbidities during the Postpartum Period in India: A Systematic Analysis

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Abstract

The postpartum period, extending up to six weeks after childbirth, is a critical phase in a mother's life, during which she is at heightened risk of developing various health complications. This paper synthesises existing literature on postpartum morbidities among Indian women, with a specific focus on conditions occurring exclusively during the postpartum period. The identified maternal morbidities are categorised into physical and psychological domains. Physical complications commonly reported include anaemia, postpartum haemorrhage, infections, and uterine disorders. Psychological morbidities, particularly postpartum depression, are highlighted for their significant impact on maternal mental health and overall quality of life. The papers dealing especially with postpartum morbidities among Indian women were selected, and the prenatal period and the postnatal period were excluded from this study and were analysed thematically. The study explores the demographic, socio-economic, cultural, educational, regional, and obstetric factors influencing postpartum morbidity. Findings suggest that maternal age, economic status, healthcare access, family support, and delivery conditions play crucial roles in determining health outcomes. Addressing postpartum morbidities requires targeted healthcare policies, improved maternal education, and culturally sensitive interventions. This paper underscores the importance of early detection, appropriate medical care, and community support in ensuring safer postpartum experiences, ultimately contributing to improve maternal and child health.

Keywords: Anaemia, Postpartum Depression, Postpartum Morbidity, Postpartum Period, Puerperium.

Introduction

The postpartum period, also known as the puerperium, begins approximately one hour after childbirth and extends to six weeks (1). Studies define this period as lasting roughly a month and a quarter (2). It is during this time that women are at an increased risk of developing postpartum complications, with the majority of postpartum health issues arising between the 14th and 21st days following delivery. However, these complications can also occur earlier or persist beyond the six-week timeframe (2). Awareness of potential postpartum complications is crucial for both mothers and their family members, as a significant proportion of maternal deaths occur within the first week after childbirth (3). Information on maternal mortality and morbidity during this critical period provides valuable insights into the state of maternal health in a given country. Such data is essential for shaping public health policies and programs aimed at ensuring safe motherhood (4). Morbidity is the state of physical, mental and social suffering, disability, illness, and disease that an individual goes through in a certain period of life (5, 6). Studies on reproductive health have focused on identifying and addressing medical challenges, morbidities, and mortality rates. Every year, about 120 million women give birth. Half of them experience complications, and 15 to 20 million develop long-term disabilities (7). India observes a significant number of neonatal and maternal deaths during the postpartum period. Complications related to pregnancy, childbirth, and postpartum may cause death (2, 8) or continuous morbidities which affect women's health for shorter or longer periods during or after delivery (8). This concern around maternal morbidity has historical roots. In the 18th century, puerperal (the Latin word for postpartum) fever broke out at the University of Vienna Hospital. Puerperal sepsis is also known as childbed fever. It is an infection in the part of the female reproductive organs following childbirth or abortion. Ignaz Semmelweis, the Austrian Physician, discovered the cause of puerperal fever. He demonstrated the importance of washing hands with chlorine by medical practitioners to prevent

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death because of its transmission in the 18th century (9). This discovery laid the foundation for modern public health and epidemiological investigations (10). This paper uses the International Classification of Diseases – Maternal Mortality (ICD-MM). It was developed by the World Health Organization (WHO) and is based on the 10th revision of the International Statistical Classification of Diseases (ICD-10). Although originally designed for the classification of maternal deaths, the ICD-MM framework provides a useful structure for categorizing maternal health complications more broadly. It distinguishes the maternal morbidities during the postpartum period into three categories- direct, indirect and coincidental morbidities. Direct morbidities result from obstetric complications during pregnancy, delivery, or the postpartum period. Indirect morbidities arise from pre-existing medical conditions aggravated by pregnancy. Coincidental morbidities occur during pregnancy or the postpartum phase but are unrelated to the pregnancy itself (11). Using this classification system helps ensure consistency and clarity in understanding the range of postpartum morbidities that women experience.

During the postpartum period, a mother requires substantial care and support from her family, along with adherence to various cultural and social practices related to diet and activity restrictions (2). Therefore, the purpose of this manuscript is to systematically review the existing literature on maternal morbidities experienced by women in India during their postpartum period and to identify the underlying causes.

