

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20263428>

Assessment of antenatal mothers' knowledge regarding birth preparedness and complication readiness in selected areas of Aizawl, Mizoram

L. P. Lalnunpuii^{1*}, Nongmeikapam Monika², Laldinpuii Sailo¹

¹Department of Obstetrics and Gynecological Nursing, College of Nursing, Regional Institute of Nursing and Paramedical Sciences, Aizawl, Mizoram, India

²Department of Obstetrics and Gynecological Nursing, College of Nursing, Assam Downtown University, Guwahati, Assam, India

Received: 28 July 2026

Revised: 06 September 2026

Accepted: 07 September 2026

*Correspondence:

L. P. Lalnunpuii,

E-mail: nunpuiilp77@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Birth Preparedness and Complication Readiness (BPCR) promotes timely planning for skilled maternal care and recognition of pregnancy-related complications. Adequate knowledge can help reduce delays in seeking and receiving care. Although India has made progress in reducing maternal mortality, achieving further reductions requires continued emphasis on timely skilled care. BPCR supports preparedness for childbirth and emergencies by encouraging recognition of danger signs, planning for transport, and timely decision-making. This study assessed knowledge of antenatal mothers regarding BPCR in selected areas of Aizawl, Mizoram.

Methods: A quantitative descriptive design was used among 150 antenatal mothers attending the Maternity and Child Health Clinic, Civil Hospital Aizawl. Participants were selected through non-probability convenience sampling. Data were collected using a validated self-structured questionnaire covering socio-demographic characteristics, birth preparedness, and complication readiness. Descriptive and inferential statistics were used for analysis.

Results: Among the participants, 32.6% were aged 26–30 years, 52% were homemakers, and 42.6% had completed high school education. For birth preparedness, 69.3% demonstrated moderately adequate knowledge, 26.7% inadequate knowledge, and 4.0% adequate knowledge. Regarding complication readiness, 71.3% had moderately adequate knowledge, 27.3% inadequate knowledge, and 1.3% adequate knowledge. No statistically significant association was observed between knowledge levels and the selected demographic variables.

Conclusions: Most antenatal mothers demonstrated moderately adequate knowledge of BPCR, while only a small proportion had adequate knowledge. Strengthening BPCR-focused health education during antenatal care, particularly on danger signs, skilled care, and emergency planning, may improve preparedness and promote safer maternal and neonatal outcomes.

Keywords: Birth preparedness, Complication readiness, Antenatal mothers, Maternal health, Knowledge, Mizoram

INTRODUCTION

Birth Preparedness and Complication Readiness is a strategy to promote timely use of skilled maternal and neonatal care, particularly during childbirth, by preparing in advance for normal birth and being ready for

complications.¹ Birth Preparedness and Complication Readiness (BPCR) is a globally recommended strategy designed to promote timely access to skilled maternal and neonatal healthcare. It includes identifying a healthcare facility, arranging transportation, saving money, identifying a potential blood donor, and recognizing

danger signs during pregnancy, labour, and the postpartum period. In a recent study conducted by Yumkhaibam Renubala Devi on “A Study to Assess Knowledge Regarding Safe Motherhood Among Antenatal Mothers of Selected Areas of Imphal East, Manipur”, it was found that among 50 antenatal mothers only 30% had adequate knowledge, 64% had moderate knowledge and 6% had inadequate knowledge, which shows that majority of the pregnant women do not have proper knowledge regarding birth preparedness and complication readiness which can be dangerous for the mother and the baby.² In India, maternal mortality has declined substantially; however, challenges remain, particularly in underserved and geographically difficult regions.³ Assessing antenatal mothers’ knowledge regarding BPCR is essential for identifying gaps and planning educational interventions. Therefore, the present study was conducted among antenatal mothers attending Civil Hospital Aizawl, Mizoram.

METHODS

Study design

Quantitative descriptive research design.

Study setting

Maternity and Child Health Clinic, Civil Hospital Aizawl, Mizoram.

Population and sample

The study population comprised antenatal mothers attending the antenatal clinic. A total of 150 antenatal mothers meeting the inclusion criteria participated in the study.

Sampling technique

Non-probability convenience sampling.

Study period

Duration of the data collection was from 9th April to 17th April, 2026. Total number of days was for 8 days. Number of Sample taken for sample in a day: 15 – 20 sample per day.

Sampling criteria

Inclusion Criteria includes, Antenatal mothers who are attending Maternal and Child Health (MCH) clinic, Antenatal mothers who can read and write Mizo and Antenatal mothers who are willing to participate. Whereas Exclusion Criteria includes Antenatal mothers with mental health problems/conditions and Antenatal mother with high – risk pregnancies that may limit their participation or focus.

