

Commentary

Perinatal Mortality in Bahir Dar Town Governmental Health Institutions

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Introduction

Perinatal mortality is defined as a fetal death (stillbirth) and early neonatal death. Stillbirth is a baby born with no sign of life, weighing ≥1000 gram or if missing ≥ 28 completed weeks of gestation and early neonatal death is a death in the first week of life after delivery [1]. Due to disparity in the quality of services provided for pregnant women and their babies'. Perinatal mortality in developing nations are five times higher than developed nations [2].

Currently, the quality of antenatal and perinatal care provided to the community is best judged by the perinatal mortality rate. Annually, 2.6 million stillbirths and 2.7 million early neonatal deaths occurs worldwide [3]. In the year 2015, each day an estimated 7,300 newborns die due to pregnancy complication worldwide. From those 98% of deaths occur in developing countries [4].

Although, there was a remarkable decline (40%) in perinatal mortality in Ethiopia in the last two decades, it is still an important public health problem. There is sixty six to 124 deaths per 1000 births in health institution and 25 to 52 deaths per 1000 births in the community [5]. The community based study conducted in Ethiopia showed that perinatal mortality rate was 50.22 deaths per 1000 births. The 2016 Ethiopian demographic and health survey (EDHS) findings showed that perinatal mortality rate was 44 deaths per 1000 pregnancies in Amhara region.

Perinatal mortality is good health indicator that plays an important role in providing the information needed to improve the health status of the pregnant women and their newborn. Identifying determinants of perinatal mortality are very important for decision makers in building and implementing strategies to improve the care provided to the pregnant mothers and their newborns.

The previous studies identified that hemorrhagic disorders, hypertensive disorders, obstructed labor, prolonged labour, neonatal sepsis, asphyxia, congenital anomalies, prematurity, advanced maternal age were the risk factors ,whereas antenatal care (ANC) follow up, tetanus toxoid (TT) vaccination, use of Partograph during labor, doctor birth attendant were protective factors for perinatal mortality [5]. But first delay (delay in deciding to receive care), second delay (delay in reaching care) and maternal behavioral factors such as alcohol consumption, cigarette smoking, drug use during pregnancy, nutritional status, khat chewing were not documented and understood in the study area. Therefore, this institutional based unmatched case control study design was conducted to identify the potential determinants of perinatal mortality in Bahir-dar town governmental health institutions using incident cases.

Institutional based unmatched case control study design was conducted in Bahir-dar town governmental health institutions from 1st March to 30th June; 2019. The source population was all cases of stillbirth, early neonatal deaths within the first week of life and live births at least 1000 grams birth weight or ≥ 28 weeks of gestation in the study period. Those stillbirths and early neonatal deaths after 28 weeks of pregnancy for cases and live births after 28 weeks of gestation were eligible for study, whereas stillbirths, early neonatal deaths and live births with the maternal mortality were excluded.

Case: Is defined as newborn at least 1000 gram of birth weight or corresponding to 28 and above weeks of gestation in the health institutions either as a stillbirth or born alive but died within seven days after delivery. Gestational age was determined using the last normal menstrual period (LNMP) or ultrasound report.

Control: Is defined as live births at least 1,000 grams of birth weight or corresponding to 28 weeks of gestation in health institutions of the study area and survived the first 7 days after delivery.

Delay in seeking labour care (the first delay): Refers to the time spent at home before a decision is made to seek labour care (it was considered delayed if the mother stay at home ≥3 hours after labour had started).

Delay in reaching care (second delay): Is the problem related to reach the health institutions after the decision had made to do (it was considered delayed if the mothers were faced transport/ ambulance problem during transportation either from home to health institutions or from health institutions to health institutions during the referral.

Data were collected by 7 midwives and neonatal nurses who were working in the health institutions with face to face interviewer administer questioners from all eligible mothers and some data were also collected from medical records of mothers and newborns using a checklist.

A questioner was translated to Amharic, the working language in the study area by two people one medical professional and the other English language professional. Piloting was done before the actual data collection period and two days training was given for data collectors and supervisors. The overall activity had been supervised regularly by two supervisors.