Search Strategy

This paper follows a systematic review approach to identify and organize key findings on maternal morbidities during the postpartum period in India. A systematic review is a method that involves identifying, selecting, and analysing existing research studies on a particular topic using a clear and structured process (12, 13). It helps to ensure that the information presented is comprehensive, unbiased, and based on evidence from multiple sources. This approach was chosen to bring together clinical, community-based, and epidemiological studies from different regions and time periods. By doing so, the paper provides a broad understanding of the types of morbidities women face, their prevalence, associated risk factors, and how they are addressed within the healthcare system. Papers for this review were selected based on their focus on postpartum morbidities. Studies on prenatal and postnatal care without discussion of maternal morbidities were excluded.

Maternal Morbidities during the Postpartum Period

Following childbirth, women undergo significant physical and psychological changes as they transition into their role as mothers. These changes often expose them to a range of health complications that require medical attention. Postpartum morbidities can be broadly classified into physical and psychological categories, each of which affects a woman's well-being in distinct ways.

Physical Morbidities during the Postpartum Period

Numerous studies across different regions have documented the prevalence of postpartum morbidities among women. Research suggests that almost all postpartum women experience at least one form of morbidity during their recovery (2, 14-16). These morbidities can be categorized into two groups: severe maternal morbidity (often referred to as "near-miss morbidity"), which includes life-threatening conditions that would have resulted in death without immediate medical intervention (17, 18), and common postpartum morbidities, which, though not immediately life-threatening, can have long-term health implications (2, 16, 19). One of the most frequently reported postpartum conditions is anaemia, which varies in severity from mild to severe, depending on haemoglobin levels in the blood (2, 17). Symptoms of anaemia include fatigue, weakness, and fever. Severe anaemia, which is particularly common among women who have given birth multiple times, can be fatal (2). In a four-year study, 7.4% of women were found to have severe anaemia, with sixteen maternal deaths attributed to this condition (19). Additionally, studies show that anaemia is often associated with respiratory infections-tuberculosis (15, 19) and jaundice (15). Anaemia and tuberculosis fall under indirect morbidities because they are non-obstetric but aggravated during the postpartum period (11).

Other frequently occurring postpartum conditions include puerperal sepsis, perineal infections, and breast complications such as mastitis or

engorgement (19). Postpartum haemorrhage (PPH), both primary and secondary, is another major concern, with studies highlighting its severe and potentially fatal consequences (4, 14, 15, 19). Primary PPH is particularly dangerous, as it can lead to hypothermia and temporary unconsciousness (4). Additionally, conditions such as pre-eclampsia and eclampsia pose significant risks to maternal health (14).

Beyond severe complications, many postpartum women experience common ailments such as generalized weakness, persistent vaginal discharge with a foul odour, and lower back pain (4). These conditions, though not always life-threatening, significantly impact daily activities and overall quality of life. Some women also report persistent abdominal and perineal pain and tears, prolonged vaginal bleeding beyond the first week postpartum, and urinary tract infections (4, 15, 16, 19). In some cases, women experience uterine prolapse and fistulas, leading to urinary incontinence, high fever, and painful urination (19). Notably, women who experience pregnancy-related morbidities are three times more likely to develop postpartum complications (14).

Psychological Morbidities during the Postpartum Period

In addition to physical health concerns, postpartum women often face significant psychological challenges. Several studies in developing countries have investigated the mental health status of new mothers, highlighting the prevalence of postpartum depression (PPD) (4, 14, 19, 20). The transition to motherhood involves new responsibilities and social expectations, which can contribute to emotional distress. Many women experience postpartum blues, characterised by mood swings, irritability, tearfulness, and fatigue. In some cases, this emotional state progresses to postpartum depression, a more severe and persistent condition. Symptoms of PPD include a sense of hopelessness, lack of motivation, chronic exhaustion, loss of appetite, sleep disturbances, and difficulty concentrating (19). The prevalence of PPD varies across different regions of India. A study revealed that approximately 22% of mothers in India experience PPD, with the highest rates reported in South India (26%), and followed by the eastern and south-western regions (23%), the western region (21%), and the northern region (15%) (21).

