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**Original Article**

# Neonatal Disease Distribution and Admission Outcomes at the District Hospital DADU, Sindh

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## ABSTRACT

The most vulnerable time for a newborn is during the neonatal period. The important factors affecting neonatal mortality during the first 28 days of life include poor antenatal care for mothers, inadequate treatment during birth, or lack of skillful care. With a rate of 48 per 1000 live births, Pakistan is ranked third in the world. This is because it accounts for 7% of all neonatal deaths globally. In Pakistan one in every 22 newborns dies within the first month of life. **Objective**: To evaluate the frequency and distribution of neonatal morbidity patterns and admission outcomes in district hospital Dadu, Sindh, Pakistan. **Methods:** A descriptive cross-sectional study was conducted at the Civil Hospital Dadu which is a district hospital in Sindh. The data was obtained in 2020. Using universal sampling method, neonates' gender, age at the time of the birth, disease patter and admission outcome were recorded. Data was analyzed in Microsoft Excel 2010. **Results:** Out of total 1637 admitted neonates there were 411(25.1%) case of sepsis, BA 17.16%, preterm 14.9%, LBW 13.81%. Amongst, 789 (48.1%) were discharged after improvement, and 251(15.3%) neonates died. **Conclusions:** Less than half of the newborns who were admitted could improve during the admission. More than 15% of newborn deaths are alarming. The policymakers should take action to reduce early neonatal mortality by effectively managing neonatal illnesses.

## INTRODUCTION

The most vulnerable time for a newborn is during the neonatal period [1]. The important factors affecting neonatal mortality during the first 28 days of life include poor antenatal care for mothers, inadequate treatment during birth, or lack of skillful care. The great majority of neonatal deaths occur in low- and middle-income nations as a result of diseases that can be prevented and treated [2]. Prematurity, infection and birth asphyxia are the main causes of neonatal fatalities [3, 4]. These factors account for over 80% of newborn fatality causes [5]. In the meanwhile, some of the aforementioned causes could be avoided. Lack of cooperation between paediatricians and obstetricians at the hospital is one of the potential causes of the high neonatal mortality rate. India, Pakistan, and Nigeria are the three countries with the highest rates of newborn death [2]. According to reports, the main causes

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of neonatal mortality in developed regions of the world are prematurity and congenital malformations, while birth asphyxia and sepsis are the main causes in developing countries [6]. With a rate of 48 per 1000 live births and a total of 298000 newborn fatalities in the country per year, Pakistan is ranked third in the world. This is because it accounts for 7% of all neonatal deaths globally [7, 8]. According to estimates, 130 million newborns are born every year; regrettably, 4 million of them pass away in the first 28 days of life [2]. About half of all newborn deaths take place within the first 24 hours of life. The most sensitive indicators of the availability, use, and value of maternity and paediatric healthcare services are neonatal mortality [9]. In Pakistan, there are more neonatal deaths than elsewhere because one in every 22 newborns dies within the first month of life [10]. This study was aimed to determine the morbidity patterns and admissions outcomes of admitted neonates at district hospital Dadu, Sindh.

## METHODS

A descriptive cross-sectional study was conducted at the Civil Hospital Dadu which is a district hospital in Sindh province of Pakistan. The data was obtained from the neonatal ward from Jan. 2020 to December 2020. Using the universal sampling method, all the admitted neonates were recorded during data collection. Out of the 1682 neonates admitted at the ward during the year, 1637 neonates were included in the study since the data for remaining neonates was either incomplete or missing. Neonates' gender, age at the time of the birth, disease patter and admission outcome were the variables included in this study. Data were entered and analyzed using the Microsoft Excel 2010.

## RESULTS

Out of 1637 neonates admitted during the year, there were 932 (56.9%) female and 705 (43.1%) male newborns (Figure 1).

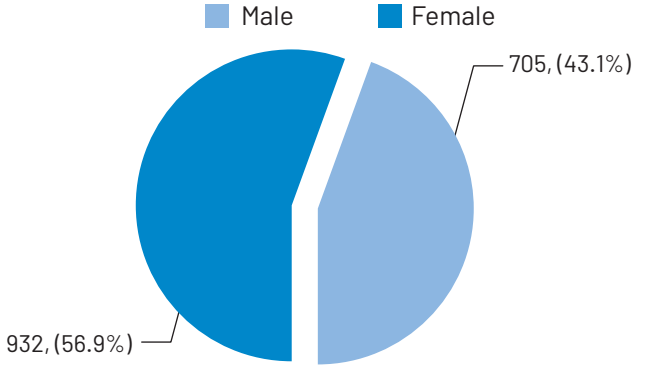


**Figure 1:** Gender Distribution of admitted Neonates

It was observed that the more than half of the neonates presented on the first of after the Delivery and more than two third neonates presented within the first week if the life (Figure 2).

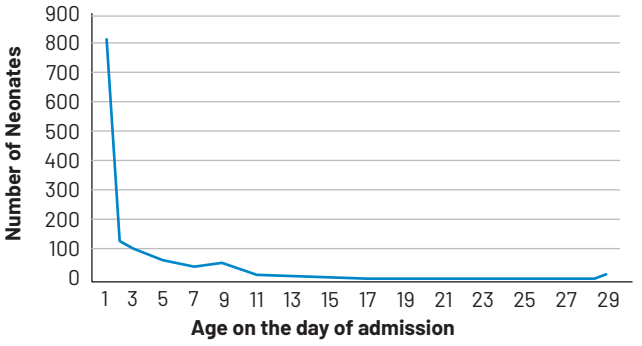


**Figure 2:** Number and Age on the day of admission

Out of total 1637 admitted neonates there were 411 (25. 1%) case of sepsis followed by birth asphyxia 281 (17.16%), preterm 244 (14.9%), LBW 227 (13.81%), RDS 128 (7.81%), neonatal jaundice 88 (5.37%), TTN 49 (2.99%) and others were 209 (12.76%) (Table 1).

