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Mini Review

Complications During Pregnancy Among Indian Tribal Women: A Mini-Review

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ABSTRACT

This study highlights the complications during pregnancy among disadvantaged tribal mothers of India. Findings are based on recently published research articles from 2020 to 2025. The tribal mothers are majorly affected by Anaemia (29.5% to 94.6%), Hypertension (11.69% to 28.57%), Preterm labour (50.73%), Vaginal Bleeding (33.3%), intrauterine growth restriction (IUGR) (29.5%) and Abdominal pain (33.3%) complications during pregnancy followed by other problems like GDM (Gestational Diabetes Mellitus) (14.2%), Excessive Vaginal Discharge (8.33%), etc. Community-based intervention and improved outreach health services can help reduce the burden of pregnancy-related complications, prevention and management in rural tribal settings.

Keywords: Complications during pregnancy, Tribal mothers, MCH services, India

1. Introduction

The maternity life of a woman begins with pregnancy, and that time requires access to regular antenatal check-ups for foetus growth and the well-being of women. With the support of adequate nutrition (one extra meal) and regular antenatal check-ups to ensure the healthy development of both the child and mother. This will prevent life-threatening complications. However, tribal women, who often reside in remote and inaccessible regions, face significant challenges in accessing these essential services. The lack of healthcare infrastructure, nutritious diet, basic medication, and routine check-ups contributes to a high prevalence of pregnancy-related complications among tribal women, rendering them more vulnerable than their non-tribal counterparts. Owing to poor connectivity and underdeveloped health systems, particularly in rural and remote areas, tribal populations are more suffer to avail modern health facilities. The status of tribal women is vulnerable, characterized by low literacy rates, involvement in agricultural labour, and poor socio-economic conditions in India. Their utilisation of maternal and

child health (MCH) services is disproportionately low, largely due to their geographical isolation and limited resources. Though tribal communities display diverse livelihoods, socio-economic conditions remain largely uniform, with only slight variations. According to the Ministry of Tribal Affairs, Government of India, tribal populations constitute 8.6% of India's total population, with a literacy rate of 73.60% (80.40% male, 66.70% female). Furthermore, the Agricultural Census 2015–2016 reveals that 56.26% of the tribal population is engaged in marginal agricultural activities, while only 0.75% are involved in large-scale agriculture¹. Health indicators also reflect the disadvantaged health status of indigenous (tribal) populations. The key indicators, such as the Total Fertility Rate (TFR), Infant Mortality Rate (IMR), and Under-Five Mortality Rate, are higher along with poor nutritional status when compared with the mainstream population¹.

While all women may experience health issues during pregnancy, tribal women are disproportionately affected by diseases, nutritional disorders, and limited access to treatment.

The reasons behind primarily due to poor road conditions and a lack of public transportation facilities to reach health centres. Mishra PS et al. reported that low utilization of maternal healthcare services in hilly regions, with only 19% of tribal women accessing antenatal care services during pregnancy². Hence, the likelihood of experiencing pregnancy-related complications, such as hypertensive disorders, anaemia, and intrauterine growth restriction (IUGR), is notably higher among tribal mothers³.

India officially recognizes over 700 tribes, many of which inhabit remote and difficult terrains and remain largely disconnected from the mainstream population. While the country has achieved milestones such as reaching the moon, significant gaps remain in effectively connecting and empowering to tribal population. To address these concerns, the Government of India (GOI) has implemented various initiatives, such as the National Health Mission, Poshan Abhiyan, and Janani Suraksha Yojana, aimed at combating malnutrition, anaemia, and financial barriers to healthcare. Nevertheless, out of the 10.45 crore tribal population, 5.20 crore are women who remain underrepresented in policy discussions and interventions⁴. The study of Adolescent Girls of Indigenous Communities in Telangana (2024) examined the prevalence, causes, and determinants of chronic malnutrition, assessed through stunting, thinness, and underweight among adolescent indigenous girls. Additionally, the sociocultural focus on starchy, staple-based diets and early marriage influenced the outcomes⁵. Furthermore, Tribal women also face an elevated risk of depression and anxiety during maternity; however, these conditions are often neglected in public health interventions. Maternal mental health disorders during pregnancy, in particular, impair key caregiving behaviours that are critical for child survival⁶. The paper by Kumar, D. et al. (2025) also highlighted the growing risk of hypertension among the tribal population, which is a serious concern that demands urgent attention⁷.

