

# Assessment of the causes leading to newborn deaths in Al-Diwaniyah city

Aqeel Abd Al-Hamza Marhoon MSc

Pediatric nursing, College of Nursing, Al-Qadisiyah University, Al-Diwaniyah, Iraq

## Abstract

This study investigated the causes of newborns death in Diwaniyah, Iraq and establish a relationship between the causes leading to infant mortality with factors affecting newborns and the mother's demographic information. A non-probability purposive sample was selected, consisting of 200 children in the Maternity and Children Hospital in Diwaniyah. The data was collected in three axes: the first axis focused on the demographic data of the mother, the second explained the variables affecting the child and the third axis included the causes leading to deaths of newborns.

The results showed that 55% of the mothers were 21-30 years, from rural areas (60%) and a primary education level (45%). The gestational age for a newborn child ranged between 36-40 weeks (60%). The gestational age of the children who died after birth was 28-32 weeks (40%). These data indicated that the percentage of premature babies was high. The newborn deaths in the age group (1-7 days) was the highest (55%), and the leading causes of neonatal deaths were premature (40%) and malformation including, respiratory distress syndrome, premature birth, malformation, infections, blood diseases, HIV and malnutrition (25%).

Key words: newborn, causes of deaths

## Introduction

Death is one of the main challenges a newborn faces as more than 75% die from birth to 28 days due to several reasons [1] including, respiratory distress syndrome, premature birth, malformation, infections, blood diseases, HIV and malnutrition [2].

The risk of infant death is highest in the neonatal period (the first 28 days of their lives) [3]. Hence, it is imperative to ensure safe delivery and provide critical care for newborns mishappenings [4]. About 44% of deaths in children under the age of five occur during the neonatal period [13].

About three million babies die every year in the first month of their lives and at birth [5]. Most of the newborn's death occurs between the initial 24 hours post-birth [6,7], and that 75% of them occur in the first week [8]. The first week after birth is the most pivotal period for an infant's survival [9]. Therefore, it is necessary to monitor the mother and their newborn's health during this period [14].

## Methodology

The research methodology included the design, place and sample of the research, research tool and the data collection and analysis.

## Objectives

1. To identify the causes leading to newborn deaths at the Maternity and Children Hospital in Diwaniyah.

2. To establish a relationship between the causes leading to infant mortality with factors affecting newborns and the mother's demographic information.

## Hypothesis

The probable hypothesis includes: H0- there is no significant relationship between the causes leading to newborn deaths and the independent variables of the mother and child.

H1- there is an influential relationship between the causes leading to newborn deaths and the independent variables of the mother and the child.

## Research sample

A non-probability sampling of 200 cases from the Maternity and Children Hospital in Diwaniyah, Iran. The hospital had the following facilities: delivery room, all gynaecological operations, admission of women and children and the children's Surgical operating room. This search tool was a modification of a previous study and its criteria included [1,5]:

1. The mother's demographic characteristics (mother's age, place of residence, mother's educational level, number of births and number of medical visits)
2. Variables of the newborn child (the child's age, sex, the gestational age, the birth type and place, and the child's weight)
3. Causes of neonatal deaths (preterm births, malformation, respiratory distress syndrome, infections, HIV and blood diseases).

## Data collection and analysis

The sample was obtained from the neonatal intensive care unit and the children's lounges records [10]. The total number of live births was 1950. A sample size of 200 children who died from birth to 28 days was selected [11]. The statistical analysis was performed using the SPSS25 program (SPSS, Chicago, IL).

## Results and discussion

Table 1 gives the demographic characteristics of the mother. The results indicated that the mother's belonged to the age group of 21-30 years (55% of the sample), the educational level was the primary level in 90 cases (45%), and majority of the sample population (120 patients) was from rural areas. The outcomes were consistent with previous studies [1,2,8-10]. While the number of visits the mother made to medical clinics during pregnancy was 1-3 (50%). The patients who came for their second delivery was higher (35%), and these results agree with previous research [3-5,15]. The lack of education and health awareness were the primary reasons that affected newborns health and life. These rural mothers lacked the knowledge of primary health care and frequent medical checkup for the un born child and mothers health.