Research tool

The instrument consisted of three sections: socio-demographic variables, knowledge regarding birth preparedness, and knowledge regarding complication readiness. Each knowledge section contained 12 multiple-choice questions.

Scoring key

The questionnaire has a total score of 12 and are interpreted as follows (Using percentage method): 0 - 5: Inadequate knowledge, 6 – 9: Moderately adequate knowledge, 10 – 12: Adequate knowledge.

Validity and reliability

Content validity was established by six experts in Obstetrics and Gynaecology. Reliability was assessed using Cronbach’s alpha and yielded a coefficient of 0.78.

Ethical considerations

Ethical approval was obtained from the Institutional Ethics Committee, RIPANS. Informed consent was obtained from all participants prior to data collection.

Data analysis

Data were analyzed using frequencies, percentages, and chi-square tests.

RESULTS

Among the 150 antenatal mothers, 32.6% were aged 26–30 years, 52% were homemakers, 42.6% had completed high school education, and 36% were primigravida, health personnel were identified as the major source of information regarding BPCR (34.6%).

Table 1: Frequency and percentage distribution of socio-demographic variables of antenatal mothers (n=150).

Variables	Frequency (f)	Percentage (%)
Age (in years)		
15-20	14	9.3
21-25	39	26
26-30	49	32.6
31-35	33	22

Continued.

Variables	Frequency (f)	Percentage (%)
36-40	13	8.6
41-45	2	1.3
Occupation		
Unemployed	18	12
Business	19	12.6
Govt Service	5	3.3
Private Service	10	6.6
Retired	1	0.6
Daily wager/ Labor	19	12.6
Homemaker	78	52
Educational level		
Primary School	6	4
Middle School	20	13.3
High School	64	42.6
Higher Secondary	36	24
Graduate & above	24	16
Total family income		
Rs. 47348 & above	12	8
Rs.23674 - 47347	33	22
Rs.17756 - 23673	37	24.6
Rs. 11837 - 17755	29	19.3
Rs. 7102 - 11836	39	26
Gravida		
1	54	36
2	38	25.3
3	32	21.3
4	20	13.3
5 & above	6	4
Parity		
1	54	36
2	38	25.3
3	32	21.3
4	20	13.3
5 & above	6	4
Have you heard about birth preparedness and complication readiness		
Yes	119	79.3
No	31	20.6
Source of information		
Newspaper	2	1.3
Television	3	2
Internet	32	21.3
Relatives	27	18
Friends	3	2
Health personnel	52	34.6

Table 2: Frequency and percentage distribution of the antenatal mother according to their level of knowledge regarding birth preparedness (n=150).

Knowledge	Inadequate, 0-5 (<50%)		Moderately Adequate, 6-9 (50-75%)		Adequate, 10-12 (>75%)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
	40	26.7	104	69.3	6	4

The above table shows that out of 150 antenatal mothers, majority i.e. 69.3% had moderately adequate knowledge

level, 26.7% had inadequate knowledge level and only 4% had adequate knowledge regarding Birth Preparedness.

Table 3: Frequency and percentage distribution of the antenatal mother according to their level of knowledge regarding complication readiness (n=150).

Knowledge	Inadequate, 0-5 (<50%)		Moderately Adequate, 6-9 (50-75%)		Adequate, 10-12 (>75%)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
	41	27.3	107	71.3	2	1.3

Table 4: Association of knowledge regarding birth preparedness with selected demographic variables (n=150).

Demographic Variables	Level of significance	X ²		Df
		Calculated Value	Tabulated Value	
Age	0.05	10.24	18.31	10
Occupation	0.05	11.30	21.03	12
Education level	0.05	8.65	15.51	8
Total family income	0.05	3.98	15.51	8
Gravida	0.05	6.12	15.51	8
Parity	0.05	6.12	15.51	8
Have you heard about birth preparedness	0.05	0.71	5.99	2
Source of information	0.05	8.55	18.31	10

The above table shows that out of 150 antenatal mothers, majority i.e. 71.3% had moderately adequate knowledge level, 27.3% had inadequate knowledge and only 1.3% had adequate knowledge level regarding Complication Readiness.

Chi-square analysis revealed no statistically significant association between knowledge levels and age, occupation, education, income, gravida, parity, previous awareness of BPCR, or source of information ($p>0.05$).

Table 5: Association of knowledge regarding complication readiness with selected demographic variables.

Demographic Variables	Level of significance	X ²		Df
		Calculated Value	Tabulated Value	
Age	0.05	6.52	18.31	10
Occupation	0.05	5.87	21.03	12
Education level	0.05	3.96	15.51	8
Total family income	0.05	2.74	15.51	8
Gravida	0.05	8.18	15.51	8
Parity	0.05	8.18	15.51	8
Have you heard about birth preparedness?	0.05	1.05	5.99	2
Source of information	0.05	7.36	18.31	10

Chi-square analysis revealed no statistically significant association between knowledge levels and age, occupation, education, income, gravida, parity, previous awareness of BPCR, or source of information ($p>0.05$).

