

Original Research Article

A Study on Newborn Complications due to Delivery Process in Hospitals of Rupandehi District, Nepal

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ABSTRACT

Background: Infant and under-five mortality rates in the past five years are 46 and 54 deaths per 1,000 live births, respectively. At these mortality levels, one in every 22 Nepalese children dies before reaching age 1, and one in every 19 does not survive to his or her fifth birthday. ^[1] The objective of this study is to identify the newborn complications in vaginal delivery and LSCS.

Materials and Methods: A descriptive study was conducted in two selected hospitals of Rupandehi district, Nepal. Data was collected as per pretested structured per forma from 550 respondents randomly and was analysed by using SPSS, Manova and Chi square test to determine association between categorical variables.

Results: The results of the study showed that 34.5 per cent of the respondents had newborn complications during delivery in which major complication was low birth weight that is 7.4 per cent. Majority of the respondents had vaginal mode of delivery that is 74.2 per cent, and 25.8 per cent had LSCS,

Conclusion: There is significant relation between mode of delivery and newborn complications. Most of the respondents had the newborn problem like low birth weight, respiratory distress, and fetal distress. Newborn complications were higher among LSCS compared to vaginal delivery.

Key words: Newborn complication, mode of delivery.

INTRODUCTION

In many developing countries, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age. Each year, almost 8 million stillbirths and early neonatal deaths occur. In addition to maternal death, more than 50 million women experience, maternal health problems annually. One quarter of all adult women living in the developing world currently suffer from short or long term illnesses and injuries related to pregnancy and childbirth. ^[2]

The most common causes of neonatal deaths are preterm birth complications, newborn infections and birth asphyxia. They account for over 80% of all global neonatal deaths. A newborn baby who is born preterm or has a potentially life-threatening problem is in an emergency situation requiring immediate diagnosis and management. Delay in identification of the problem or in providing the correct management may be fatal. ^[3]

Nepalese children under age five face multiple obstacles for survival and development. Exposure to infectious diseases, malnutrition, and poor hygiene and

sanitation and lack of a healthy environment compromise early childhood development. In addition, a mother's nutritional status during pregnancy and her general well-being impact the health of her child during pregnancy as well as after delivery. [4]

Complications like birth injury, meconium aspiration, cord prolapse, fetal distress, eye infection, neonatal jaundice, neonatal septicemia, low Apgar score, low birth weight, congenital anomalies, birth asphyxia, increased or decreased FHS etc are seen on the new born. This implies that every delivery should be monitored regularly, and the complications should be detected early and treated accordingly.

Nepal is relatively a small country with 1, 47,181 sq km area and a population of about 27 million. In Nepal maternal health is a crucial part of the health care delivery system of the nation, with special focus on reducing the morbidity as well as mortality. Complications of delivery process are also one of the leading causes of maternal and neonatal mortality and morbidity in Nepal. [5]

Objectives:

- To determine the delivery complications on the newborn.
- To compare the complications of normal delivery and Caesarean Section on the newborn.

Hypothesis 1

- **Null hypothesis H_0 :** There exist no relation between age, education, BMI and newborn complications.
- **Alternative H_1 :** There exist relation between age, education, BMI and newborn complications.

Hypothesis 2

- **H_0 :** Newborn complications are higher among vaginal delivery.
- **H_1 :** Newborn complications are higher among LSCS.

Justification:

Nepal is a country where many children die due to newborn complications every year. Though many developments and technologies have been built but the people are deprived of such facilities and are bound

to face many complications during obstetric period. The perinatal mortality rate (PMR) is used as an indicator of the quality of antenatal and perinatal care provided to pregnant women and newborns. The neonatal mortality rate (NMR) and rate of stillbirth in Asia consists of 40/1000 live births and 28/1000 births respectively. [6] Rupandehi district is one of the largest district where 18 hospitals with delivery facility are available and the tertiary hospital of this district covers all the district of Lumbini zone including some south west part of Shyanja district of Gandaki zone, southern parts of Parbat and Baglung district of Dhaulagiri zone, whole part of Pyuthan district of Rapti zone and half parts of Rukum, Rolpa and Dang district of Rapti zone. The hospital catches about 4 million population and 13 districts of western part of Nepal. [7] Though maternal and child health care being a global concern, not much study has been conducted on newborn complications associated with mode of delivery, our study will aim to explore it.

METHODOLOGY

A hospital based descriptive study was conducted among 550 mothers in selected hospitals of Rupandehi district, Nepal. Mothers of all age group were included among which majority were from 25-29 years of age.

Sampling Technique:

1st Stage: Rupandehi District was selected purposively because; Rupandehi District is one of the terai districts where most of the delivery occurs.

2nd Stage: There are 18 Hospitals in Rupandehi district where delivery occurs. Purposively 2 hospitals were selected. They are Lumbini zonal hospital and Butwal hospital private limited.

3rd Stage: Newborn was selected from hospitals delivered normal as well as caesarean section randomly till the completion of sample size.

Tools and technique of Data collection: A set of structured questionnaire was used for data collection.

Data collection: Data was collected with the help of questionnaire as well as direct interview by the researcher and was analysed using SPSS, Manova and Chi square test to determine association between categorical variables.

