



## Effects of Prenatal Exposure to Great Ethiopian Famine of 1983-85 on Adulthood Metabolic Syndrome: a Historical Cohort Study in Northeast Ethiopia

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### Abstract

**Background:** Adverse intrauterine exposure to undernutrition was documented to have an association with the occurrence of metabolic syndrome later in adult life. The Great Ethiopian famine is one of the loudest global famines ever documented in Africa as well as in the recent history of the world. Earlier famine studies, as natural experiments, had tested the association between prenatal assaults and adulthood metabolic syndrome and reported variable findings. Hence, this study was aimed to evaluate the effects of prenatal exposure to 1983-85 Great Ethiopian Famine on adulthood metabolic syndrome.

**Methods:** A historical cohort study design was employed among 456 study participants from March to April 2019 in Northeast Ethiopia. Self-reported birth date and age of the participants was used to classify status of prenatal famine exposure. The International Diabetes Federation (IDF) criteria was used to assess metabolic syndrome. Pretested and structured questionnaires adapted from the WHO STEPs instrument was used to collect data. Multiple logistic regressions were computed to examine the relationship between famine exposure in prenatal life and metabolic syndrome in adulthood.

**Results:** Metabolic syndrome among exposed and non-exposed groups were 21.2%, and 8.4% respectively. Adjusted for all possible studied covariates, adults having prenatal famine exposure were 2.94 times more likely to develop metabolic syndrome as compared to non-exposed group (AOR=2.94, 95% CI:1.66, 5.27). Moreover, famine exposure during prenatal life was associated with increased waist circumference (+2.27cm, 95% CI: 0.28, 4.26, P=0.025), diastolic blood pressure (+2.47 mmHg, 95% CI: 0.84, 4.11, P=0.003), triglyceride (+14.52 mg/dl, 95% CI: 4.56, 25.47, P=0.004) and fasting blood glucose (+4.28mg/dl, 95% CI: 0.80, 7.75, P= 0.016) as compared to adults born after the famine.

**Conclusion:** There existed higher proportion of metabolic syndrome, risky anthropometric and dyslipidemic parameters among prenatally famine exposed groups. This finding provides further evidence for the hypothesis of fetal origin of adult diseases. The study also implies that one potential means of preventing adulthood metabolic syndrome is to optimize maternal nutrition during pregnancy.

### Biography

Getachew Arage Completed his Master Degree in Nutrition and Dietetics and he is an Associate Professor at Department of Nutrition and Dietetics, College of Health Sciences, Debre Tabor University, Debre Tabor, 272 Ethiopia.

### Publications

Getachew Arage. Effects of prenatal exposure to the 1983-1985 Ethiopian great famine on the metabolic syndrome in adults: a historical cohort study

Getachew Arage, Blood donation practice and its associated factors among health professionals of University of Gondar Hospital, Northwest Ethiopia: a cross sectional study

Getachew Arage, Socio-demographic and economic factors are associated with nutritional status of adolescent school girls in Lay Guyint Woreda, Northwest Ethiopia

Getachew Arage, Survival rate of HIV-infected children after initiation of the antiretroviral therapy and its predictors in Ethiopia: A facility-based retrospective cohort

Getachew Arage, Adherence to antiretroviral therapy and its associated factors among children at South Wollo Zone Hospitals, Northeast Ethiopia: a cross-sectional study



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