

Determinants of Perinatal Mortality in a Public Referral Hospital - Kericho County, Kenya, 2021

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Perinatal mortality is an event of public health concern. It has remained a major burden in Kenya and Kericho County. Understanding the associated factors of perinatal mortality is important as it provides insights for intervention and for policy development and implementation to improve perinatal health outcomes. The study aims to identify the determinants of perinatal mortality in Kericho County Referral Hospital, 2021.

BACKGROUND

Perinatal mortality (PM):

Death of a baby from 28 weeks of pregnancy and the first seven days of life

Globally- Two million annual still births, 2.4 newborn deaths

Risk of still birth is 7.6 times higher in LMIC

SSA- PM rate is at 35 deaths per 1,000 LB (WHO 2019)

Kenya- 22 deaths per 1,000 LB (KHIS 2021)

- 26 per 1,000 urban, 21 per 1,000 rural

OBJECTIVES

Broad:- To investigate the determinants of perinatal mortality at KCRH, Kericho County, 2021

Specific:-

- To estimate the magnitude of perinatal mortality, the still birth rate, neonatal mortality rate among births at KCRH, Kericho County, 2021
- To describe the sociodemographic characteristics of mothers and their newborn at KCRH, Kericho County, 2021
- Identify the factors associated with perinatal mortality among births at KCRH, Kericho County, 2021

METHODS

Cross Sectional study was conducted on 4,530 birth records and 586 newborn admission records for the year 2021. Retrospective medical record review and abstraction data to excel from MOH 333 & MOH 711. Collected data was cleaned prior to uploading into epi info software for analysis. The outcome variable was perinatal mortality while the exposures of interest were maternal Socio demographic and obstetric characteristics, and newborn characteristics. Descriptive analysis for quantitative data were expressed as means with standard deviation, frequencies and proportions, while for categorical data were presented by tables and graphs. The numerator for still birth rate was the still births weighing 1,000 grams and above and denominator the actual number of deliveries for the year 2021. The numerator for calculating the neonatal mortality rate was the number of early neonatal deaths and the denominator was total births for the year 2021. Perinatal mortality rate numerator was the total of early neonatal deaths plus still births and the denominator was the total number of live births for 2021. Bivariate analysis was performed. The prevalent odd ratios with 95% confidence intervals were calculated and statistical significance was declared at a p value of < 0.05.

RESULTS

The statistical analysis revealed the following independent determinants of perinatal mortality; antenatal care visits (OR 0.6), gestation at birth (OR 0.24), mode of delivery (OR 12.7), APGAR score (OR 0.004), birthweight (OR 0.1), sex of the baby (OR 0.65), and the newborn age in days (0.01).

Sociodemographic characteristics of mothers

Variable	Frequency	Percentage (%)
Maternal age (Years) n=4043		
13-19	592	14.64
20-29	2,577	63.74
30-39	818	20.23
40-49	56	1.39
Marital status n=4401		
Married	3,732	84.8
Single	669	15.2
Residence n=4297		
Near KCRH (Urban)	1,637	61.37
Not near KCRH (Rural)	1,660	38.63

Obstetric characteristic of mothers

Variable	Frequency	Percentage (%)
Gravidae n=4423		
Multipara	2,492	56.34
Nulliparous	1,931	43.66
Type of pregnancy n=4530		
Multiple	70	1.55
Single	4,460	98.45
ANC Visits n=4423		
Less than 4	1,618	36.58
More than 4	2,805	63.42
Gestation (weeks) n=4423		
Less than 37	954	21.57
More than 37	3,469	78.43

Newborn characteristics-delivery ward

Variable	Frequency	Percentage (%)
Apgar score in 1 min n= 4286		
0-3	155	3.62
4-6	137	3.2
7-10	3,994	93.19
Apgar score in 5 min n=3580		
0-3	128	3.58
4-6	69	1.93
7-10	3,383	94.5
Baby's Sex n=4,525		
Female	2,160	47.73
Male	2,365	52.27
Birth Weight		
1,000-2,499	552	12.21
2,500-3,999	3,857	97.54
≥ 4,000	111	2.46
Baby's outcome n =4,512		
Alive	4,401	97.54
FSB	48	1.06
MSB	63	1.4

Newborn characteristics, newborn admission unit KCRH, 2021(MOH 711)

Variable	Frequency	Percentage (%)
Sex n=586		
Female	278	47.44
Male	308	52.56
Mode of Delivery n=586		
Caesarean	175	29.86
Vaginal	411	70.14
Mother's HIV status n=586		
Negative	566	96.59
Positive	20	3.41

Determinants of still births, KCRH, 2021

Outcome	Dead	Percentage	Alive	Percentage	OR(95% CI)	p value
Exposure						
Gravidae n=4423						
Multipara	75	65.8	2410	56.1	0.6 (0.44-0.98)	0.05
Primigravida	39	34.2	1884	43.9		
ANC Visits n=4423						
Less than 4	55	48.3	1553	36.2	0.6 (0.4-0.9)	0.01
More than 4	59	51.8	2741	63.8		
Gestation n= 4423						
Less than 37 weeks	60	52.63	892	20.8	0.24 (0.16-0.34)	<0.0001
More than 37 weeks	54	47.37	3402	79.2		

Determinants of early neonatal deaths, KCRH, 2021

Outcome	Dead	Percentage	Alive	Percentage	OR(95% CI)	p value
Exposure						
BWT in grams n=4422						
Less than 2500	58	50.9	468	10.9	0.1 (0.08-0.17)	<0.0001
More than 2500	56	49.1	3825	89.1		
APGAR Score in five minutes n=4283						
Less than 7	113	99.12	199	4.7	0.0004 (0.0001-0.0031)	< 0.0001
More than 7	1	0.88	4084	95.4		

DISCUSSION

Given the determinants of perinatal mortality in the study area, Kericho County Referral hospital and other health facilities within and out of the county are recommended to implement appropriate antenatal care and roll out the new guidelines for eight ANC contacts. Also there is need to implement appropriate intrapartum care and neonatal care to prevent perinatal mortalities. Health care workers should provide health education throughout the continuum of care. Ministry of health should develop a perinatal register. Further research on facility related factors is recommended.

CONCLUSION

- Perinatal mortality is high in KCRH(60 per 1000 live births)
- Determinants include:-
- Maternal factors- gravidity, ANC attendance, and gestation at birth
- Fetal factors- gestation at birth, BWT, APGAR score, sex and MOD
- Information for neonates admitted was captured in an improvised register

RECOMMENDATION

- Health care workers –KCRH and referring facilities
 - Implement appropriate ANC, NBC and PNC
 - Health education to clients on what to expect on each visit
 - Roll out new guideline -eight ANC contacts
 - Improve documentation
- MOH-Develop a perinatal and Neonatal registers
- Further research on facility related factors to PM

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KEYWORDS

- Perinatal mortality.
- Neonatal mortality
- Still birth