DISCUSSION

Out of 150 antenatal mothers, the majority i.e. 32.6% of the antenatal mothers belong to the 26-30 years age group, 26% between 21-25 years, 22% between 31-35 years and another 9.3% between 15-20 years and 1.3% between 41-45 years age group. The majority i.e. 52% of the antenatal mothers are homemakers while 12.6% are engaged in business and the other 12.6% are daily wage/labor, 12%

are unemployed, 3.3% are government servant and 0.6% are retired. Out of 150 antenatal mothers, the majority i.e. 46.2% of the antenatal mothers have passed high school, 24% have completed higher secondary, 6% were graduate and above, 13.3% have passed middle school and 4% passed primary school. Out of 150 antenatal mothers, 26% of the antenatal mothers have total family income between Rs.7102 – 11836, this is followed by 24.6% with income between Rs. 17756 – 23673, 22% between Rs.23674 - 47347, 19.3% between Rs. 11837 – 17755 and 8% have total family income between Rs. 47348 & above. Out of 150 antenatal mothers, the majority 36% of the antenatal mothers are primigravida, 25.3% in second gravida, 21.3% in third gravida and 13.3% in fourth gravida 4% in fifth gravida (grand multipara) & above.

Out of 150 antenatal mothers, the majority i.e. 36% of the antenatal mothers are primi para, 25.3% are parity 1, 21.3% are parity 2, 13.3% are parity 3 and another 4% are parity 4 & above. Out of 150 antenatal mothers, the majority, i.e. 79.3% of the antenatal mothers have heard about Birth Preparedness and Complication readiness and the other 20.6% of the antenatal mothers have not heard about Birth Preparedness and Complication readiness. Out of 119 antenatal mothers, the majority 34.6% of the antenatal mothers received their information about Birth Preparedness and Complication Readiness from health personnel. This is followed by 21.3% who received their information from internet, 18% from relatives, 2% from television and another 2% from friends, and 1.3% from newspaper.

The study demonstrated that the majority of antenatal mothers possessed moderately adequate knowledge regarding both birth preparedness and complication readiness. Although awareness of BPCR was relatively high, adequate knowledge levels remained low. The study is supported by a similar study conducted by, Manimegalai and Kumar, 2024, who carried out a descriptive study using structured questionnaire among 50 antenatal mothers. The study shows that majority 31 (62%) of them had moderate knowledge, 18 (36%) of them had inadequate knowledge and 1 (2%) of them had adequate knowledge regarding safe motherhood among antenatal mothers.⁴

In this study, the result shows that there was no significant association between level of knowledge regarding birth preparedness and complication readiness with demographic variables such as Age, Occupation, Educational Status, Monthly income, Gravida, Parity, knowledge about Birth Preparedness and Complication Readiness and source of information. The study is supported by a similar study conducted by Gayatri et al 2019, where a study was conducted among pregnant women attending antenatal clinic in B.P. Koirala Institute of Health Sciences, Nepal reported that there was no statistically significant association between knowledge regarding BPCR and demographic variables such as age, residence, education, occupation, family type, and family income. The absence of significant associations between demographic variables and knowledge levels suggests that educational interventions should target all antenatal mothers irrespective of socio-demographic background.⁵

CONCLUSION

Most of the antenatal mothers had moderately adequate knowledge regarding birth preparedness and complication readiness, while only a small proportion possessed adequate knowledge. The results indicate that although mothers had some awareness related to safe pregnancy and emergency preparedness, there is still a need to strengthen their understanding regarding important aspects of maternal health and complication readiness. The study also revealed that the selected demographic variables did not

show any statistically significant association with the knowledge level of antenatal mothers. This suggests that knowledge regarding birth preparedness and complication readiness may not necessarily depend on demographic characteristics alone.

Therefore, continuous health education, regular antenatal counselling, and awareness programs should be encouraged to improve maternal knowledge and promote safe motherhood practices. The findings of the study may help healthcare professionals, especially nurses, to plan appropriate educational interventions for antenatal mothers in order to enhance maternal and fetal wellbeing.

