



Postpartum Maternal Mental Health Among Women in Arunachal Pradesh : An Urban-Rural Analysis

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Abstract

Pregnancy and childbirth are important aspects of a woman's motherhood journey. But most women often experience certain mental imbalances related to postpartum depression and other related disorders. These issues need to be addressed from the outset, as they pose serious health risks to both the mother and the child. In the remote and rural areas of Arunachal Pradesh, women often have limited access to maternal healthcare due to their low economic conditions, which ultimately leads to negligence in their postpartum mental health. The main objective of this study is to examine the association between maternal healthcare access and socioeconomic characteristics with postpartum depression among women in Arunachal Pradesh, with special reference to urban-rural differentials. The study is based on primary data collected from 400 women from the urban and rural areas of Arunachal Pradesh. Both descriptive statistics and cross-tabulation techniques were used to examine the relationship between the dependent and independent variables. The results of the study indicate that a considerable prevalence of postpartum depressive symptoms has been found in both urban and rural areas, with slightly higher levels of cases encountered among urban mothers. Younger women, mothers with higher parity, inadequate utilisation of antenatal and postnatal care services and those facing socioeconomic disadvantages were found to be more vulnerable to depressive symptoms after childbirth. This study emphasises on the need to strengthen maternal healthcare accessibility in Arunachal Pradesh and to integrate mental health screening within antenatal and postnatal care services. Thus, improving healthcare utilisation and addressing disparities in socioeconomic conditions may help in reducing the burden of postpartum depression among women in the state.

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Introduction

Postpartum maternal mental health refers to depressive disorders that occur following childbirth, significantly impacting both maternal and child outcomes. According to research, almost all women experience postpartum depression after childbirth. Some experience mild intensity while others experience medium to high intensity, especially among women belonging to a backward socioeconomic condition. Although these disorders are frequently attributed to hormonal or emotional changes, factors like limited access to maternal healthcare and socioeconomic disadvantages also play a critical role (Salem et al., 2025). Evidence from diverse global contexts indicates that women, both in urban and rural areas are at increased risk for postpartum depression and related anxiety disorders, but women from lower socio-economic backgrounds experience disproportionately higher prevalence (Mekuria et al., 2023). Therefore, a comprehensive understanding of postpartum maternal mental health among urban and rural women should be analysed through the lens of limited access to maternal healthcare and lower socioeconomic backgrounds.

Conceptual Framework of Maternal Mental Health:

Postpartum maternal mental health encompasses the emotional and psychological state of women following childbirth, typically within the first year. The World Health Organisation classifies postpartum mental health conditions into three categories: postpartum blues, postpartum depression and postpartum psychosis. Postpartum blues are characterised by mild, transient emotional disturbances that commonly arise within the initial days after childbirth and generally resolve within two weeks. According to Delrosario (2013), people often experience mood changes, become easily annoyed, and cry for no clear reason after having a baby. This is considered normal as they adjust to being a parent. However, postpartum depression is more serious because it can start within a week or months after giving birth. It includes losing interest in things once enjoyed, long-lasting sadness, low energy, feeling guilty or worthless and sometimes thoughts of self-harm. Postpartum psychosis is even more severe but rare that usually occurs within two weeks after childbirth. It causes serious problems with understanding reality, such as false beliefs, seeing or hearing things that aren't there, confusion and mixed-up thoughts. This condition needs immediate medical attention. These issues can make it difficult for a mother to manage daily tasks, affect her bond with her child, and may have lasting effects on the child's development and the family's well-being.

Access to maternal healthcare and Post-Partum Depression:

Access to maternal healthcare (MHC) greatly affects the mental health of mothers after giving birth. A study conducted by Weller et al. (2013) shows that getting maternal healthcare

services on time, like prenatal care, skilled delivery and follow-up after birth, lowers the chances of depression and anxiety after childbirth. Good maternal healthcare helps find and manage mental health risks early by offering support, education and referrals. Problems in accessing maternal healthcare, such as financial issues, location, and cultural stigma, lead to worse mental health after childbirth and stressing the need for fair healthcare (Shukla et al., 2025). Thus, better access to maternal healthcare services with mixed blends of physical and mental health services improves mothers' well-being after childbirth which is crucial for good maternal mental health.