Analysis were done using SPSS Version 23 statistical software after data had coded, entered and cleaned using epi-info version 7. Descriptive statistics and logistic regressions were done. Strength of association was assessed using adjusted odds ratios with corresponding 95% confidence interval. The fitness of the

Table 1: Demographic characteristic of mothers in Bahir-dar town governmental health institutions from 1st March to 30th June, 2019 North-west, Ethiopia.

Variable	Category	Perinatal outcome		
		Control (N, %)	**Cases** (N, %)	**COR 95% CI**
Maternal age, y	<20	17(5.8)	20(13.5)	2.724 (1.376, 5.393)
	20-34	264(89.8)	114(77.0)	1
	≥35	13(4.4)	14(9.5)	2.494 (1.136,5.474)
Maternal educational status	Not educated	55(18.7)	59(39.9)	1
	Primary	75 (25.5)	32(21.6)	0.398 (0.229,0.692)
	Secondary	75 (25.5)	36(24.3)	0.447(0.260,0.769)
	Tertiary	89(30.3)	21(14.2)	0.220 (0.121, 0.401)
Current maternal occupation	Employed	73(24.8)	42(28.4)	1
	Merchant	81(27.6)	51(34.4)	1.094 (0.653,1.834)
	House wife	102(34.7)	41(27.7)	0.699(0.413, 1.181)
	Others [a]	38(12.9)	14(9.5)	0.640 (0.311,1.317)
Residence	Urban	209(71.1)	70(47.3)	1
	Rural	85(28.9)	78(52.7)	2.740 (1.819,4.126)
Maternal marital status	Single	27(9.2)	21(14.2)	1
	Married	248(84.4)	114(77.0)	0.591 (0.321,1.090)
	Divorced	16(5.4)	10(6.8)	0.804(0.303,2.129)
	Widowed	3(1.0)	3(2.0)	1.286 (0.235,7.030)

a=student, prostitute, daily labour, y=year, (N, %) = **(**number**,** percentage**)**

model was checked using Hosmer-Lemeshow goodness of fit test (P- value > 0.05).

Results

A total of 442 (148 cases and 294 controls) were included with a response rate of 96.3% (96.5% of cases and 96.1% of controls). The mean age of mothers with cases was 28.22 ± 7.50 standard deviation (SD), while controls 26.23 ± 4.88 (SD). The majority, 264 (89.8%) of control and 114 (77.0%) of cases were found in the age category of 20-34 years. About 89 (30.3%) and 21 (14.2%) of controls and cases had tertiary education level respectively. With regard to current occupational status, 73 (24.8%) of controls employed when compared to cases 42 (28.4%). Majority, 248 (84.4%) of controls and 114 (77.0%) cases were married. About 209 (71.1%) mothers with live births were lived in urban areas as compared with 70 (47.3%) cases (Table 1).

Limitation of the study

The health institution based study might had an over-representation of the determinants of perinatal mortality, as more complicated cases are referred and since the data was collected in institution only the perinatal deaths in the community after discharged were no considered. Since it was also conducted among health centers and specialized hospitals the homogeneity of the study population might not be considerable and determining gestational age using last normal minstrel period is not as accurate as obstetric ultrasound and finally environmental and seasonal factors were not assessed because perinatal mortality were liked with these factors.

Conclusion

The determinants of perinatal mortality in the study area was largely due to antenatal and intra-natal obstetric and neonatal complications that are easily identifiable and manageable with the existing basic obstetric and neonatal care whereas health care and socio-demographic factors were also the important factors that were associated in this study that needs further encouragement in partograph use in labour follow up and enhancing females education to tertiary level. Health care providers had to be early detected and manage antepartum hemorrhage, obstructed labour and prematurity. Partograph use, transports services (ambulance), and female tertiary education need to be encouraged and Counseling and health education about delay in seeking labour care is needed finally identifying the reason of first delay needs further research and qualitative research needs to be done on 3rd delay at the health institutions.

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