Table 2 gives the factors affecting the lives of newborns. The outcomes show the gestational age for a newborn child was 36-40 weeks (60%), and 40% of the newborn's death occurred in children born between 28 to 32 weeks of gestation age. A high rate of premature baby's death 1 to 7 days was noted (55%), and these results are consistent with the study of Abed and Al-Doorri [1], Ali et al. [3] and Deribew et al. [5]. The newborn's birth weight frequency was less than

**Table 2: Variables affecting a newborn's life.**

Variables	Data	Frequency	Percentage
Total		n = 200	100%
<b>Gestational age</b> (weeks)	28-32	60	30%
	33-36	20	10%
	37-40	120	60%
<b>Baby age</b> (days)	1-7	110	55%
	7-28	90	45%
<b>Gender</b>	Male	120	60%
	Female	80	40%
<b>Type of hospital</b>	Governmental	90	45%
	Private	110	55%
<b>Type of delivery</b>	Caesarean section	160	80%
	Normal	40	20%
<b>Baby weight</b> (kg)	1.5-2.5	90	45%
	2.6-3.5	50	25%
	3.6-4.5	40	20%
	more than 4.6	20	10%

2.5 kg (55%) and agreed with previous studies [12-14]. The lack of health awareness and less education make pregnant women opt for cesarean sections. In this study, this decision made pregnant women suffer from pregnancy complications that lead to premature labour, one of the causes of newborn deaths.

Table 3 shows the causes of neonatal deaths in the Maternity and Children Hospital in Al-Diwaniyah. The results showed that 40% (80) were preterm infants, 25% (50) malformation, the incidence of dyspnea syndrome was 22%. (44) and 7% (14) for infections and diseases are consistent with many studies [3-7]. This outcome is because of the increase in the number of premature babies (Table 2). The high incidence of abnormalities in children indicates that pregnant mothers are exposed to health problems in pregnancy. The number of cesarean section increase and enhance premature birth, susceptibility to dyspnea syndrome and recurrent infections, which are the most common causes of death.

## Regression results

The relationship between the causes of newborn deaths and the interpreted variables (demographic

**Table 1: Demographic characteristics of the mother.**

Variables		Frequency	Percentage
Total		n = 200	100%
<b>Mother age</b> (years)	Less than 20	20	10%
	21-30	110	55%
	31-40	50	25%
	Over 41	20	10%
<b>Education level</b>	Primary	90	45%
	Secondary	70	35%
	Diploma or higher	40	20%
<b>Place of residence</b>	Rural	120	60%
	Urban	80	40%
<b>Number of clinical visits</b>	1-3	100	50%
	4-6	40	20%
	More than 7	60	30%
<b>Delivery</b>	First	60	30%
	Second	70	35%
	Third	40	20%
	4 or more	30	15%

**Table 3: Causes of newborn death.**

Causes	Frequency	Percentage
Premature	80	40%
Malformation	50	25%
Respiratory	44	22%
Infection	14	7%
Blood disease	12	6%
Total	200	100%

**Table 4: Regression outcomes.<sup>a</sup>**

R	R <sup>2</sup>	F value	F significance	Newborn variable	Mother variable
0.560	0.313	31.186	.000 <sup>b</sup>	0.617	1.072

<sup>a</sup>Dependent Variable: causes and <sup>b</sup>Explanatory variables: mother and newborn variables

data of the mother and the child variables) were analyzed by a multiple linear regression model in which the mother and child variables were considered as explanatory variables. The results of the regression model are shown in Table 4. A significant relationship was recorded between the variables. This means that whenever the factors and conditions of the mother and the child improve, the mother's health improves during pregnancy. Pregnancy health awareness and the continuous monitoring of the fetus, birthing type (normal caesarean sections), premature births and the associated risks and difficulties decreased the deaths of newborns [12,13].

## Conclusions and recommendations

The primary factors that affect newborns and increase preterm births and cesarean sections versus normal birth are lack of education, health awareness, and the importance of hospital visits in pregnant women. Setting up regular medical camps in remote areas will make rural women aware of the importance of regular pre-and post-partum visits to primary health care centres during pregnancy will effectively decrease newborn death rates.

## Acknowledgments

The authors would like to thank the staff at the Maternity and Children Hospital in Diwaniyah, Iran for allowing them to conduct this study and for helping them collect data.