Socioeconomic factors and PPD:

Factors like education, occupation, income, age, wealth and number of children affect a mother's mental health. A study conducted by Cook et al. (2025) states that the social and economic conditions of mothers often affect their living conditions, stress levels, healthcare access, nutrition, education and social support. Generally, women with lower socioeconomic conditions are more vulnerable to post-partum depression due to multiple social and economic disadvantages. In other words, women from low socioeconomic backgrounds or from vulnerable groups may likely to be more prone to stress, have more financial problems, more care giving duties and less access to healthcare. These problems can increase the risk of depression after childbirth.

Many studies have looked at this type of depression in low and middle-income countries like India, but very little direct research has been done in Arunachal Pradesh, especially comparing the urban and rural scenario not yet been undertaken. This study aims to fill this gap by looking at how access to healthcare and socioeconomic factors relate to maternal mental health after childbirth among women in Arunachal Pradesh.

Research Objectives

This study examines how access to maternal healthcare and socioeconomic factors are linked to postpartum depression among women in Arunachal Pradesh focusing on difference between urban and rural areas.

Specific Objectives

- To determine how common and how severe postpartum depression is among women in Arunachal Pradesh.
- To examine urban-rural differences in postpartum depression.

Research Question:

There are two important research questions-

Are there significant urban-rural differences in the prevalence and severity of postpartum depression among women in Arunachal Pradesh?

How are the differences between urban and rural areas associated with access to maternal healthcare and socioeconomic characteristics?

Research Methodology:

The present study is descriptive and analytical in nature. The study collected primary data from women with children under three years residing in both urban and rural areas of Arunachal Pradesh, which was conducted from January to November 2025. A sample size of 400 was randomly chosen to ensure adequate statistical power and representation across these populations. A multistage sampling technique was used to select respondents from seven districts of Arunachal Pradesh, namely West Kameng, East Kameng, Kra Daadi, Papum Pare, Changlang, Namsai, and Lower Dibang Valley, based on the utilization of maternal healthcare services provided by the NFHS-5 data. Of the total 400 sample, 184 respondents (46% of the sample) participated from urban areas of Bomdila (West Kameng), Seppa (East Kameng), Palin (Kra Daadi), Itanagar (Papum Pare), Jairampur (Changlang), Namsai (Namsai District), and Roing (Lower Dibang Valley). The remaining 216 respondents (54% of the sample) participated from rural areas, that is, Domkho and Shergaon villages from West Kameng district; Yasing and Bana villages from East Kameng district; Dado and Yangte villages from Kra Daadi district; Amba and Chiputa villages from Papum Pare district; Podumoni and Bhorkhet villages from Changlang district; Khowji and Nongkhong villages from Namsai district; and Bomjir and Sirang villages from Lower Dibang Valley district.

In order to assess postpartum maternal mental health, eight self-reported indicators of depressive symptoms were taken, namely unusual crying, loss of interest, withdrawal behaviour, thoughts of self-harm, low mood, insomnia, appetite disturbance, and feelings of worthlessness. These eight self-reported indicators were adapted from the EPDS with modifications to better fit the cultural context and research objectives in Arunachal Pradesh, focusing on core depressive symptoms relevant to the local population. Further, each symptom was assigned a binary score of 0 and 1, that is, 0 was assigned to those questions that indicated the absence of the symptom, and 1 indicated the presence of the symptom for simplicity and ease of administration in field settings. Additional pilot testing was conducted to validate the clarity and relevance of the indicators in the local context.

