

DETERMINANTS OF NEONATAL MORBIDITY IN NABARANGPUR DISTRICT OF ODISHA



Community Medicine

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ABSTRACT

AIM: The newborn health has taken the attention of the policy makers, which has brought about political sense of duty with regard to reduce preventable neonatal mortality and neonatal morbidity. Understanding the significance of recognizable proof of neonatal morbidities, there can be quickened decrease in neonatal mortality. This study was conducted in Nabarangpur district to find the prevalence of neonatal morbidities.

MATERIAL AND METHODS: To understand the factors associated with neonatal morbidities a semi structure questionnaire was developed for 280 mothers that delivered live babies within a period of 3 months. Simple random sampling technique was used to select the sample randomly from the Birth Register available in the municipal office. Descriptive statistics were reported and Chi-square test was used to analyze the data.

RESULTS: Almost half of the neonates (49.6%) in the study were reported to have a morbid condition. Low birth weight (40%) was the most common reported morbidity followed by respiratory infections (29.3%). The mothers those who had not consumed iron and folic acid tablets, had reported more number of neonatal morbidities (52.9%). The result shows that the history of ailments and treatment during current pregnancy has association with neonatal morbidity, as it is statistically significant ($p < 0.05$).

CONCLUSION: The information about neonatal morbidity was subjective on the symptoms that are considered serious by the mother. Most of the morbidities are preventable at the very early stage. Simple, inexpensive and basic approaches can be followed to reduce the occurrence of morbidities in the neonates.

KEYWORDS

Neonatal; morbidity; low birth weight; prevalence.

INTRODUCTION

Neonatal morbidity is defined as a disease condition or state during first 28 days of life.¹ Twenty five million babies are born every year, and one million newborns die accounting for 25% of neonatal mortality.² As stated by National Family Health Survey-3 (NFHS-3), the Neonatal Mortality Rate is 39 per 1000 live births that accounts for nearly half 55% of Under-Five Mortality Rate (74 per 1000 live births).³ Reducing nearly two third of deaths of children below five years of age by 2030 is one of the important goals of United Nation Sustainable Development Goal.⁴ Understanding the significance of recognizable proof of neonatal morbidities, there can be quickened decrease in neonatal mortality. Identification of neonatal morbidities can reduce the neonatal mortalities in the country. Moreover the immunity of the newborns is very poor as a result they are exposed to many preventable diseases. An important contributing factor noticed for health development is the accessibility and availability of quality health care services. It has been seen there is a vast difference in the health care services provided in rural and out to reach areas. This had led to increase in new born sickness and deaths in the country.⁴ In India there had been a reduction in seeking antenatal and postnatal care as majority of the deliveries are home based.⁵ Weight of neonatal mortality is mainly found in the developing nations where the approach to neonatal wellbeing is extremely poor.⁶ Among 4 million neonatal mortality that occurs every year, it is reported that 98% of neonatal mortality happens in poorest of the nations. In India as 1.72 million deaths happen annually before they could reach their first birthday and 72% of neonatal deaths is seen during the first month of life.^{7,8} The aim of the present study was to determine the prevalence of neonatal morbidities and to study the factors associated with neonatal morbidity.

MATERIAL AND METHODS

The study was conducted in the rural areas of Nabarangpur district of Odisha. The present study adopted a cross sectional study design and was conducted from January 2017- June 2017. Mothers who were willing to participate and between age of 18-45 years who have history of live births since November 2016 were included in the study. Simple

random sampling technique was used to select the sample of 280 females randomly from the Birth Register available in municipal office.

Ethical clearance for the study was procured from the Institutional Ethics Committee, Kasturba Medical College, a tertiary care center in Manipal. (IEC 864/2016). Written consent was taken from all the participants before commencement of the study and the confidentiality of the study participants was maintained throughout the study.