Ethical Consideration: Ethical clearance was obtained from the Institute, SHIATS, and Allahabad and also from Nepal Health Research Council, Kathmandu, Nepal. Approval was also taken from authorities of Hospitals. Respondents were fully informed about objectives of study and verbal consent was taken before data collection.

RESULTS AND DISCUSSION

Table 01 shows that the majority of respondents belonged to age group 25-29

years that is 37.6 per cent followed by age group 20-24 years that is 29.1 per cent and very less were above 35 age group that is 4.5 per cent.

Table 02 shows that using multivariate test $P < 0.05$, null hypothesis is rejected and alternative hypothesis is accepted that is there exist association between age, education BMI and neonatal complications.

Table 1: Age wise distribution

Age(yrs)	Frequency	Percentage
15-19	10	1.8
20-24	160	29.1
25-29	207	37.6
30-34	148	26.9
>35	25	4.5
Total	550	100.0

Table 2: Association between education, B.M.I., age and neonatal complication

	Effect	Value	F	Hypothesis df	Error df	Sig.
Neonatal complication	Pillai's Trace	.018	3.310 ^a	3.000	546.000	.020
	Wilks' Lambda	.982	3.310 ^a	3.000	546.000	.020
	Hotelling's Trace	.018	3.310 ^a	3.000	546.000	.020
	Roy's Largest Root	.018	3.310 ^a	3.000	546.000	.020

$P < 0.05$, Significant

Table 3: Association between mode of delivery and Newborn complication

Mode of delivery	Neonatal complication		Total
	With complication	Without complication	
Vaginal	21.1%	53.1%	74.2%
LSCS	13.5%	12.4%	25.8%
Total	34.5%	65.5%	100.0%

$\chi^2 = 26.12$ Level of significance = 0.05% for 1 df $P < 0.05$, there is relation, Significant.

Table 4: Newborn complication during delivery wise distribution

Newborn Complications	Percentage
Birth injury	2.2
Meconium aspiration.	1.8
Cord prolapse	0.6
Fetal distress	6.2
Eye infection	0.5
Neonatal jaundice	4.2
Low apgar score	2.7
Cephalohematoma	0.9
Low birth weight	7.4
Congenital anomaly	0.9
Preterm	1.1
Hypothermia	0
Neonatal death	3.8
Respiratory distress	6.3
NO Complication	65.5

Table 03 shows that as there is relation, alternative hypothesis is accepted that is neonatal complications are higher among LSCS compared to vaginal delivery.

Table 04 that majority of respondents had the newborn complication of low birth weight that is 7.4 percent followed by respiratory distress and fetal distress that is 6.3 and 6.2 percent respectively and then neonatal jaundice that is 4.2 percent and minority of respondents had the problem of eye infection that is 0.5 percent, cord prolapsed 0.6 percent. 65.5 percent of respondents did not have any complications.

DISCUSSION

Though the delivery process is an important event but underlies different complications that affects the health of mother and new born which can even lead to maternal and neonatal death. Considering all these things a study was done to find out the complications of newborn due to delivery process in selected hospitals of Rupandehi district, Nepal with an objective, to determine the delivery complications on the newborn and to compare the complications of normal delivery and Caesarean Section on the newborn.

In this study it was found that more than half of respondents belonged to 20-30 years of age and very less were above 35 years of age and under 20 years of age. It was so because this is the age of marriage and most fertile age group for women. Nepal demographic and health survey (2011) shows that there has been a marked increase in median age at marriage among women over the last 15 years, from 16.4 years in 1996 to 17.8 years in 2011. This is another clear indication of a continuing shift to later marriage in Nepal. The percentage of women married by age 15 declines from 24 percent to 5 percent among those ages. [1] Also there exist association between age, education BMI and neonatal complications while using multivariate test. It was also found that majority of respondents had the newborn complication of low birth weight that is 7.4 percent followed by respiratory distress and fetal distress that is 6.3 and 6.2 percent respectively and then neonatal jaundice that is 4.2 percent. A study by the Agency for Healthcare Research and Quality (2011) found that of the 3.8 million births that occurred in the United States in 2011, approximately 6.1% (231,900) were diagnosed with low birth weight (<2,500 g). [8] Similarly, Indian Journal of maternal Child Health (1996) reported that the incidence of *neonatal respiratory distress* (RD) ranges from 2.2% to 7.6% in developed countries and from 0.7% to 8.3% in India. [9] Also, Dellinger (2000) reports that there was high incidence of fetal distress (6.8%) of cesarean delivery at ≥ 36 weeks primarily for non-reassuring fetal heart in labor, when cross tabulating the result was significant and was higher among LSCS. [10] Also the overall neonatal complications were higher among LSCS compared to vaginal delivery.

CONCLUSION

The present study concluded that majority of respondents had vaginal delivery that is 74.2 percent and 25.8 percent of respondents had Lower segment Cesarean Section. Present study also

showed that education, BMI and age have direct effect on newborn complication. Similarly, majority of respondents had the complication of low birth weight that is 7.4 percent followed by respiratory and fetal distress that is 6.3 and 6.2 percent respectively and then neonatal jaundice that is 4.2 percent. And also there was association between newborn complications and mode of delivery, that is newborn complications were higher in LSCS compared to vaginal delivery.

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