| Disease | No. | Percentage |
|---|---|---|
| Sepsis | 411 | 25.1 |
| Birth Asphyxia | 281 | 17.16 |
| Preterm | 244 | 14.9 |
| LBW | 227 | 13.86 |
| Respiratory Distress | 128 | 7.81 |
| Jaundice | 88 | 5.37 |
| TTN | 49 | 2.99 |
| Others | 209 | 12.76 |
| Total | 1637 | 100 |

**Table 1:** Distribution of Neonatal Diseases

It was observed that out of 1637 admitted neonates, 789 (48.1%) were discharged after improvement, 352 (21.5%) were referred for admission to better set ups nearby, 245 (14.9%) left the hospital without informing the hospital staff on their own and 251 (15.3%) neonates died at in ward (Table 2).

| Outcome | No. | Percentage |
|---|---|---|
| Discharge | 789 | 48.19 |
| Referred | 352 | 21.5 |
| Expired | 251 | 15.33 |
| LAMA | 245 | 15.96 |
| Total | 1637 | 100 |

**Table 2:** Outcome of Neonatal Diseases

## DISCUSSION

One hundred and thirty million babies are estimated to be born each year; miserably, 4 million of them die within the first 28 days of life [2]. The first 24 hours of a newborn's life are when almost half of all infant deaths occur. Neonatal death rates are the most sensitive indicators of the availability, utilization, and value of maternity and

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paediatric healthcare services [10]. In the current study, there were more newborn girls (932, 56.9%) than male infants (705, 43.1%) which is in contrast to local literature provided by Seyal et al., (68.73% male vs 31.27% female)[11], Seyal et al., (59.55% male versus 40.5% female)[12], and a study conducted in India (60% male versus 40% female). Our study's finding showed a female majority [13]. We observed that the more than half of the neonates presented on the first day after the Delivery and more than two third neonates presented within the first week if the life which is in line with figures from Lahore and Rawalpindi where 67.9% and 60.1% neonates were admitted during the first week of life, respectively [12, 14]. Out of the 1637 neonates admitted for the study, 411 (25.1%) cases of sepsis, 281 (17.16%) cases of birth asphyxia, 244 (14.9%) cases of preterm delivery, 227 (13.81%) cases of low birth weight, 128 (7.81%) cases of RDS, 88 (5.37%) cases of neonatal jaundice, 49 (2.9%) cases of TTN, and 209 (12.76%) cases of other cases were identified. Haider et al., stated that 1397 (25%) babies had sepsis, which is consistent with our observations. However, compared to our findings, the proportions of newborns presenting with RDS and BA were larger at 1088 (19.4%) and 1058 (19%) respectively [8]. The most frequent disease pattern, according to Shahani et al., was HIE grade I, which was followed by sepsis, preterm birth, and BA with 418 (18.59), 380 (16.90), 315 (14.01%), and 224 (9.96) cases, respectively [15]. In contrast to our findings, a study in Peshawar found that hyperbilirubinemia, severe infections, hypoxia, and congenital defects were the most frequent neonatal morbidities in Rawalpindi. Our findings concur with those of the study with the highest percentage of newborn sepsis [16]. Similar research from Asia revealed a different morbidity pattern in newborns, with sepsis accounting for the highest percentage of cases (29%) respiratory distress syndrome (23.8%), jaundice (7%), and meconium aspiration syndrome (5.5%) [17]. Among the measures of children's health one of the important indicators is neonatal mortality. Nearly 50% of neonatal mortality occur within the first 24 hours, and 75% occur within the first 7 days of life [2]. Out of 1637 neonates admitted in the current study, 789 (48.1%) were discharged after improvement, 352 (21.5%) were referred for admission to better facilities nearby, 245 (14.9%) left the hospital on their own without alerting hospital staff, and 251 (15.3%) neonates died in the ward. The neonatal mortality was noticeably lower than that reported by Shahani et al., in their research done in Pakistan, which reported that 506 (23.26%) neonatal deaths among neonates admitted at the hospital [15]. Our reported neonatal mortality is nearly analogous to published research by Yasmin et al., (123/1000) from Bangladesh [18]. Sepsis has been observed to be the most common presentation pattern in our study. Mothers with antenatal sepsis endanger the health of neonate who can possibly develop neonatal sepsis proceeding to one of the leading causes for admission in developing countries [19]. Nearly 22-66% of all booking in neonatal wards are due to infections which causes almost 70% and almost 70% of all neonatal deaths [20]. Preterm birth was the second most frequent illness pattern in the current investigation, after sepsis. Hussain et al., conducted a study at the neonatal section of the Combined Military Hospital Kharian and came to the conclusion that our policymakers might sufficiently prevent preterm delivery by implementing specific actions [21]. However, the World Health Assembly set six global nutrition targets to be met by 2025 during its 2012 session. 30 percent reduction in LBW was one of these six goals [22]. With these numbers in hand, the current situation, and the most recent research, it appears to be rather difficult to control low birth weight and reach the objective within the next few years. Therefore, reducing first week newborn mortality through essential interventions and techniques can help us attain Millennium Development Goal 4 (MDG4) in Pakistan.

## CONCLUSIONS

According to the study's findings, the most prevalent morbidity patterns at the study site were sepsis, birth asphyxia, preterm birth, and low birth weight. Less than half of the newborns who were admitted could improve during the admission. More than 15% of newborn deaths is of great concern. District and provincial governments, as well as policymakers, should take action to reduce early neonatal mortality by effectively managing neonatal illnesses.

## Conflicts of Interest

The authors declare no conflict of interest

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