After that, a simple arithmetic composite index of Postpartum Depression (PPD) was constructed by taking the arithmetic mean of the total sum of the responses of all eight indicators. To ensure comparability and standardisation, the scores were normalised using the UNDP normalisation approach and the values of the results range between 0 and 1, where higher values represent a higher presence of PPD symptoms and lower values represent lower symptoms of PPD.

Finally, the scale used to measure was tested with a Cronbach's alpha value. The generated value of 0.736 was considered reliable as per Cronbach's alpha value. After that, the

respondents were divided into three groups based on how severe their symptoms were. If they lie between 0 and 0.625, they had no or low postpartum depression (PPD). If the value is greater than 0.625 but less than 0.75, they had moderate PPD. If they had values greater than 0.75 but less than 1, they had high PPD. This grouping helped to show different levels of depression in mothers. Thus, lower scores mean low PPD, while higher scores mean more severe PPD.

Results and Discussion

Arunachal Pradesh is the largest state in the north eastern states of India, known for its rugged mountains, dense forests and rich tribal diversity. Geographically, it covers an area of 83,743 square kilometres, accounting for nearly 2.55% of India's total area. It is a landlocked state surrounded by China (Tibet) in the north, Myanmar in the east, Bhutan in the west, and Assam and Nagaland in the south.

Arunachal Pradesh is administratively divided into 27 districts, which are inhabited by about 26 major tribes and more than 100 sub-tribes, each having its own distinct culture, language and traditions. The climate of the state varies from hot and humid in the foothills to cold in higher altitudes. About 80% of the state is covered with dense forests, bamboo groves and rich vegetation, which are the home of around 85 species of mammals, more than 500 species of birds, more than 5000 species of plants, and more than 600 species of orchids. Further, it is a home of numerous insects, reptiles and butterflies.

Table 1.0- Geographic and Socio-demographic Profile of the Study Area (Arunachal Pradesh)

<u>Indicators</u>	<u>Details</u>
Geographical Area	83,743 square kilometres
Total Population	13,83,727
Male Population	7,13,912
Female Population	6,69,815
Scheduled Tribes Population	68.79%
Urban Population	22.97%
Rural Population	77.06%
Population Density	17 persons per square kilometre
Literacy Rate	65.38%
Male Literacy Rate	72.55%
Female Literacy Rate	57.7%
Literacy by Districts	Highest: Papum Pare (82.14%)
Lowest: Kurung Kumey (48.75%)	
Sex Ratio	938 females per 1000 males
Infant Mortality Rate	13 deaths per 1000 live births

Source: Census of India (2011); NFHS-5(2020-21); Government of Arunachal Pradesh Statistical Handbook, 2024

According to the Census 2011, the total population of Arunachal Pradesh is 13, 83,727, with a slightly higher number of males (7, 13,912) than females (6, 69,815). The state is predominantly inhabited by the tribal population, i.e. Scheduled Tribes, which constitutes of 68.79% of the total population. It is one of the least densely populated states of India, i.e. 17 persons per square kilometre, reflecting its difficult terrain and scattered settlements. Arunachal Pradesh is predominantly a rural-based economy, as a large proportion of the population, i.e. 77.06% lives in rural areas. Further, the Census of India, 2011, shows that the literacy rate of Arunachal Pradesh is 65.38%, where the male literacy rate (72.55%) is higher than the female literacy rate (57.7%), indicating a gender gap in education, though both have been gradually improving over time. Moreover, the state's sex ratio is 938 females per 1000 males, which is slightly lower than the national average of 940 females per 1000 males.

As per the report of NFHS-5 (2019-21), the utilisation of maternal healthcare services of Arunachal Pradesh shows clear progress, though disparities still exist between access and quality. According to NFHS-5 (2020-21), about 79.2% of women had institutional deliveries and about 82.1% of women received the benefits of skilled attendance while delivering their child, which is relatively high but ANC visit is still low, i.e. 36.5% of pregnant women received 4 and more ANC visits and 53.1% of them accessed ANC in the early trimester. Further, nutritional support is weak, as only 23.8% of pregnant women consume iron and folic acid (IFA) adequately and post-natal care coverage is moderate, i.e. 56.4%. Moreover, rural-urban disparities and limited access in remote areas further affect maternal service utilisation, as a result, problems like PPD and related anxiety found among the womenfolk of the state.

