



## PREVALENCE OF PRETERM BABY AND ITS ASSOCIATED FACTORS OF PRETERM BABY IN SELECTED HOSPITAL, GUWAHATI, ASSAM.

**Ms. K. C. Malsawmtluangi**

M.Sc (N), Department of Pediatric Nursing SMCON, Assam down town University

**Mrs Nirmali Gogoi\***

Associate Professor, Department of Pediatric Nursing, SMCON, Assam down town University, Guwahati, Assam. Corresponding Author.

**ABSTRACT** **INTRODUCTION AND OBJECTIVES:** Birth of a baby less than 37 weeks of gestational age is known as preterm birth. Preterm babies have an increased risk of death in the first year of life (infant mortality), with most of the deaths occurring in the first month of life (neonatal mortality). The occurrence of complications, and mortality rate, were found to be higher in preterm infants as compared to those of full-term infants. So the aim of this study was to determine the prevalence of preterm baby and to identify the risk factors of having a preterm baby with its associated problems and also to find out the association between the prevalence of preterm baby with its demographic variables and risk factors.

**MATERIAL AND METHODS:** In this study, the research design adopted was descriptive design. The sample size was 60 post-natal mothers by using non probability convenience sampling technique. The tool used for the research study was demographic performa and Structure questionnaire.

**RESULTS AND ANALYSIS:** The result showed that the prevalence of preterm baby was 27(45%). Out of which majority 20(74.1%) were moderate to late preterm, 5(8.5%) were very preterm and 2(7.4%) were extremely preterm. Chi-square result showed that prevalence of preterm was significant with weight of the baby ( $\chi = 22.04$ ) and prevalence of preterm baby was significant with the hemoglobin level during pregnancy ( $\chi = 5.74$ ) at 0.05 level of significant.

**DISCUSSION AND CONCLUSION:** On the basis of the findings, the researcher concluded that most of the preterm births are moderate to late preterm and prevalence of preterm is associated with the weight of the baby and hemoglobin level during pregnancy.

**KEYWORDS :** Preterm baby, risk factors, weight of the baby, Hb% level during pregnancy, GMCH.

### INTRODUCTION

Birth of a baby less than 37 weeks of gestational age is known as preterm birth.<sup>1</sup> Preterm babies have an increased risk of death in the first year of life (infant mortality), with most of the deaths occurring in the first month of life (neonatal mortality). The occurrence of complications, and mortality rate, were found to be higher in preterm infants as compared to those of full-term infants.<sup>2</sup> So the aim of this study was to determine the prevalence of preterm baby and to identify the risk factors of having a preterm baby with its associated problems and also to find out the association between the prevalence of preterm baby with its demographic variables and risk factors.

Preterm birth is a major cause of neonatal morbidity and mortality worldwide. Classically defined as the birth that occurs before the 37th week of pregnancy, it is also the main responsible for deficiencies acquired after birth. Except for congenital malformations, 75% of perinatal deaths and 50% of neurological abnormalities are directly attributed to preterm. Factors like age >35, urinary tract infection in pregnancy, abruption-placenta, polyhydramnios, preterm rupture of membranes, intrauterine death, four or more uterine contractions in an hour before 37 weeks gestation, maternal smoking, diabetes mellitus and hypertension among pregnant women are risk factors that lead to preterm delivery.<sup>3</sup>

The main cause of neonatal morbidity and mortality and the occurrence of preterm birth are considered a complex public health condition. With variable incidence in several countries, it has grown markedly in the last decades.<sup>4</sup> Therefore, it is essential to establish the prevalence and causes of this condition in order to propose prevention actions.

### MATERIALS AND METHODS

A quantitative research design was adopted to conduct this study. All the post-natal mothers who delivered a live baby were included in the study. The sampling technique adopted and used for this research study was non probability convenient sampling technique. A demographic performa and a structured questionnaire were used as a tool for this study. The sample size was 60 and mothers who were selected for a sample were given each questionnaire to answer appropriately. The mother who were critically ill during the time of data collection, not available at the time of data collection and who are not willing to participate in the study were excluded from the research study. The

data collected was piled, tabulated and subjected to statistical analysis. Statistical analysis was done by manually and compared with SPSS windows analysis. Chi-square test was used to identify the significant level between preterm baby with demographic performa and between preterm baby with its associated risk factors at  $p < 0.05$  level of significant.

