



MATERNAL AND NEONATAL FACTORS ASSOCIATED WITH PERINATAL DEATHS IN A DISTRICT HOSPITAL IN THE FREE STATE

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BACKGROUND

- Statistics South Africa - Perinatal deaths include both stillbirths and neonates that die in one week after birth (2016).
- Globally, little progress has been made to reduce perinatal death rates (Allanson *et al.*, 2016:79).
- Perinatal death rate is a critical index for indicating the quality of maternity care rendered to mothers during pregnancy, childbirth and to infants during the perinatal period (Gupta, 2011:245).
- Perinatal mortality still remains unacceptably high, global estimate of stillbirths and neonatal deaths are approximately 3 Million each. Some of these deaths could have been prevented by optimal care (Allanson *et al.*, 2015:37; Oza *et al.*, 2015:19).

BACKGROUND (CONTINUED)

- Perinatal death is a devastating experience for the families, midwives and the hospitals concerned (Feresu *et al.*, 2005:1).
- Accurate data capturing of the factors related to perinatal deaths is critical in prevention (Allanson *et al.*, 2016:79).
- Health-care workers must understand factors causing perinatal deaths in order develop interventions to reduce perinatal deaths and improve the quality of care (Allanson *et al.* 2016:79).
- In 2000 as an intervention to reduce perinatal mortality rates, the Perinatal Problem Identification Programme (PPIP) was developed by Dr Johan Coetzee.
- PPIP is aimed at identifying and analysing maternal and neonatal factors associated with perinatal deaths.

ROLE OF PPIP

- In 2012, National Department of Health recommitted to achieving the Millennium Development Goal 4 targeted towards reducing under-five child mortality, including perinatal deaths.
- As a result, the PPIP became mandatory for all facilities (hospitals and 24-hour clinics) rendering a maternity services and caring for new-borns (Pattinson & Rhoda, 2014:26).
- According to the PPIP, The Free State Province is considered to have good quality assessments (Pattinson & Rhoda, 2014:26).

AIM OF THE STUDY

- To identify maternal and neonatal factors associated with perinatal deaths in a selected district hospital in Free State, South Africa.

OBJECTIVES OF THE STUDY

- To determine whether significant differences existed in the age, gravida, parity, and health risk factors (*diabetes, syphilis, hypertension, HIV, eclampsia, postpartum haemorrhage, placenta abruption and placenta praevia, ruptured uterus and prolonged/obstructed labour*) between mothers with live neonates and those whose neonates had died up to the age of one week.
- To determine if the gender of the baby is a practical significant indicator to be born alive or dead and if practically significant difference between the birth weight, gestational age and Apgar scores of neonates who were born alive and those who had died by the age of one week exist.

RESEARCH METHODOLOGY

- A quantitative retrospective descriptive design was utilised.
- Ex post facto data were collected from the PPIP data collection tool.
- Additional MS Excel data collection instrument was developed to transfer specific data elements from the PPIP data base to the MS Excel data instrument to facilitate the data analysis.

STUDY POPULATION

- Biggest District hospital in the district
- Similar to regional hospital in terms of number of births
- Most births and neonatal deaths occur in district hospitals, explaining the rationale for selecting a district hospital as the study site.
- At the participating hospital, 2319 neonates were born during 2015 comprising the study's population.

SAMPLING AND SAMPLE SIZE

- A random sample of 384 live neonates and an all-inclusive sample of 43 dead neonates were included.

DATA ANALYSIS

- Descriptive statistics were calculated.
 - Cohen's effect sizes-d (for continuous variables)
 - phi-coefficients (for categorical variables).
- To determine practically significant differences between the variables for neonates in the alive and dead groups respectively.
- Logistical regression analysis was utilised to determine the major factors associated with neonatal deaths.
 - All continuous variables (age, gravida, parity, health risk factors, weight and gestational age) concerning mothers and neonates were entered in the logistic regression analysis.
- The SAS (2016) statistical program was used to analyse the data.



RESULTS

Descriptive statistics and Cohen's effect sizes for continuous variables related to mothers

MOTHERS						
Variables of mothers	Group	N	M	std	p-value (when random sampling is assumed)	d-value
Age	Dead neonates	43	25.40	6.31	0.30	0.17
	Alive neonates	341	26.40	6.23		
Gravida	Dead neonates	43	2.12	1.21	0.37	0.14
	Alive neonates	341	2.28	1.20		
Parity	Dead neonates	43	1.16	1.11	≤ 0.01*	0.86 ▲
	Alive neonates	341	2.12	1.12		
Health risk factors	Dead neonates	43	0.58	0.70	0.46	0.12
	Alive neonates	341	0.50	0.60		

Descriptive statistics and Cohen's effect sizes for continuous variables related to neonates

NEONATES						
Variables for neonates	Group	N	M	std	p-value (when random sampling is assumed)	d-value
Birth weight	Dead neonates	43	2508.9	1011.0	≤ 0.01*	0.58 Δ
	Alive neonates	341	3093	501.3		
Apgar after 5 minutes	Dead neonates	43	0.84	1.85	≤ 0.01*	4.12 ▲
	Alive neonates	341	9.75	0.64		
Apgar after 10 minutes	Dead neonates	43	0.70	2.25	≤ 0.01*	4.02 ▲
	Alive neonates	341	9.75	0.64		
Gestational Age	Dead neonates	43	35.26	4.26	≤ 0.01*	0.60 Δ
	Alive neonates	341	37.82	1.93		

SUMMARY OF RESULTS

- **Maternal factors:**

- The maternal factors which had no practically significant effect on the status of the baby included age, gravida and health risks factors.
- Parity played a practically significant role affecting the baby's survival chances. Therefore the higher the parity of the mother the higher is the chance for the baby to live.

- **Neonatal factors:**

- The neonatal factors which had practical implications for the neonate's chances of survival included birth weight, gestational age and the Apgar score.
- The dead neonates' weight at birth was less than those of alive neonates.
- The gestational age between dead and alive neonates indicated that the lower the gestational age the higher the risk for neonatal deaths.
- Apgar scores at both five and 10 minutes after birth provided the most significant indicators of the neonates' survival chances. Therefore, the higher the Apgar score, the higher the survival chances for the neonates.

PPIP CAUSES OF PERINATAL DEATH

- Neonatal deaths
 - Asphyxia
 - Prematurity
 - Infections
 - Antepartum hemorrhage
 - Cord around the neck
 - Cord prolapse

PPIP CAUSES OF PERINATAL DEATH

- Still births (MSB & FSB)
 - Unexplained still births
 - Intrapartum birth asphyxia
 - Placenta abruption
 - Placenta praevia

FACTORS CONTRIBUTING TO PERINATAL DEATH

- **FETAL FACTORS**

- Weight of neonate at birth
- Apgar score
- Gestational age

- **MATERNAL FACTORS**

- Parity



RECOMMENDATIONS

TO POLICY MAKERS

- To increase funding for neonatal unit and mother child programs

FOR MIDWIFERY PRACTICE

- Maternity units should thoroughly interrogate PPIP monthly results.
- Thorough monitoring of small and premature babies.
- Implement Help Babies Breathe (HBB) and Management of Sick and Small Newborns (MSSN) correctly.
- Continuous training on advanced antenatal care.

FOR THE RESEARCH SITE

- The research site is 145 km away from the regional hospital which is the referring hospital in cases of emergencies (need for a neonatal unit urgently)
- A possible referral to another province which is 24 km away from the research site to be negotiated.



**THANK YOU,
QUESTIONS?**