Overall, postpartum morbidities—both physical and psychological—can significantly impact a mother's well-being and her ability to care for her new-born. After describing the various types of maternal morbidities observed in the postpartum period, it is useful to organize them systematically. Hence, Table 1 presents a systematically categorized list of the common postpartum morbidities in India. These have been grouped using the WHO's ICD-MM system, offering a clinical lens on how these conditions are understood globally. This classification helps show how different types of health problems can arise after childbirth and why it is important to understand their causes clearly in maternal health research. Table 2 complements this with the most commonly reported postpartum morbidities in India, followed by findings from clinical and community-based studies across regions and decades. While not all conditions have clear prevalence figures, they are included based on their recurrence and significance across maternal health literature.

Table 1: Postpartum Morbidities Systematically Categorized using WHO's ICD-MM Classification

Sl No	Morbidity	ICD-MM Category	Explanation
1	Puerperal sepsis	Direct	A clear obstetric complication due to infection after delivery.
2	Perineal infections	Direct	Result from childbirth injuries or poor perineal hygiene during/after delivery.
3	Mastitis	Direct	A postpartum condition caused by breastfeeding issues.
4	Breast engorgement	Direct	A common postpartum issue from lactation challenges.
5	Postpartum haemorrhage (PPH)	Direct	Classic direct obstetric cause, leading cause of maternal morbidity.

Sl No	Morbidity	ICD-MM Category	Explanation
6	Pre-eclampsia	Direct	Hypertensive disorder of pregnancy; part of direct obstetric complications.
7	Eclampsia	Direct	Severe form of pre-eclampsia—a direct obstetric condition.
8	Persistent vaginal discharge (foul odour)	Direct	Often indicative of infection, part of postpartum sepsis.
9	Persistent abdominal pain	Direct (if uterine/infection related), coincidental (if unrelated)	Likely linked to uterine involution or infection.
10	Perineal pain and tears	Direct	Result of vaginal delivery; obstetric origin.
11	Prolonged vaginal bleeding	Direct	Common in postpartum haemorrhage or uterine atony.
12	Urinary tract infections (UTIs)	Direct (context-dependent)	May be related to catheterisation or delivery trauma.
13	Uterine prolapse	Direct	Result of difficult/prolonged labour or repeated births.
14	Fistulas (e.g., vesicovaginal)	Direct	Caused by obstructed labour or delivery trauma.
15	Urinary incontinence	Direct	Linked with delivery-related pelvic floor damage.
16	High fever	Direct (likely)	Often, symptoms of postpartum infection or sepsis.
17	Painful urination	Direct	It may result from infection or trauma during childbirth.
18	Postpartum blues	Direct	Transient emotional instability after birth.
19	Postpartum depression (PPD)	Direct	Though psychological, it's directly related to childbirth per ICD-MM.
20	Anaemia (mild to severe)	Indirect	Not obstetric in origin; aggravated by postpartum blood loss and nutritional stress.
21	Tuberculosis	Indirect	Pre-existing or concurrent condition worsened by lowered immunity in the postpartum period.
22	Jaundice	Indirect	Often linked with hepatitis or liver issues, aggravated during postpartum.
23	Generalized weakness	Indirect (context-dependent)	May stem from anaemia or nutritional deficit.
24	Lower back pain	Coincidental	It can occur unrelated to childbirth; it is common but not pathological in origin.