Table 1.1- Percentage distribution of Women based on Age and Post Partum Depression

Age→	18 years-22 years		23 years-34 years		35 years-47 years		Over all	
PPD↓	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
No/Low PPD	0.00	4.76	4.76	7.80	11.76	5.56	7.07	6.94
Medium PPD	18.18	19.05	22.86	27.66	20.59	35.19	21.74	28.70
High PPD	81.82	76.19	72.38	64.54	67.65	59.26	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The study is based on multi-stage sampling, where out of 400 samples, 46% were covered from rural areas and 54% were from urban areas. The findings reveal urban mothers reported relatively higher levels of high postpartum depressive symptoms (71.20%) compared to

rural mothers (64.35%), more dominantly in the age group of 23-34 years, that is, 72.38% from urban and 64.54% from rural areas which is shown in Table 1.1. The findings suggest that younger mothers and urban women may be more vulnerable to postpartum psychological distress, possibly due to increased emotional stress, childcare burden, limited social support and adjustment difficulties during the postpartum period.

Table 1.2- Percentage Distribution of Mothers based on their Level of Education and Postpartum Depression

Education → PPD↓	Illiterate		Primary- Upper Primary		Secondary- Undergraduate		Graduate & above		Over all	
	U	R	U	R	U	R	U	R	U	R
No/Low PPD	0.00	5.88	6.90	9.20	5.33	4.44	9.59	9.09	7.07	6.94
Medium PPD	57.14	35.29	24.14	29.89	20.00	26.67	19.18	27.27	21.74	28.70
High PPD	42.86	58.82	68.97	60.92	74.67	68.89	71.23	63.64	71.20	64.35
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	0	0	0	0	0	0	0	0	0	0

Note- U refers to Urban and R refers to Rural

Table 1.2 shows the distribution of mothers based on their experience of postpartum depression, based on their education level in town and rural areas in percentages. The results show that high postpartum depression symptoms were common in all education groups in both urban and rural areas. In cities, mothers with secondary to undergraduate education had the highest rates of high postpartum depression (74.67%), followed by those with graduate education or higher (71.23%). In rural areas, mothers with secondary to undergraduate education also had higher rates of high postpartum depression (68.89%). Few mothers had no or low postpartum depression in all education groups, while moderate depression was more common among those with little or no education. Overall, postpartum depression is common regardless of education level, but it is more common among mothers with middle and higher education, especially in urban areas.

Table 1.3- Percentage Distribution of Mothers Based on Their Occupation and PPD

Occupat ion of mother → PPD↓	Regular Salaried Employee		Self- employed in Farm		Self- employed in business		Housemake r		Other		Over all	
	U	R	U	R	U	R	U	R	U	R	U	R
No/Low PPD	9.38	11.1	12.5	5.26	5.00	7.41	5.68	5.19	0.00	10.5	7.07	6.94
Medium PPD	17.1	30.5	37.5	22.8	25.0	33.3	22.7	32.4	25.0	21.0	21.7	28.7
High PPD	73.4	58.3	50.0	71.9	70.0	59.2	71.5	62.3	75.0	68.4	71.2	64.3
Total	100	100	100	100	100	100	100	100	100	100	100	100
	00	00	00	00	00	00	00	00	00	00	00	00

*Note- U= Urban and R=Rural

Table 1.3 presents the percentage of mothers with various occupations and their levels of postpartum depression in both urban and rural settings. The findings indicate that a significant number of mothers across all job categories experience high levels of depression following childbirth, regardless of whether they reside in cities or villages. In urban areas, mothers employed as daily wage earners exhibit the highest depression rates (75.00%), followed by those in regular salaried positions (73.44%) and homemakers (71.59%). In rural areas, self-employed mothers working in farming report the highest levels of depression, with 71.93% affected, followed by mothers in other occupations at 68.42%. Across all occupational groups, only a small number of mothers experience no or low depression, while moderate depression is more common among homemakers. These findings highlight that financial challenges, work-related stress, and childcare responsibilities likely contribute to elevated depression levels among mothers, regardless of their specific occupation.