A secondary review using Penchansky and Thomas's framework identified that the major barriers to healthcare utilization among tribal women lie in the dimensions of Accessibility, Availability, and Acceptability. These factors were found to have a more profound impact on healthcare access than Accommodation and Affordability⁸. This article consolidates findings from existing peer-reviewed literature to highlight the recent major pregnancy-related complications and barriers faced by tribal women in India, aiming to inform more inclusive health policy and targeted interventions.

2. Methodology

In the process of collecting data from secondary sources, we followed a structured procedure for identifying published articles across various search engines, including PubMed, Google Scholar, Research Gate, Science Direct, JSTOR, Semantic Scholar, CORE, and Google Search. We used specific

keywords such as "pregnancy-related complications," "perinatal risks/complications," "complications during the antenatal period," "tribal women," "scheduled tribes," "tribal people," "tribal population," "Indigenous people," in India focusing on publications from 2020 to 2025. Priority was given to original research articles. Following our criteria, we initially identified 81 articles. These were then screened, and duplicates were removed, resulting in 63 articles. After further review, we gained full access to 52 of these articles. In the final step, we selected 08 articles for inclusion in the data table, while the remaining articles were referenced in the write-up. The process is summarized in the organogram presented as (Figure 1).

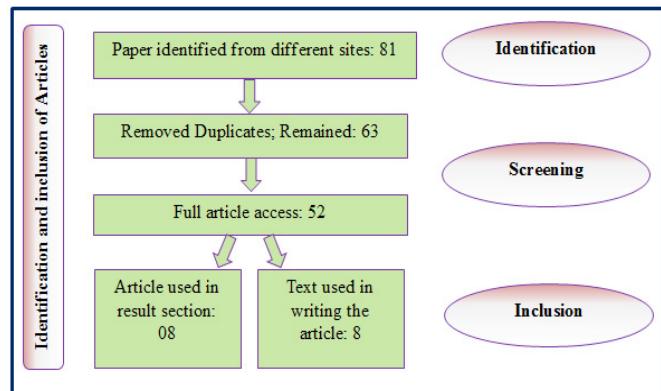


Figure 1: This organogram illustrates the data curation process involving the identification, screening, and inclusion of articles.

3. Result

Prenatal (during pregnancy) complication and utilization of MCH services assessed through published research articles since last 5 years from different regions of India shown in table-1. Finding revealed that the tribal women during the pregnancy were more sufferer with Anaemia ranging from 29.5% to 94.6%, Hypertension (11.69% to 28.57%), Preterm labour (50.73%), Vaginal Bleeding (33.3%), IUGR (29.5%), Abdominal pain (33.3%). Followed by others problems GDM (Gestational Diabetes mellitus) (14.2%), Excessive Vaginal Discharge (8.33%), HBV Infection (7.1%), Spontaneous Abortions (3.30%), Heart Disease (2.38%), Birth asphyxia-advanced resuscitation (1.54%). Use of MCH services during the pregnancy were found 23% of tribal mothers received antenatal care services and 82% were hospital birth, and only 52% children of age one year received birth dose vaccination. It was reported that 39% faced challenges in accessing the MCH services, 46% related to transportation and 23% unavailability of hospital-based services during the COVID-19 pandemic period. Hence, tribal people have the option to avail primary treatment from Traditional healers as a point of care in tribal areas to cure a range of health issues, including non-communicable diseases like type II diabetes.

Table 1: Distribution of complications/illness during pregnancy and utilisation of MCH services.

Sl. No.	Population	Study Site	Study Year	Prenatal Complications & Use of MCH Services
1	Rural tribal population	Gujrat	2021	Anaemia (45.90%), Hypertension at delivery (11.69%), Birth asphyxia-advanced resuscitation (1.54%) ⁹
2	Tribal population	Kerala	2020	Hypertension (28.57%), Gestational Diabetes Mellitus (GDM) (14.2%), Anaemia (29.5%), intrauterine growth restriction (IUGR) (29.5%), Preterm Labour (50.73%), HBV infection (7.1%), and heart disease (2.38%) ³
3	Tribal population	Sewagram, Maharashtra	2021	Vaginal Bleeding (33.3%), Abdominal Pain (33.3%), Excessive Vaginal Discharge (8.33%), Spontaneous Abortions (3.30%) ¹⁰