After obtaining the ethical clearance from the data collection was initiated for a period of 3 months. The mothers were identified from the birth register available in the Municipal Office in Nabarangpur district with the Tahsildar. Simple random sampling technique was used to randomly select the mothers from the birth register. After collecting the address of the mothers, the ASHA workers allocated for that area were accompanied for data collection from house to house. A semi-structured questionnaire was used for collecting the data. Maternal and child health card was used to check the immunization details and the weight of the baby at birth. Information on neonatal morbidity was verbalized by the mother and the ASHA worker. With the help of the semi-structured questionnaire, information on morbidity experienced by the newborn within one month of birth and on subsequent use of health services was sought by the mothers. Information regarding care was sought from health personnel such as doctors, nurses, ASHA worker, anganwadi workers, ambulance facilities, services and programmes related to mother and child health, or any village practitioner such as untrained village doctor, homeopath, spiritual healer (considered medically unqualified) spiritual beliefs was obtained. Mothers were asked if they visited any health care facility in government or private sector for the treatment of the neonate. A semi structured questionnaire was made and validated by the experts in the field. The domains included in the study were:

1. Demographic data
2. Gynaecological history
3. Antenatal history
4. Intranatal history
5. Neonatal history of any morbidities.

Data were analyzed using the SPSS 16 software. Descriptive statistics were reported and Chi- square test was used to analyze the data.

RESULTS

Almost half of the neonates (49.6%) in the study were reported to have a morbid condition. Low birth weight (40%) was the most common reported morbidity followed by respiratory infections (29.3%), diarrhea (7.9%), skin infection (6.4%), jaundice (5.4%), umbilical cord infection (5%), fever (4.3%), birth asphyxia (2.5%) and eye infection (2%) (Graph 1). 88% of the mothers of the neonates, who had problems, sought care for their neonates and the rest neglected the visit or visited some untrained doctors and spiritual healers.

The mean age of mother interviewed on the current birth is 23.25±4.27 years. The age at first parity of the mothers were found to be at 18.36±2.61 years. The study sample comprised of mothers who were all hindus and majority belonged to schedule tribe (59.3%), schedule caste (21.4%) and other backward caste (OBC) (19.3%). The majority of the families were from the agricultural sector (51.8%) followed by laborers (coolie) (37.5%). The most common pattern of families were joint families (59.6%) followed by nuclear families (40.4%). It was found that 65% of mothers had never been to school. The families follow patriarchal society norms where the decision is taken by the eldest male in the family. The decision makers in the families were the father-in-law and husband, who decided on all the matters related to economy, food, housing and health care seeking behavior. Majority of them reside in kutcha houses (89.6%) and only 10.4% of families had pucca houses. The ANC coverage of antenatal mothers was 100% and the compliance of iron and folic acid consumption for the mothers were 63.6%. The myth for not consuming IFA tablets were that the baby would become big and they will be forced to go for institutional delivery (Table 1).

Table 1: Sociodemographic characteristics of the study population

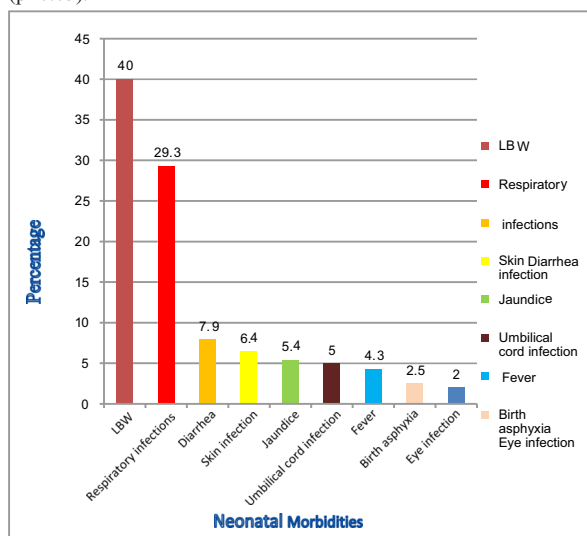
Demographic variable	Frequency	Percentage
1.Age of mother (in years)		
Less than 18	29	10.4
19 – 25	178	63.6
26 – 30	61	21.8
More than 30	12	4.3
2.Religion		
Hindu	280	100
3.Caste		
Schedule caste	60	21.4
Schedule tribe	166	59.3
OBC	54	19.3
4.Type of family		
Nuclear family	113	40.4
Joint family	167	59.6
5.Education Level of mother		
Never went to school	182	65
1 – 5 class	39	13.9
6- 12 class	57	20.4
College education	2	0.7
6. Occupation of mother		
House wife	275	98.3
Working	1	0.4
Laborer	4	1.4
7.Occupation of father		
Farmer	145	51.8
Laborer	105	37.5
Shopkeeper	8	2.9
Driver	14	5
Unemployment	1	0.4
Working	7	2.5
8.Type of housing		
Pucca	1	0.4
Kutcha	251	89.6
Semi – pucca	28	10