Table 1.4- Distribution of mothers based on Wealth Index and Post-partum Depression (in Percentage)

Wealth Index	Low		Lowest		Medium		High		Highest		Over all	
	U	R	U	R	U	R	U	R	U	R	U	R
→ PPD↓												
No/Low PPD	10.00	10.53	2.63	7.69	13.33	4.35	0.00	6.00	10.00	4.17	7.07	6.94
Moderate PPD	20.00	14.04	31.58	30.77	20.00	34.78	16.67	36.00	20.00	33.33	21.74	28.70
High PPD	70.00	75.44	65.79	61.54	66.67	60.87	83.33	58.00	70.00	62.50	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
*Note-U=Urban and R=Rural												

Table 1.4 shows the distribution of mothers based on the wealth index and postpartum depression in urban and rural areas of Arunachal Pradesh. The data show that high postpartum depression was common in all wealth groups in both areas. In cities, mothers with high wealth had the most severe depression (83.33%), followed by those in low and highest wealth groups (70.00% each). In rural areas, mothers with low wealth had higher severe depression (75.44%), while fewer cases were seen in medium and high wealth groups. Few mothers had no or low depression in all wealth groups, but moderate symptoms were more common in lower and middle wealth groups, especially in rural areas. Overall,

postpartum depression affects all economic groups, not just the poor. This may be due to financial stress, care giving and other factors after childbirth.

Table 1.5- Percentage Distribution of Mothers based on Parity and PPD

Parity →	Low Parity		Medium Parity		High Parity		Over all	
PPD↓	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
No/Low PPD	6.98	7.46	8.00	6.76	0.00	0.00	7.07	6.94
Medium PPD	20.93	25.37	24.00	36.49	20.00	12.50	21.74	28.70
High PPD	72.09	67.16	68.00	56.76	80.00	87.50	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 1.5 illustrates the distribution of mothers based on parity and postpartum depression in both urban and rural settings. Elevated postpartum depressive symptoms were observed across all parity groups, with a notably higher prevalence among mothers with high parity in both the place of residence i.e. 87.50% in rural areas and 80.00% in urban areas. These findings indicate that the increasing burden of childbirth and childcare responsibilities may contribute to heightened postpartum depressive symptoms among mothers.

Table 1.6- Percentage Distribution of Mothers Based on Antenatal Care Visit and Post-Partum Depression

ANC→	No ANC		1-3 times		At least 4 & more		Over all	
PPD↓	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
No/Low PPD	0.00	25.00	6.90	7.29	7.38	5.36	7.07	6.94
Medium PPD	0.00	25.00	25.86	26.04	20.49	31.25	21.74	28.70
High PPD	100.00	50.00	67.24	66.67	72.13	63.39	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 1.6 shows the distribution of women based on ANC visit and postpartum depression in urban and rural areas in percentage terms. The results show that mothers with few or no ANC visits had more depression after giving birth. In cities, all mothers who did not have ANC visits reported high PPD, while in rural areas mothers with 1-3 times of ANC suffer from high PPD. Thus, mothers with four or more ANC visits had better mental health than those with fewer visits. This suggests that regular ANC visits might help reduce depression after childbirth by providing better monitoring, advice and healthcare support.

