

ASSESSMENT OF MATERNAL RISK FACTORS ASSOCIATED WITH FULL-TERM LOW BIRTH WEIGHT NEONATES IN PUBLIC HEALTH FACILITIES OF ADDIS ABABA, ETHIOPIA: A CASE-CONTROL STUDY.

NNP RELATED RESEARCH FINDING DISSEMINATION WORKSHOP
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Presentation outline:

- Introduction
- Conceptual framework
- Objective
- Methodology
- Results
- Conclusions
- Recommendations
- References

Introduction

- Birth weight???
- Birthweight is the first weight of the newborn obtained after birth. (WHO, 1987)

Intr. Cont'd...

- Low birth weight (LBW)?
- WHO defined LBW as birth weight less than 2,500 grams.
- Birth weight is governed by two major processes:
 - Duration of gestation and
 - Intrauterine growth rate.

(UNICEF, 2004)

Intr. Cont'd...

- More than 20 million infants are born each year weighing less than 2500 g, accounting for 17% (96%) of all births in the developing world. (UNICEF, 2004)
- According to EDHS 2011 among children born with a reported birth weight in Addis Ababa, 11.4% weighed less than 2500grams.

Intr. Cont'd...

- Despite the profusion of many studies there are still considerable confusions and controversies about the factors which have an independent effect on LBW.
- Moreover, preterm infants and intrauterine growth retarded infants should be studied as separate groups.

CONCEPTUAL FRAMEWORK

Distal determinant variables:

- Maternal age
- Marital status
- Average family monthly income
- Injury history of any source
- Antenatal depression
- Antenatal domestic violence
- ◊ Educational level
- ◊ Maternal occupation

Intermediate determinant variables:

- ANC visit (Gestation at 1st visit, frequency of visits)
- Number of iron tablets
- Fertility desire
- Gravidity
- Parity
- Hemoglobin level
- History of anemia
- History of LBW
- Birth interval
- Co-morbidities
- History of abortion

Proximal determinant variables:

- Pre-pregnancy weight
- 3rd trimester weight
- Gestational weight gain
- Maternal MUAC
- Maternal height
- Antenatal exposure to toxic substances

**Birth
Weight
at term**

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graph LR; Distal[Distal determinant variables] --> Intermediate[Intermediate determinant variables]; Intermediate --> Proximal[Proximal determinant variables]; Proximal --> BirthWeight((Birth Weight at term));
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FIGURE 1: *Conceptual Frame-work on maternal risk factors associated with low birth weight at full term. (Developed by the authors after reviewing various literatures.)*

OBJECTIVE

- **General objective**
 - To determine the maternal risk factors associated with full term low birth weight neonates in selected public health institutions of Addis Ababa.

METHODS AND MATERIALS

Study area, period and Design

- The study was conducted in public health institutions of Addis Ababa, from April to July 2013.
- A facility based unmatched case-control study design was used.

Study population

- The **cases** were mothers who gave birth to a term LBW (<2500grams) neonate.
- The **controls** were subsequent/consecutive two mothers who gave birth to a term normal birth weight (≥ 2500 grams) neonate.