Table 2: Factors associated with neonatal morbidity

Variable	Neonatal Morbidity – YES (%)	Neonatal Morbidity- NO (%)	p Value
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1. Type of family			
Nuclear Family	53(46.9%)	60(53.1%)	0.46
Joint family	86(51.5%)	81(48.5%)	
2.Education of mother			
Never went to school	89(48.9%)	93(51.1%)	
Attended schooling	50(51.0%)	48(49%)	0.8
3. Type of Housing			
Kutcha	120(47.8%)	131(52.2%)	0.08
Semi Pucca	19(65.5%)	10(34.5%)	
4.Total no. children including current issue			
Less than 2 children	94(49.2%)	97(50.8%)	0.8
More than 2 children	45(50.6%)	44(49.4%)	
5. Family Planning device last used/currently used			
FP(Temporary/Permanent)	15(57.7%)	11(42.3%)	0.4
No	124(48.8%)	130(51.2%)	
6.History of Abortion			
Yes	13(50%)	13(50%)	1
No	126(49.6%)	128(50.4%)	
7. IFA tablets			
Did not consume	54(52.9%)	48(47.1%)	
Consumed	85(47.8%)	93(52.2%)	0.46
8. History of ailments and treatments during current pregnancy			
Yes	9(81.8%)	2(18.2%)	0.03
No	130(48.3%)	139(51.7%)	
9. Term pregnancy			
Before 37 weeks	4(50%)	4(50%)	0.63
After 37 weeks	135(49.6%)	137(50.4%)	
10. Place of delivery			
Home	32(55.2%)	26(44.8%)	0.37
Institutional	107(48.2%)	115(51.8%)	
11. Type of Delivery			
FTND	87(51.8%)	81(48.2%)	0.54
Episiotomy Referred-caesarean	41(48.2%)	44(51.8%)	
	11(40.7%)	16(59.3%)	

History of ailments and treatment during current pregnancy (hypertension, diabetes) was found to be statistically significant ($p<0.05$).



Graph 1: Distribution of the types of neonatal morbidities reported among the participants

Factors associated with reported neonatal morbidities (Table 2)

The use of contraception in the families was (57.7%) in the respective sample. The compliance with the consumption of iron and folic acid is very poor. The mothers those who have not consumed iron and folic acid tablets, have reported more number of neonatal morbidities (52.9%). Almost half of the neonates (53.9%) were of low birth weight for the mothers who have not consumed iron and folic acid. It is seen

that 9.3% of women reported history of spontaneous abortion in their early pregnancy. Almost 48.9% of the participants who did not go to school had neonates with morbidities. Majority of the mother underwent institutional deliveries (79.3%) followed by home deliveries (20.7%). The home deliveries were conducted by untrained dias and family members. The result shows that history of ailments and treatment during current pregnancy has association with neonatal morbidity, as it is statistically significant ($p < 0.05$).

DISCUSSION

A study - four million neonatal deaths- When? Where? And Why? was conducted to analyze different factors related to neonatal mortality. The extent of mortality that happens in the neonatal period (38% in 2000) is expanding, and the Millennium Development Goal for newborn existence can't be met in absence of generous decreases in neonatal mortality. Consistently an expected 4 million infants die in the initial 4 weeks of life (the neonatal period). This review addressed the three principle reasons of neonatal mortality on the planet. 38% of mortality in newborn is more as compared to children more than 5 years emerge in the primary month of life. Between a quarter and half of all the neonatal mortality occurs inside 24hrs of life. 75% of neonatal mortality emerges in the main week of life. 99% of people die on in low salary and center wage nations. Two thirds of deaths happen in just 10 nations particularly after home birth. The major direct reasons for neonatal deaths all around are diseases (36%), preterm (28%), and asphyxia (23%). Maternal factors, particularly amid labor, convey a high danger of neonatal demise. Disposal of the mortality hole between the wealthiest and poorest inside nations in sub-Saharan Africa and inside three south Asian nations could deflect right around 0.75 million deaths.