Table 1.7- Percentage Distribution of Mothers Based on Post-Partum Depression and Place of Delivery

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Place of Delivery→	Institutional Delivery		Non-Institutional Delivery		Over all	
PPD↓	Urban	Rural	Urban	Rural	Urban	Rural
No/Low PPD	0.00	0.00	7.88	8.06	7.07	6.94
Medium PPD	26.32	36.67	21.21	27.42	21.74	28.70
High PPD	73.68	63.33	70.91	64.52	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 1.7 shows where mothers gave birth and how many had postpartum depression in cities and villages. Many mothers had high levels of postpartum depression, no matter where they gave birth. In hospitals, 73.68% of city mothers and 63.3% of village mothers had high depression symptoms. Mothers who gave birth outside hospitals also had high depression levels in both places. The results indicate that although giving birth in a hospital is crucial for ensuring safety, the occurrence of postpartum depression is likely influenced by additional factors such as emotional and social support, beyond merely the place of delivery.

Table 1.8- Distribution of Mothers Based on Timing of Postnatal Care Visit and Post Partum Depression (in %)

PNC Visit→	Not Aailed		Within 24 Hours of delivery		Between 48 to 72 hours of delivery		First 6 th Weeks of delivery		Over all	
PPD↓	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
No/Low PPD	0.00	0.00	5.00	7.26	8.70	9.52	9.59	6.78	7.07	6.94
Medium PPD	37.50	8.33	17.50	25.81	30.43	28.57	21.92	38.98	21.74	28.70
High PPD	62.50	91.67	77.50	66.94	60.87	61.90	68.49	54.24	71.20	64.35
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0	0	0	0	0	0	0	0	0	0

Table 1.8 shows when mothers had postnatal care visits and their postpartum depression symptoms in urban and rural areas. The results show that many mothers who did not get post-natal care had high depression symptoms, i.e. about 91.67% women in rural areas and 62.50% in urban areas reported high symptoms. Mothers who got PNC within 24 hours after giving birth also had high depression symptoms, mainly in urban areas (77.50%). Fewer mothers showed high symptoms of depression when they received postnatal care within the first six weeks after childbirth, particularly in rural areas. These findings suggest that timely and regular PNC can help lower depression by offering early support and assistance to mothers.

The findings clearly highlight that prevalence of postpartum depression among the mothers in urban areas are more common than their rural counterparts, likely because of- First, in rural areas of Arunachal Pradesh, most people prefer to live in a joint family system, and they share strong tribal networks that offer extensive social support, shared childcare responsibilities and collective coping strategies that protect them from postpartum depression. In contrast, women in urban areas usually live in nuclear families, where women, especially new mothers, face social isolation, which intensifies their feelings of loneliness and emotional distress. The results showed that the prevalence of postpartum depression was higher among urban respondents.

Second, due to rapid urbanization and migration, the connection between traditional culture and support networks is also breaking. Consequently, women in urban areas often struggle between old customs and modern city life, which causes stress and confusion. Meanwhile, the loss of traditional postpartum care and community support makes these mothers more likely to experience feelings of depression.

Third, urban women face more job pressures, time constraints, and often juggle multiple roles with limited assistance from their families, which further increases their postpartum mental health difficulties.

Finally, although women in urban areas have better access to physical healthcare, maternal mental health services may lack cultural sensitivity and fail to adequately address psychosocial needs, reducing their effectiveness in preventing or managing postpartum depression.

Conclusion:

The occurrence of postpartum depressive (PPD) symptoms among women in Arunachal Pradesh requires urgent and careful attention. This issue affects women across both urban and rural areas and all socioeconomic groups. Younger women, those with higher education, higher parity or birth order and limited access to maternal healthcare are particularly at risk. Additionally, inadequate antenatal and postnatal care further worsens the severity of postpartum depressive symptoms. Thus, prioritising continuous mental health screening and providing psychosocial support are essential to empower women in managing postpartum challenges effectively. Therefore, improving access to maternal healthcare services and overcoming socioeconomic barriers are critical steps to enhance postpartum mental health outcomes across the diverse population of Arunachal Pradesh.

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