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.

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Mahari Yihdego, Mizan-Tepi University
Dr. Alemayohu Mekonnen, AAU

Federal Democratic Republic of Ethiopia
Presentation outline:

- Introduction
- Conceptual framework
- Objective
- Methodology
- Results
- Conclusions
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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)
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 2500 grams.
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.
FIGURE 1: Conceptual Framework 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
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 (<2500 grams) 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

Public Health institutions

- Total Hospitals: 8
  - Selected Hospitals: 4
  - 330 mothers
    - Gandhi Hosp.: 129
    - Black lion Hosp.: 60
  - Yekatit 12 Hosp.: 63
  - St. Paul Hosp.: 78

- Total Health center: 31
  - Selected Health center: 4
  - 111 mothers
    - Nifas silik H.C: 27
    - Selam H.C: 27
    - Kirkos H.C: 30
    - Kolfie H.C: 27
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.
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 Summary

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