Table 2: Common Postpartum Morbidities in India

Morbidity	Summary & Study Findings
Anaemia	Anaemia remains a significant maternal morbidity. Severe anaemia (7.4%) contributed to 16 maternal deaths in a Rajasthan study (19). A follow-up study reconfirmed its risk in the same region (2). Earlier research from South India and Rajasthan also linked anaemia to comorbidities like tuberculosis, respiratory infections, and jaundice (15).
Postpartum Haemorrhage (PPH)	PPH is among the most frequently reported causes of maternal near-miss and mortality (21). Community-based data from multiple Indian states report prevalence between 8.8% and 46.9% (18). In Maharashtra, PPH was a leading MNM cause in 27.7% of cases (22). Tertiary hospital data from Delhi showed 23% PPH with 26.6% cases of adherent placenta (23). PPH-related MNM ranged from 40% to 63.5% in studies from Manipal, Dehradun, Hyderabad, and Punjab (24, 25).
Puerperal Sepsis & Infections	Clinical studies report a 12% prevalence of puerperal sepsis and perineal infections in hospital-based populations (17). Sepsis was a significant contributor to MNM cases in Karnataka (52%) and other tertiary settings (24). Rural research in Maharashtra and Rajasthan also found sepsis symptoms such as foul-smelling vaginal discharge, perineal pain, and fever to be common (4, 19).
Postpartum Depression (PPD)	National estimates show PPD affects 22% of Indian mothers, varying by region: 26% in the South, 23% East/Southwest, 21% West, and 15% North (21). A Goa-based study found 44% prevalence and explored associated urban stressors (26). Other findings include 12.8% in Jabalpur (27) and high-risk indicators in Karnataka (28). Postpartum blues were also identified but not quantified in Rajasthan (19).
Maternal Near-Miss (MNM)	MNM rates vary widely across states and institutions. In Maharashtra, MNM occurred in 13.1% of hospital deliveries (22). In Punjab, 24.2 per 1000 live births experienced MNM, with 63.5% due to haemorrhage (25). In Pondicherry, MNM was reported at 2.81/1000, with 42% due to haemorrhage (29). A systematic review reported MNM ranging from 3.9–60.4/1000 deliveries across India (18).
Pre-eclampsia / Eclampsia	Pre-eclampsia accounted for 34% of maternal deaths in a Delhi hospital study (17). Earlier evidence from South India also highlights the danger of fits and convulsions during postpartum (14). Convulsions postpartum were reported in Rajasthan (19).
Breast Problems (Engorgement, Mastitis, Flat Nipples)	Though not always clinically recorded, breast problems are frequently reported by postpartum women in community studies. Rural studies in Maharashtra and Rajasthan note these as common morbidities that disrupt breastfeeding and maternal well-being (4). Earlier data also highlight their prevalence (15).
Pain & Musculoskeletal Morbidity	Pain (especially in the lower abdomen and back) was commonly reported in rural communities (4). Rajasthan studies also document postpartum body pain as a significant complaint (19). Though not always included in clinical records, these symptoms are key to understanding women's lived experiences of morbidity.
Genito-urinary Morbidities (UTI, Prolapse, Fistula)	Postpartum women in Haryana reported prolapse, painful urination, and fistula-like symptoms (16). These conditions remain underdiagnosed but were noted in both community interviews and clinical observations (19).

Morbidity	Summary & Study Findings
Persistent Vaginal Bleeding	Continuation of bleeding after the first week postpartum was reported in studies from South India and Maharashtra, though not always linked to PPH (4, 15). Its recurrence points to potential gaps in postnatal monitoring.
Vaginal Discharge (Foul-Smelling)	Noted as a common symptom in postpartum women in Maharashtra (4). Often associated with infection or poor hygiene, it rarely enters biomedical diagnostic categories but is a frequent concern for rural women.

Tables 1 and 2 outline the types and distribution of postpartum morbidities commonly reported in India. These morbidities do not occur in isolation. Their occurrence, severity, and persistence are shaped by a range of underlying factors. The next section discusses how demographic, socio-economic, cultural, regional, and obstetric factors influence the health outcomes of women during the postpartum period.

Factors Affecting Morbidity

The study of maternal morbidities during the postpartum period is essential to understand the influence of various demographic, socio-economic, cultural, educational, regional, and obstetric factors on maternal health. This section briefly highlights all these factors that not only shape the prevalence and severity of postpartum morbidities but also provide insight into the broader maternal healthcare system.