The current study was conducted to find the prevalence of different neonatal morbidities in Nabarangpur district of Odisha and factors associated with neonatal morbidity. The variables that were included to find out the association between neonatal morbidities were the age of the mother, type of family, education of mother, type of housing, total number of children, use of family planning techniques, history of abortion, consumption of IFA tablets, history of ailment and treatment during current pregnancy, duration of pregnancy, place of delivery and type of delivery. The information was mainly subjective and was dependent on the symptoms that were considered serious by mothers.

Almost half (49.6%) of the neonates were reported to have at least one morbidity and only 88% of the mothers sought care for the morbidity. Types of neonatal morbidities reported were low birth weight (40%), respiratory infections (29.3%), diarrhea (7.9%), skin infection (6.4%), jaundice (5.4%), umbilical cord infection (5%), unexplained fever (4.3%), birth asphyxia (2.5%) and eye infection (2%). A similar study was conducted in Gadchiroli, India. 10 This study had a sample size of 274, where it reported the neonatal morbidities as umbilical cord infection (29.3%), unexplained fever (5.5%), jaundice (1.7%), low birth weight (34.6%), skin infection (17.2%), respiratory infections (29.9%), diarrhea (5.8%), birth asphyxia (13.5%), and eye infection (13.9%). This shows that the health of the neonates are neglected in hard to reach areas and attention should be provided to reduce the morbidity in order to reduce the mortality. The extent of morbidities and brief occurrence of morbidities can be avoided by better neonatal home care practices. Explanations or the reasons behind neonatal morbidities reveal some interesting facts: 11-13

1. Respiratory infection- The most common reported morbidity is respiratory infection that accounts for 29.3% of the neonatal morbidity. The symptoms of cough or nasal discharge more than 3 days, are suggestive of respiratory infections. This can be due to:

- (a) Disease transmitted to infant in view of expanded human contact for the most part after the primary week when isolation is required.
- (b) Increased household crowding and indoor smoke inhalation also contribute to neonatal morbidity. Not feeding colostrum also decreases the neonates immunological protection.

2. Diarrhea- Almost 7.9% of the neonates reported diarrhea. As observed the purposes behind neonatal diarrhea were most likely because of poor cleanliness and absence of hand washing, absence of cleaning of breast before feeding and more number of individuals taking care of the infant is a portion of the significant explanations behind diarrhea in neonates

3. Skin infection and umbilical cord infection- The skin infection

and umbilical cord infections in neonates accounts for 6.4% and 5% respectively. The reason behind this is lack of hygiene, skin care and traditional methods of cord care. Hygiene includes clean clothing, bathing, clean environmental hygiene and keeping the neonates warm. The customary strategy for applying spider web on umbilicus cord for drying, and tying unhygienic string on umbilicus at the time of cord cutting propose the source of disease origin. It is additionally watched that in the instances of home deliveries there is delay in cord cutting related with a false conviction that the cord ought not be expelled until the placenta is out, it may bring about misplacement of the placenta in the uterus.

4. Unexplained Fever- Fever not accompanied with any clinical features of cough, diarrhea, sepsis etc. is defined as unexplained fever. This can be explained as inability of the neonate to cope up with the new environmental condition which includes the temperature and hygiene and the delay in initiation of breast milk.

5. Eye Infection- This accounts for 2% of neonatal morbidity. Indoor smoke and unhygienic eye care practices are some of the observed reasons for eye infections. Unhygienic eye care practice includes cleaning the eyes with unclean clothes and not practicing proper hand washing.

6. Low birth weight- 40% of neonates reported low birth weight. The reason behind this is 36.4% of the mothers did not take IFA tablets during their antenatal period assuming that IFA tablets causes the baby to become big, and a reason they have to go to hospital for deliveries.