ACKNOWLEDGEMENTS

The gratitude is extended to the Institutional Ethics Committee, RIPANS, the authorities of Civil Hospital Aizawl, all study participants, and faculty members who provided support and guidance throughout the study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Maternal mortality [Internet]. Geneva: WHO; 2025 [cited 2026 Jul 20]. Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
2. Devi RY. A study to assess knowledge regarding safe motherhood among antenatal mothers of selected areas of Imphal East, Manipur. Int J Creat Res Thoughts. 2024 ;12(3).
3. National Health Mission. Maternal Health [Internet]. New Delhi: Ministry of Health and Family Welfare, Government of India; 2024 [cited 2026 Jul 20]. Available from: <https://nhm.gov.in/index1.php?lang=1&level=2&lid=218&sublinkid=822>
4. Manimegalai P, Kumar SV. A study to assess the knowledge regarding safe motherhood programme among antenatal mothers at SMVMCH, Puducherry. J Emerg Technol Innov Res. 2024 Jun;11(6):229-34.
5. Rai G, Pokharel N, Chaudhary K. Knowledge about birth preparedness and complication readiness among pregnant women attending antenatal clinic in B.P. Koirala Institute of Health Sciences, Nepal. Int J Health Sci Res. 2019 Aug;9(8):287-93.
6. Alatawi M, Faheem AW, Alabdulaziz H. Knowledge, Attitude, and Practice of Primigravida Women on Birth Preparedness. The Open Nursing Journal. Volume 15 2021, Pages 38-46 <https://doi.org/10.2174/1874434602115010038>
7. Abita, Zinie, Shikur, Zeru. Assessment of knowledge and practice on birth preparedness and complication readiness among women who gave birth in the last 12 months in southwest, Ethiopia 2016. Global

- Reproductive Health. 5(3): p e48, Winter 2020. | DOI: 10.1097/GRH.0000000000000048.
8. Akinwaare M, Oluwatosin A. Birth Preparedness and Complication Readiness among Pregnant Women Attending Antenatal Classes at Primary Health Center in Ibadan, Nigeria. *Open Journal of Obstetrics and Gynecology* (OJOG). 2019;09(10):1358–64. DOI:10.4236/ojog.2019.910131.
 9. Aziz MM, Shams RM, Allithy MA. Birth preparedness and complication readiness among antenatal care clients in Upper Egypt. *Sexual & Reproductive Healthcare.* 2020 Jun;24:100506. DOI:10.1016/j.srhc.2020.100506.
 10. Basavanthapa BT. (2007). *Nursing research.* Jaypee brothers Publication.
 11. Bhattacharya S, Dutta B, Mondal CS. Knowledge and Practice about Birth Preparedness and Complication Readiness (BPACR) Among Primigravida Women: A Cross-Sectional Study. *Journal of research development in nursing and midwifery (JRDNM).* ISSN 2588 – 3038. DOI: 10.29252/jgbfnm.19.7.14.
 12. Clement M, Mirembe EM, Deus T, Archbald B. Socio-Demographic and Maternal Determinants of Birth Preparedness among Pregnant Women Seeking Skilled Birth Services at a Rural General Hospital, Mid-Western Uganda. *Open journal of nursing.* 2019, 9, 68-77. DOI: <https://doi.org/10.4236/ojn.2019.91007>.
 13. Sharma SK. (2012). *Nursing Research and Statistics.* Elsevier
 14. Singh T, Tripathy B, Pandey AK, Gautam D, Mishra SS. Examining birth preparedness and complication readiness: a systematic review and meta-analysis of pregnant and recently delivered women in India. *National Library of Medicine.* 2024 Feb 14;24(1):119. doi: 10.1186/s12905-024-02932-4.
 15. Sodeinde JK, Amoran E, & Abiodun AO. Male Involvement in Birth Preparedness in Ogun State, Nigeria: A Rural/Urban Comparative Cross-sectional Study. *African Journal of Reproductive Health (OJRH).* 24(2):70. DOI:10.29063/ajrh2020/v24i2.7.
 16. Soubeiga D, Gauvin L, Hatem MA, Johri M. Birth Preparedness and Complication Readiness (BPCR) interventions to reduce maternal and neonatal mortality in developing countries: systematic review and meta-analysis. *BMC Pregnancy and Childbirth.* 2019 Apr 4;14(1).
 17. Varalakshmi K, Ushakiran, Sumithra R. A study to assess the knowledge regarding child birth preparedness among primi antenatal mothers in selected government maternity hospital, Tirupathi. *International Journal of Creative Research Thoughts (IJCRT).* Volume 12, Issue 3 March 2024 | ISSN: 2320-2882.
 18. Viswanathan TV, Patil SS, Joshi NR, Durgawale MP. Study to Assess Birth Preparedness and Complication Readiness to Promote Safe Motherhood among Women from a Rural Area of Western Maharashtra. *Indian journal of community medicine.* 45(4):511. DOI: 10.4103/ijcm.IJCM_4_20

Cite this article as: Lalnunpuii LP, Monika N, Sailo L. Assessment of antenatal mothers' knowledge regarding birth preparedness and complication readiness in selected areas of Aizawl, Mizoram. *Int J Reprod Contracept Obstet Gynecol* 2026;15:3937-42.