ABSTRACT OF MASTER'S DISSERTATION

No.1

Course	MPH	Name	Silas Adjei-Gyamfi
Thesis title	Maternal risk factors for low birthweight and macrosomia: A cross-sectional study in Northern Region, Ghana		

Background:

Abnormal birthweights are critical public health challenges accountable for most non-communicable diseases and perinatal mortalities. Globally, there are myriad of mixed evidence on maternal factors responsible for abnormal birthweights. This study serves as one of key pieces of evidence in view of the increasing prevalence of these abnormal birthweights particularly in some parts of semi-rural Ghana.

Objective:

The study aimed to identify maternal risk factors for abnormal birthweights in Savelugu municipality, Northern region, Ghana. The specific objectives were to:

1) estimate the prevalence of low birthweight and macrosomia in the municipality.

2) identify maternal risk factors for low birthweight.

3) identify maternal risk factors for macrosomia.

Methods:

A retrospective cross-sectional study was conducted, using public health facilities as data collection points in Savelugu municipality from February 1 to March 31, 2022. Single-stage sampling with probability proportional to size technique was employed, to select 356 mothers having a neonate born during the last four weeks, as study participants. Anthropometric, antenatal, and obstetric data were collected from maternal and child health record books. Sociodemographic, socioeconomic, and knowledge-related data were collected through structured interviews with consented mothers. Using STATA (version 17.0), Chi-square/Fisher's exact and Wilcoxon rank-sum tests were used for bivariate analyses after descriptive statistics at 95% significance level. Dummy variables were created for the variables with more than two categories. Logistic regression was then employed to identify maternal risk factors for abnormal birthweights after addressing multicollinearity.

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Results:

Of the 356 participant mothers, 308 (86.5%) were 20−35 years of age. Most neonates (n = 250; 70.2%) were older than one-week of age. Approximately, 51.0% (n = 181) mothers were self-employed, and one-third had no formal education (n = 121; 34.0%). Mean birthweight of the neonates was 2880g (sd = 620g). Surprisingly, majority of male neonates (n = 70; 63.6%) had abnormal birthweights. The prevalence rates of low birthweight and macrosomia were 22.2% (95%CI: 17.9%−26.9%) and 8.7% (95%CI: 4.9%−12.1%) respectively. Maternal anaemia in first trimester (aOR:4.041; 95%CI: 1.741−9.381) and third trimester (aOR:25.71; 95%CI: 8.245−80.18) of gestation were strong predictors for low birthweight. Mothers having neonates whose birth length was greater than 47.5cm (aOR:0.280; 95%CI: 0.117−0.670); mothers who attended eight antenatal care visits or more (aOR:0.264; 95%CI: 0.112−0.622); and mothers belonging to minority ethnic groups in the study area (aOR:0.089; 95%CI: 0.009−0.859) had reduced odds for low birthweight. Alternatively, mothers with advanced gestational age (≥ 42 weeks) had 9.713 times higher risk of giving birth to macrosomic neonates (95%CI: 2.127−44.34). Mothers also had lesser chance (aOR:0.201; 95%CI: 0.060−0.668) to deliver macrosomic neonates through the vagina.

Conclusion:

The prevalence rates of low birthweight and macrosomia were relatively high. Anaemia in the first and third trimesters, and advanced gestational age were strong determinants of low birthweight and macrosomia respectively. Childbirth length, frequency of antenatal care visits, and being minority ethnic groups were protective factors against low birthweight. Also, vaginal delivery was protective against macrosomia. Hence, nutrition counseling, community health education, and promotion of lifestyle improvement coupled with strengthening of health service delivery are recommended interventions. (499 words)