### RESULT AND DISCUSSION

#### Prevalence of Preterm baby

The prevalence of preterm baby in GMCH during the time of study was 27( 45%) out of 60 sample. Out of which majority 20(74.1%) of them were moderate to late preterm, 5 (18.5%) were very preterm and 2(7.41%) were extremely preterm. A similar study was conducted by Azam M, et al<sup>5</sup> in 2007, the result shows that 183(8.4%) were preterm baby, by Shrestha S, et al,<sup>6</sup> the result shows that 19.5% were preterm baby, by Parvati B, et al,<sup>7</sup> the result shows that 5.8% were preterm baby in Southern India and by Hannah B, et al<sup>8</sup> prevalence of preterm baby, the proportions of late, moderate and very preterm birth were 12.3%, 7.1% and 2.9% respectively, by Mazharul MI<sup>9</sup>, et al. in 2012, the result shows that 58% were preterm baby, by Carrie KSM<sup>10</sup> in 2012, in her study the result shows that 33% were preterm baby, by Jose MB<sup>11</sup> et al. in 2012, the result shows that 11.1% were preterm baby.

Out of 60 samples, majority 36 (60%) were male and 24 (40%) were female. With regard to weight of the baby, majority 17 (28.3%) were having baby more than  $\geq 2501$  gram, 16 (26.7%) were between 2001–2500 gram, 13 (21.7%) were between 1501 – 2000 gram, 12 (20%) were between 1001 – 1500 gram and 2 (3.3%) falls under 1000 gram respectively.

#### Association between the prevalence of preterm baby with socio-demographic variables

In analysis of association between the prevalence of preterm baby with socio-demographic variables shown that there was a significant association between the prevalence of preterm baby with weight of the baby at  $p < 0.05$ . (Table:1) But there was no significant association found with the gender of the baby, religion, number of siblings, mother's educational status, father's educational status, mother's occupational status, father's occupational status, types of family, family dietary pattern, family monthly income and antenatal counseling during pregnancy.

**Association between the prevalence of preterm baby with maternal factors**

Regarding the association between prevalence of preterm baby with maternal factors, found that the hemoglobin level during pregnancy was statistically significant with the prevalence of preterm baby at  $p < 0.05$ . (Table:2) But there was no significant association found with the age of the mother, antenatal clinic visit, parity, birth spacing, types of pregnancy, history of abortion, use of assisted reproductive technology (IVF), supplementary iron and folic acid, history of preterm delivery, physical and emotional stress during pregnancy, adequate rest during pregnancy, history of vaginal bleeding during pregnancy, history of periodontal disease, history of isoimmunization, illnesses during pregnancy, accidents and injury during pregnancy, history of risk behaviour, exposure to smoke, domestic violence during pregnancy, developmental anomalies of the fetus and neonatal illnesses. A similar studies conducted by Mayur B<sup>12</sup>, et al., the result shows that the risk factor for preterm birth is maternal anemia 68%, by Baig SA<sup>13</sup>, et al. in 2011, the result shows that maternal anemia, maternal weight and stress are among the risk factors of preterm birth, by Kelley SS<sup>14</sup>, et al. the increased of preterm birth is due to 72% of pregnant women with hemoglobin level between 10-12g/dL and 12% with hemoglobin less than 10g/dL, by Ulla W<sup>15</sup>, et al. the result shows that the risk factors of preterm delivery is hemoglobin level during pregnancy less than 12g/dL and hypertension.

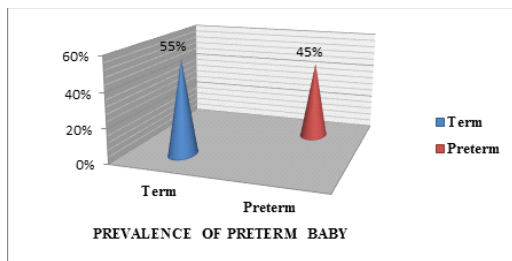


Fig. 1: Showing histogram of prevalence of preterm baby.

**Table 1: Significant association between prevalence of preterm baby with weight of the baby.**

Characteristic	Categories of newborn		Chi-square ( $\chi^2$ )	df	p value	Inference
	Preterm	Term				
Weight of the baby						
≤1000 gram	2	-	22.04	4	9.49	S
1001 – 1500 gram	12	1				
1501 – 2000 gram	6	6				
2001 – 2500 gram	4	12				
≥ 2501 gram	3	14				

Significant at  $p < 0.05$

**Table 2: Significant association between prevalence of preterm baby with hemoglobin level during pregnancy.**

Characteristic	Categories of newborn		Chi-square ( $\chi^2$ )	df	p value	Inference
	Preterm	Term				
Hemoglobin level during pregnancy						
<10g/dL	12	6	7.16	2	5.99	S
10-12g/dL	15	23				
≥ 13g/dL	-	4				

Significant at  $p < 0.05$

**CONCLUSION**

The present study was conducted to find out the prevalence of preterm baby and its associated risk factors of preterm baby among post-natal mothers with live baby at selected hospital, Guwahati, Assam. The prevalence of risk factors was 45% and it is associated with maternal illnesses like hemoglobin level during pregnancy.

Hence, it is necessary to improve the health status of the mother during pregnancy and to maintain a normal hemoglobin level during pregnancy.