4	Tribal population	Rajasthan	2023	Anaemia (94.6%) ¹¹
5	Tribal population	India	2021	Traditional healer(s), provide primary healthcare. The traditional healers provide a cure for a range of health issues, including non-communicable diseases like type II diabetes ¹²
6	Tribal population	Andhra Pradesh, Assam, Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Uttarakhand.	2023	52% of children were fully vaccinated by the age of 12 months among the tribal populations; 11% did not receive any vaccine, and 37% of the tribal children received some vaccines ¹³
7	Tribal/Non-tribal population	Maharashtra, Odisha, Assam, Uttar Pradesh, Madhya Pradesh and Telangana	2023	39% reported that accessing MCH services was a challenge during the lockdown period, with major challenges being transportation-related difficulties (46%), unavailability of hospital-based services (23%), and interrupted outreach health services (18.4%) ¹⁴
8	Tribal population	India	2024	Only 23% of the mothers received adequate antenatal care. 82% were institutional childborths ¹⁵

4. Discussion

The research findings of this mini-review have confirmed that tribal women are more suffer from Anaemia (29.5% to 94.6%) and Hypertension (11.69% to 28.57%), which may be responsible for considerably higher preterm labour (50.73%). Maternal illiteracy, clinical anaemia, and lack of antenatal care (ANC) are all significant independent risk factors for preterm delivery⁹. Pregnancies with complications and high risks must be managed through essential emergency obstetric services, including specialized nursing care to decrease perinatal risks¹⁶. These risk factors are likely influenced by systemic and structural discrimination, which continues to generate disparities in access to maternal health services. Additionally, complications during pregnancy may arise from spontaneous or induced abortions, especially when carried out by untrained personnel in unsafe environments or through unsafe methods, which are frequent in remote or tribal settings. These complications can include bleeding, infection, pain regardless of the provider or setting, and the lack of post abortion care (PAC), including emergency care, counselling, and linkage to health services, further increases risks¹⁰. Access to maternal and child health (MCH) services in tribal and marginalized communities is hindered by a complex interplay of socio-cultural norms, infrastructural limitations, and educational gaps. The key barriers are outlined below:

4.1. Socio-cultural and traditional influences

A significant proportion of girls (19.5%) in tribal areas marry at an early age between 10 to 17 years, leading to early and high-risk pregnancies¹¹. This contributes to adverse maternal and neonatal outcomes and reduces the likelihood of adequate antenatal care. Also forced to mobilise towards dependence on Traditional Healers, they serve as the first point of contact for many tribal populations, offering spiritual and cultural health support. However, their lack of formal integration into the public health system can result in delays in seeking appropriate medical care¹².

4.2. Lack of awareness and health literacy

Many families are unaware of maternal health schemes, financial incentives, and services provided by the government, which leads to underutilization of available resources. In addition, with low levels of education among women and limited knowledge among male family members about pregnancy-related complications, decrease in timely health-seeking behaviour. Poor road conditions and limited or delayed ambulance services hinder timely access to healthcare facilities, especially during pregnancy-related emergencies. In addition,

digital health services offer potential healthcare, but they are often inaccessible in tribal areas due to poor network connectivity, low technological literacy, and a lack of infrastructure to support telemedicine platforms. In this regard, the COVID-19 pandemic highlighted the need for stronger infrastructure, adequate staffing, and resilient service delivery to ensure the continuity of MCH services during health emergencies¹⁴. Improving maternal and child health (MCH) services requires a culturally sensitive and community-based approach. One key strategy is the integration of traditional healers into the formal health system. By engaging them as Tribal Health Ambassadors through incentive-based models, early referrals and knowledge sharing can be improved. Post-Abortion Care (PAC) must be strengthened to include emergency treatment, infection management, contraception counselling, and effective referrals, especially in rural and tribal regions where unsafe abortions are common.

5. Conclusion

During the pregnancy, tribal mothers are considerably affected by Anaemia, Hypertension, Preterm birth, etc. Awareness and education campaigns are essential to increase health knowledge among tribal women. Enhancing transport infrastructure and ensuring reliable ambulance services are vital for timely access to institutional care. Promoting female education and male involvement in reproductive health can lead to better health-seeking behaviour in favour of the reduction of morbidities and complications during pregnancy.

6. Acknowledgement

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7. Conflict of Interest

The authors have no conflict of interest.

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