Demographic Factors: Demographic characteristics, such as maternal age and the gender of the new-born, play a crucial role in determining postpartum morbidity. Women younger than 19 years and those older than 25 years of experience higher rates of postpartum complications compared to women aged 20–24 years (5, 6, 10). Studies from Rajasthan have linked convulsions and hypertensive disorders like eclampsia with increased postpartum risk, particularly among younger and older mothers (17, 19). Additionally, societal expectations surrounding the preference for a male child over a female child can contribute to psychological distress and increased health risks for postpartum women (10).

Socio-Economic and Cultural Factors: Socio-economic conditions significantly influence maternal health outcomes. Women from lower economic backgrounds are more likely to experience postpartum complications due to factors such as inadequate nutrition, limited access to healthcare, and the necessity of returning to work soon after childbirth to support their families (4, 7-10). Research in rural Maharashtra and Rajasthan highlights that poor women frequently report breast problems, persistent pain, and vaginal infections, which often go untreated due to lack of access or reliance on informal care (4, 19). The presence or absence of familial support, particularly from husbands and extended family members, also impacts maternal recovery.

Cultural traditions shape postpartum care in many societies, including India, where new mothers are often required to follow specific dietary restrictions and activity limitations to protect their health. Practices such as postpartum seclusion and dietary regimens based on the concepts of 'heat' and 'cold' are common. Foods believed to generate bodily warmth and promote lactation are encouraged, while certain other foods are avoided to prevent illness (2). The extent of adherence to these cultural norms can influence postpartum recovery and well-being.

Family structure and relationships further contribute to maternal health. Women living in nuclear families or experiencing strained relationships with their husbands and in-laws may have reduced access to emotional and practical support, exacerbating postpartum complications (9, 10). The number of children a woman has also plays a vital role, with higher parity often correlating with increased health risks.

Educational Factors: Education levels have a complex relationship with postpartum morbidity. Interestingly, studies have found that women with higher education report more postpartum morbidities compared to those with lower levels of education (4, 5, 10). For example, studies from urban Goa and Jabalpur report higher prevalence of postpartum depression among educated women, suggesting greater health awareness and willingness to report psychological symptoms (26, 27). This discrepancy may stem from greater health awareness and a higher likelihood of reporting health issues among educated women. Conversely, less-educated women may experience

similar complications but fail to recognize or report them due to limited health literacy.

Regional and Environmental Factors: Regional differences also affect postpartum health outcomes. Women in urban areas tend to report higher morbidity rates than those in rural areas (5). Studies report higher rates of PPD in the southern states, while rural areas report more sepsis, discharge, and musculoskeletal complaints due to environmental conditions and lack of sanitation (4, 21). This may be attributed to lifestyle differences, environmental pollution, or the increased likelihood of reporting health concerns in urban settings where access to healthcare is more readily available. In contrast, rural women may have less access to healthcare facilities, leading to underreporting of morbidities.

Obstetric Factors: Obstetric history and delivery-related factors are fundamental determinants of postpartum morbidity. The place of delivery—whether at home or in a healthcare facility—significantly influences maternal health outcomes. Hospital-based studies show that women undergoing caesarean or complicated deliveries are more likely to experience severe complications such as PPH and maternal near miss (22, 23), while community-based data reveal on-going risks among women delivering at home, including prolapse and urinary complications (16, 19). Therefore, studies indicate that women who deliver at home experience higher rates of severe complications compared to those who give birth in medical institutions, where professional assistance is available (9). The mode of delivery is another crucial factor. Women who undergo caesarean sections or instrumental deliveries (such as forceps or vacuum-assisted births) report higher morbidity rates than those who have normal vaginal deliveries (5). Surgical interventions often lead to extended recovery periods, increased risk of infections, and long-term health complications.