**ACKNOWLEDGEMENT:** I would like to acknowledge the authorities of the organisation and the ethical committee for allowing me to conduct the study.

**Reference**

1. Preterm birth. Available from: <https://www.researchgate.net/publication/230595102>.
2. Medical definition of preterm. Available from: <https://academic.oup.com/epirev/article-abstract/15/2/414/440477>
3. Renato PJ, Ricardo PT, Sergio TM, Jose GC, Ruth G, Francisco EM, et al. Study on prevalence of preterm birth and associated factors [serial online]. 2008 [cited on 2017 July 22]; 10-22. Available at <http://bmc.pregnancy.childbirth.bi.omecdcentral.com/articles/10.1186/1471-2393-10-22>.
4. Preterm birth. Available from: <https://academic.oup.com/epirev/article-abstract/15/2/414/440477>.
5. Azam M, Susan S, Atusa K. A study to assess the prevalence of preterm neonates and risk factors in Asali Hospital in Khorram Abad. [serial online]. 2012 [cited on 2017 July 15]. Available at <http://www.ijn.mums.ac.IJN51521317414600.pdf>.
6. Shrestha S, Dangol SS, Shrestha M, Shrestha RP. A study to identify risk factors associated with preterm birth and to study morbidities and mortality. [serial online]. 2013 [cited on 2017 July 23]. Available at <http://www.ncbi.nlm.nih.gov/pubmed/22049892>.
7. Chytra RR, Lara EER, Parvati B, Veena K, Asha K, Vinod B. A study to identify the risk factors of preterm birth in a secondary care hospital in Southern India. [serial online]. 2014 [cited on 2017 July 25]. Available at <http://www.hindawi.com/journals/ism/2014/935982/>.
8. Hannah B, Simon C, Doris C, Mikkel O, Lale S, Moller AB, et al. Born too soon: The global epidemiology of 15 million preterm births. [serial online]. 2013, 10 [cited on 2017 July 13]. Available at <https://www.reproductive-health-journal.com/content/10/5/152>.
9. Mazharul MI, Khalid A, Mohamed A. Maternal and Neonatal Factors Influencing Preterm Birth and Low Birth Weight in Oman. [serial online]. 2007 [cited on 2017 July 14]. Available at: [http://www.researchgate.net/publication/258912670\\_Maternal\\_and\\_Neonatal\\_Factors\\_Influencing\\_Preterm\\_Birth\\_and\\_Low\\_Birth\\_Weight\\_in\\_Oman](http://www.researchgate.net/publication/258912670_Maternal_and_Neonatal_Factors_Influencing_Preterm_Birth_and_Low_Birth_Weight_in_Oman).
10. Carrié KSM, Eve ML. A study on Epidemiology of late and moderate preterm birth in NE hospital in Atlanta. [serial online]. 2012 [cited on 2017 Jan 22]. DOI: <http://dx.doi.org/10.1016/j.siny.2012.01.007> [07.01.2012; 22.01.2017]. Available at [http://www.sfnjournal.com/article/S1744-165X\(12\)00008-X/abstract](http://www.sfnjournal.com/article/S1744-165X(12)00008-X/abstract)
11. Jose MB, Justus H, Pierre B, Natasha S. Preterm birth; an unresolved issue. [serial online]. 2013 Nov 15 [cited on 2017 July 16]. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3842828/>
12. Mayur B, Bela S, Sucheta M. A study of Risk Factors for Preterm Neonates. [serial online]. 2012 [cited on 2017 July 24]. Available at <http://scholar.google.co.in/scholar?q=study+risk+factors+for+preterm+neonates+Mayur+Bavaliya>.
13. Baig SA, Khan N, Baqai T, Fatima A, Karim SA, Aziz S. Preterm birth and its associated risk factors. Europe Journal of Pakistan Medical Association. [serial online]. 2013.01.03 [cited on 2017 July 5]; 63(3):414-418.
14. Kelley SS, Ray Y, Laura AS and Cogswell LP. to examine the association of maternal hemoglobin during pregnancy with preterm birth. American journal of Paediatrics [serial online]. 2010 [cited on 2017 July 23]. Available at <http://www.sfnjournal.com/article/fulltext>.
15. Ulla W, Ingegard H, Christine H. A longitudinal cohort study to assess the prevalence and risk factors of preterm baby. [serial online]. 2013 [cited on 2017 July 23]. Available at <http://www.ncbi.nlm.nih.gov/pubmed/295769892>.
16. Gray JR, Grove SK, Sutherland S. Practice of nursing research. 8th ed.
17. Sharma SK, Nursing research and statistics; 2nd ed; Reed Elsevier India Private Limited, New Delhi.
18. George JB, Nursing theories. 1st ed. Julie Levin Alexander. New Jersey 07458.
19. Polit, Denise F, Beck T, Nursing Research. 7th ed. 2004. Philadelphia. Lippincott William and Wilkins. p. 51-2.