In the study, 222 (79.3%) of mothers had institutional deliveries and 58 (20.7%) of the mothers had home deliveries. Home deliveries are mainly conducted by untrained dias and the elderly females in the family. The place for newborn delivery is mainly decided by the head of family. The major decisions in the family were taken by husband and father-in-law (52.1%). The dias in the villages are easily available and the decision of the family are found to be the main reasons for home deliveries. Soon after the delivery, the baby is dried and wiped gently and later provided with a bath with lukewarm water, applying oil and scrape of the vernix from the neonate, which was considered as a cleaning procedure. It was seen that vernix removal is done for the home deliveries and institutional deliveries. A study that was conducted on neonatal care practices in a tribal community of Odisha where it discusses about the traditional patterns involved in neonatal care also shows similar findings. 14

Sankar M et al., conducted a study where the goal of the systematic analysis was to decide the timing of comprehensive and definite source of neonatal deaths in developing nations. 22 researches were incorporated in the study. The outcome of the study states that 62% of neonatal mortality occurs between birth till three days, reports for two-third of the mortality. Majority of deaths was seen due to asphyxia (98.2%), prematurity (83.2%), and the other deaths were related to sepsis and prematurity. 2

A retrospective study was conducted by Rakholia et al., to study the demographic profile and identify the trends of neonatal morbidity and deaths in a teaching hospital of Uttarakhand. Among 721 neonates admitted 63.25% neonates were males, and 53.54% were out born and 46.46% inborn. Approximately, 60% were low birth weight and 50% preterm. The chief morbidities identified were jaundice (12.9%), sepsis (19%), asphyxia (16.37%) and respiratory infection (21.9%). Sepsis (21.6%), asphyxia (19.5%), respiratory infections (17.3%) and prematurity were statistically high as compared to inborn. Total 20.5% neonates died due to poor outcome of out born neonates. 15

The mean age of the mothers interviewed on the current birth is 23.25 ± 4.27 years. The age at first parity of the mothers was found at 18.36 ± 2.61 years. It is because majority of the girls soon after reaching their puberty were married and as a result when they reach in the age group of 19-25 years, they have more than 2 children (32.7%). The use of contraception in the families is (57.7%) in the respective sample. The reason observed is, they are not aware about the contraception and they want to have more children in order to increase the manpower working in the field and desire for a male child. The consistence with the utilization of iron and folic acid is exceptionally poor. The mothers those who have not consumed iron and folic acid tablets, have reported more number of neonatal morbidities (52.9%). The myth associated with this is, if they consume the tablet, the baby will become big and it will be difficult during labor, as a result almost half of the neonates

(53.9%) were of low birth weight for the mothers who have not consumed iron and folic acid. The IFA tablets are provided to the ANC mothers, but the rate of consumption is very low because of the smell of the tablets and the false myth. It is seen that 9.3% of women reported history of spontaneous abortion in their early pregnancy. Almost 48.9% of the participants who did not go to school had neonates with morbidities.

About 20.7% of the mothers underwent home deliveries. It is because the people living there are economically poor. If they go for hospital deliveries, they have to spend money on the travel and treatment and the health personnel demand for money. In order to save money, they conduct home deliveries by some untrained dias or elderly women in the family. When the delivery is difficult, they take the mother to the nearest health care center. The facilities for transportation, even the ambulance facilities are not available in the interior villages because of the roads and the ambulance people demand for money for their service. There are others reasons for home delivery like the quality of health service provided is not satisfactory, the behavior of the health personnel towards the families, the unavailability of health personnel at the health care center and the cultural belief of home delivery. People are mainly not aware of the services being provided by the government except the fact that they are provided with cash benefits for first two deliveries. Moreover, the mothers change their age to avail the cash benefits.

Based on the findings, it is observed that in the tribal community, the pregnant women keep distance with the health care system. As a result they tend to receive improper antenatal and post natal care. Ethnographic understanding of the community traditions and modifying the practices without hurting their beliefs and sentiments, should be encouraged. Intense counseling should be provided to the eligible couples so that the health of the mother is maintained from the beginning and neonatal health also improves. It should mainly involve community participation where the community is motivated to improve the health. In addition, proper education at the village level and the mobilization of the community health workers can be useful in improving the health of the tribal women and newborn babies.

CONCLUSION

Nearly half of the study population was observed to have neonatal morbidity of 49.6%. Major points to be considered are

- (1) Importance of first week and mainly the first 28 days of life of neonatal period wherein many of the considered morbidities are condensed.
- (2) Most of morbidities observed are obtained post-natally from the habitat.
- (3) The variation in the neonatal morbidities is also seen because of community neonatal care practices.

Proper health awareness and repeated home visits by trained health workers and periodic training of health care staffs can reduce the proportion of neonatal morbidities. The need of the hour is to reduce the neonatal morbidities in the communities by emphasizing on the modification of the neonatal home care practices without hurting the traditions and beliefs of the tribals.

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