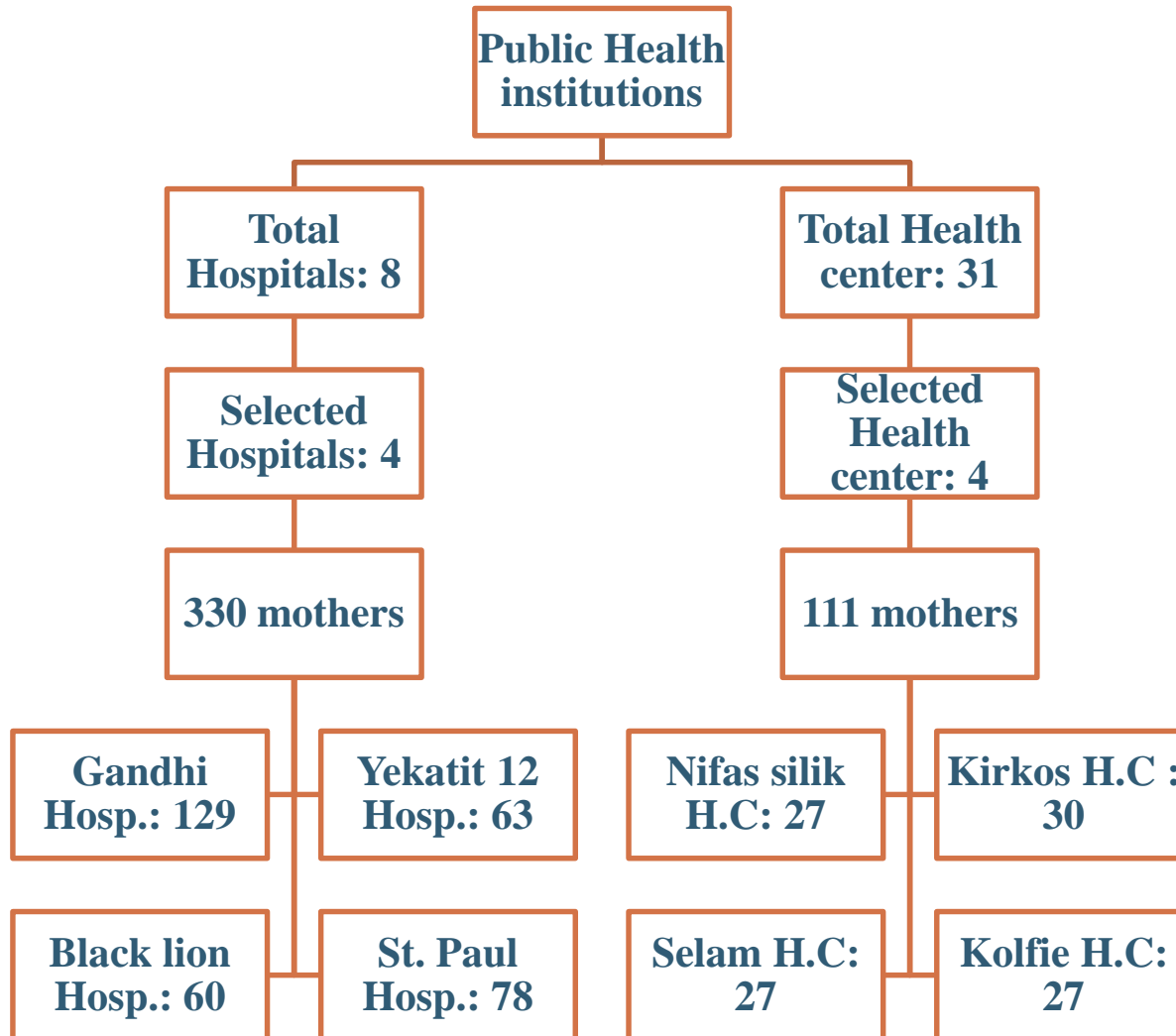
Sample size determination

- Many variables were considered to calculate the sample size.
- The sample size was determined using a formula for two population proportions and calculated by OpenEpi version 2.3 statistical software package by considering:
 - The % of cases and controls exposed (>60 Kg): 31.14% and 18%
 - OR: 2.06
 - CI: 95%
 - Power of the study: 80% and
 - Case to control ratio: 1:2

Cases: 147
Controls: 294
Total: 441

(Alemseged, 2011)

Sampling procedures



Data collection instrument

- Structured Questionnaire
- Medical Records
- Actual Measurements
 - Weight of the neonates
 - Height of the mother
 - MUAC of the mother

Data processing and analysis

- Data were entered and analyzed using Epi Info version 7.0 and SPSS version 17.0 statistical packages respectively.
- Descriptive and analytic statistical computations were made and P value of less than 0.05 was considered significant.

Analysis

- Logistic regression analysis
 - First, bivariate logistic regression analysis was made for all independent variables
 - Multivariate logistic regression analysis was performed in three separate models.
 - At the end, those variables found to be significant ($p < 0.05$) in the three separate model were further analyzed in the final model.

RESULTS

Characteristics of the newborn (index child)

- In this study 417 term newborns were included yielding 94.6% RR.
- The mean birth weight was 2199.5gm (S.D±252.79) for the neonates with low birth weight and 3230.0 (S.D±449.73) for the neonates with normal birth weight.

Result Summery

Variable	COR (95%CI)	AOR (95%CI)
Mothers MUAC <23cm	2.58 (2.58-3.94)	1.94 (1.01-3.73)
Mothers height <155cm	2.78 (1.75-4.42)	2.74 (1.32-5.66)
Gestational wt gain <8Kg	6.54 (3.68-11.62)	7.01 (3.33-14.78)
0 # of days Fe taken	2.06(1.20-3.53)	2.89 (1.32-6.34)
Depression of any degree	5.48 (3.15-9.54)	3.45 (1.29-9.23)
Domestic violence	6.52 (3.59-11.84)	6.45 (2.41-17.28)
ANC visit frequency<4 Visits	1.991 (1.22-3.24)	2.76 (1.32-5.77)

However...

- Marital status
- Age
- Avg. monthly income
- Educational level
- PIH
- Parity and
- Pregnancy intention hadn't show statistical significance association with LBW at term.

Conclusions

- According to the findings of this study the determinant factors for term LBW are:
 - Gestational weight gain of less than 8Kg
 - Maternal height of less than 155cm
 - Maternal MUAC of less than 23cm
 - Not taking antenatal iron & folic acid supplementation
 - ANC visits of three or less
 - Experiencing antenatal intimate partner violence and
 - Experiencing antenatal depression of any grade.

Recommendations

- Design programs to increase pre-pregnancy weight and weight gain during pregnancy.
- Routine antenatal iron tablet supplementation for a minimum 31 days.
- Ensuring women return after their ANC visit and reduce dropout.
- Standardized protocols for assessment and intervention of depressive symptoms and violence.

Recommendations Cont'd...

- **Further future researches**
- Create nationally appropriate growth curves for pregnant women
- RCTs that can assess the effect of multiple micronutrients on birth outcomes.
- Holistic understanding on the relationships among pregnancy, violence and depression.

References

- [References list.pdf](#)

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**THANK YOU
FOR
YOUR ATTENTION!**