National Health Initiatives and the Challenge of Postpartum Care

The morbidities discussed in this review—anaemia, postpartum haemorrhage (PPH), puerperal infections, and postpartum depression—are recognised in India's national health policies. The Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) strategy, launched by the Ministry of Health and Family Welfare, focuses on providing continuous care from pregnancy through the postpartum period. It highlights early detection and treatment of maternal complications through antenatal care, institutional delivery, and follow-up services. Under this strategy, specific programs have been designed to improve maternal health. For example, the *Janani Suraksha Yojana* (JSY) provides financial support to promote institutional deliveries. The *Janani Shishu Suraksha Karyakram* (JSSK) offers free transport and care for mothers and newborns. These programs aim to reduce maternal deaths and provide care at public health centres, especially for women from rural and low-income backgrounds (30). However, studies show that even after institutional delivery, many women continue to experience postpartum morbidities. Research explains this gap by pointing to weak service delivery in rural areas. They argue that health policies like JSY may not fully succeed if there is poor implementation and limited follow-up care (31). Similarly, a study in Madhya Pradesh shows that while institutional deliveries increased after JSY, the number of women reporting severe conditions of anaemia and eclampsia also went up. This suggests that while more women are reaching hospitals, the care they receive during the postpartum period is not always enough (10). Another study also found that maternal health outcomes improved more in states with better infrastructure and governance, while weaker states continued to show poor outcomes despite program coverage (32). These findings show that although national programs have helped improve access to care during childbirth, there is a need to strengthen postpartum services. Timely detection of complications, better follow-up care, and mental health support must become part of routine maternal health services. Without these, women remain vulnerable to both physical and emotional suffering after delivery, even when they access institutional care.

Conclusion

The postpartum period is a critical time when mothers experience various physical and psychological health challenges. These morbidities are influenced by a combination of socio-cultural, educational, environmental, and obstetric factors. While postpartum morbidities tend to be more prevalent in the early weeks following childbirth,

they can persist and affect maternal health and daily life for an extended period. This systematic review applied the WHO's ICD-MM classification system to differentiate between direct, indirect, and coincidental causes of morbidity, helping to clarify the varied medical and systemic responses they require. The impact of postpartum morbidities extends beyond individual mothers and their children; it also affects society as a whole. If maternal morbidities are not adequately addressed, they can lead to increased maternal mortality, which serves as a key indicator of a country's overall healthcare status. To aid this understanding, a summary table has been included in the manuscript, outlining the types of morbidities, prevalence across different regions, and their sources, offering a consolidated evidence base for future interventions. High maternal mortality rates hinder national development and signal deficiencies in maternal healthcare policies. Identifying the root causes of postpartum morbidities helps in refining healthcare strategies and addressing gaps in maternal health programs. Governments and healthcare institutions must continuously evaluate and improve existing healthcare plans to reduce postpartum complications. In line with this, the findings are linked to major national initiatives which aim to reduce maternal morbidity and mortality. While these programs have improved access to institutional delivery, the evidence suggests that quality postpartum care and consistent follow-up remain areas needing stronger implementation. Additionally, families should be encouraged to provide emotional and practical support to new mothers, ensuring a healthier postpartum experience.

Recommendations

Ensuring maternal health during the postnatal period is of utmost importance. Based on the systematic analysis, the following recommendations are proposed:

- Development and implementation of targeted maternal health programs that prioritize high-prevalence and high-risk postpartum morbidities identified through region-specific data and classified under the ICD-MM framework, with a particular focus on preventing 'near-miss' cases.
- Utilization of native and culturally relevant terminology by healthcare providers to improve communication and understanding among mothers and communities.
- Encourage the adoption of the WHO's ICD-MM classification system in healthcare reporting to improve consistency in identifying and managing direct, indirect, and coincidental maternal morbidities.
- Standardized measurement criteria for postpartum morbidities to enable accurate diagnosis, monitoring, and intervention.
- Increased awareness through workshops and conferences organized by both governmental and non-governmental organizations to educate mothers, families, and healthcare workers.
- Strengthen the implementation of national maternal health programs by ensuring quality postpartum follow-up care and attention to morbidities beyond delivery, especially in rural and underserved areas.
- Encouragement of further research to identify emerging postpartum health concerns and the evolving factors influencing maternal morbidity.

Addressing postpartum morbidities through comprehensive healthcare policies and community support can significantly improve maternal well-being and reduce long-term health risks for mothers and their children. These recommendations also point to areas where more research is needed. Future studies can look at how well these suggestions work in different regions, how acceptable they are to women and communities, and what long-term effects postpartum morbidities have on women's health.

Abbreviation

None.

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Author Contributions

All authors contribute equally.

Conflict of Interest

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