## Funding

The authors received no specific funding for this study.

## Conflict of interest

The authors declare no conflicts of interests.

## References

1. Abed MT, Al-Doori NM. Determining the causes of neonatal mortality in Babylon province for the period of 2016-2017. *Indian J Public Health Res Dev* 2018; 9(8):1257–1261.
2. Akhter RJ, Hoque MM, Yasmeen BN Chowdhury MA. Bacteriological profile and sensitivity pattern of neonatal sepsis. *North Int Med Coll J*. 2016; 8(1): 174–177.
3. Ali SR, Ahmed S, Lohana H. Disease patterns and outcomes of neonatal admissions at a secondary care hospital in Pakistan. *Sultan Qaboos Univ Med J* 2013;13(3):418–421.
4. Bin Al-Zoa AM, Bin Mohanna MA, Al-Sonboli N. Neonatal morbidity and mortality in the neonatal care unit of Al-Gumhour Teaching Hospital, Sana'a, Yemen. *Hadramout J Med Sci*. 2013; 234(1769): 1–14.
5. Deribew A, Kebede B, Tessema GA et al. Mortality and disability-adjusted life-years (DALYs) for common neglected tropical diseases in Ethiopia, 1990-2015: Evidence from the global burden of disease study 2015. *Ethiopian Med J*.2017; 55(Suppl 1): 3.
6. Desalew A, Sintayehu Y, Teferi N et al. Cause and predictors of neonatal mortality among neonates admitted to neonatal intensive care units of public hospitals in eastern Ethiopia: a facility-based prospective follow-up study. *BMC Pediatr*.2020; 20: 1–11.
7. Fottrell E, Osrin D, Alcock G et al. Cause-specific neonatal mortality: analysis of 3772 neonatal deaths in Nepal, Bangladesh, Malawi and India. *Arch Dis Child Fetal Neonatal Ed*. 2015; 100(5): F439–F447.
8. Lukonga E, Michelo C. Factors associated with neonatal mortality in the general population: Evidence from the 2007 Zambia Demographic and Health Survey (ZDHS); a cross sectional study. *Pan Afr Med J*.2015; 20(1): 64.
9. Mekonnen T., Tenu T, Aklilu T, Abera T. Assessment of neonatal death and causes among admitted neonates in neonatal intensive care unit of Mizan Tepi University Teaching Hospital, Bench Maji Zone, South-West Ethiopia, 2018. *CMCH*.2018; 15(305): 2.
10. Salve DS, Inamdar IF, Sarawade S, et al. Study of profile and outcome of the newborns admitted in neonatal intensive care unit (NICU) at tertiary Care Hospital in a City of Maharashtra. *Int J Heal Sci Res*. 2015;5:18–23.
11. Seid SS, Ibro SA, Ahmed AA et al., Causes and factors associated with neonatal mortality in neonatal intensive care unit (NICU) of Jimma University medical center, Jimma, South West Ethiopia. *Pediatric Health Med Ther*. 2019; 10: 39.
12. Tekleab AM, Amaru GM, Tefera YA. Reasons for admission and neonatal outcome in the neonatal care unit of a tertiary care hospital in Addis Ababa: A prospective study. *Res Reports Neonatol*. 2016;6(2016):17–23.
13. UNICEF, WHO, World Bank, UN. Levels and trends in child mortality report 2018. Estimates developed by the UN inter-agency Group for Child Mortality Estimation [internet]. New York, USA: UNICEF; 2018. p. 8–48. Available from: <https://data.unicef.org/wp-content/uploads/2018>.
14. UNICEF, WHO, World Bank, U-DPD. Levels and trends in child mortality [Internet]. New York USA: UNICEF; 2015. Available from: [http://www.who.int/maternal\\_child\\_adolescent/documents/levels\\_trends\\_child\\_mortality](http://www.who.int/maternal_child_adolescent/documents/levels_trends_child_mortality)
15. World Health Organization. *Trends in maternal mortality: 1990-2015: estimates from WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. Geneva: World Health Organization; 2015.

Correspondence: Aqeel Abd Al-Hamza Marhoon  
aqeel.abd@qu.edu.iq