MSF Paediatric Days 2024
Abstract N° 146

Eastern Visayas Birth Cohort (EVBC) Study Protocol: Unraveling the Integrative Omics and Nutritional Determinants of Child Development from Prenatal to Early Childhood

Jacus S. Nacis [1,2], Michael E. Serafico [1], Ruby D. Frane [1], Diana Glades A. Domalanta-Ronquillo [1], Josafat John Simon L. Licayan [1], Frances Isabelle B. Jacalan [1], Jason Paolo H. Labrador [1], Gerard Bryan L. Gonzales [1,2,3]

[1]Department of Science and Technology-Food and Nutrition Research Institute (DOST-FNRI), Taguig, Philippines, [2]Division of Human Nutrition and Health, Wageningen University & Research, Wageningen, Netherlands, [3]Department of Public Health and Primary Care, Faculty of Medicine and Health Science, Ghent University, Ghent, Belgium

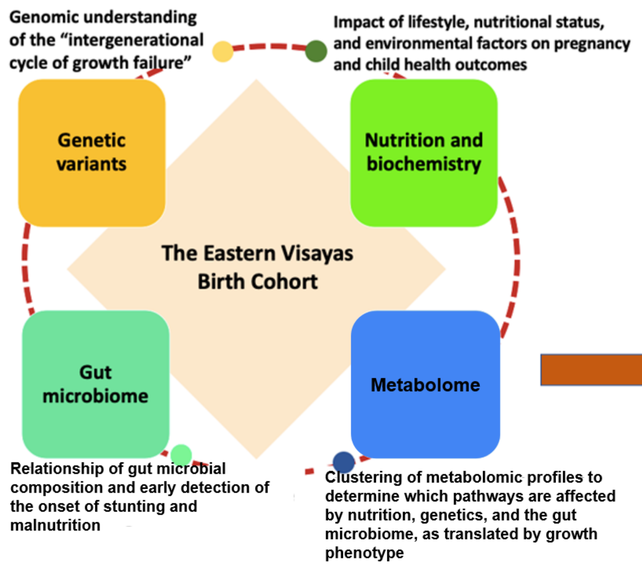
BACKGROUND AND OBJECTIVES

Chronic health problems in modern society are rooted in a complex interplay of environmental and biological systems, with prenatal and postnatal environments emerging as crucial influences in the development of chronic disorders. The Eastern Visayas Birth Cohort (EVBC) was established to comprehensively characterize the nutrition and omics determinants shaping Filipino children's growth and development during their first two years of life with a mother-infant cohort.

This study encompasses four components: nutrition and biochemistry, genomics, gut microbiome, and plasma and urine metabolomics, examining children's development from the *in-utero* environment while addressing maternal and child health issues and demographic factors through a prospective, population-based approach.

STUDY DESIGN

EVBC an ongoing, prospective, population-based birth cohort study, aims to recruit over 4,900 mother-child dyads from the provinces of Samar and Biliran in Eastern Visayas, the Philippines. Enrolled pregnant women will be followed throughout pregnancy, birth, and the postpartum period, with newborns tracked for two years to assess growth and development. The study collects comprehensive data, including baseline medical information, laboratory test results, anthropometrics, diet, biological samples multi-omics analyses, and pregnancy and birth outcomes through home and health facility visits.



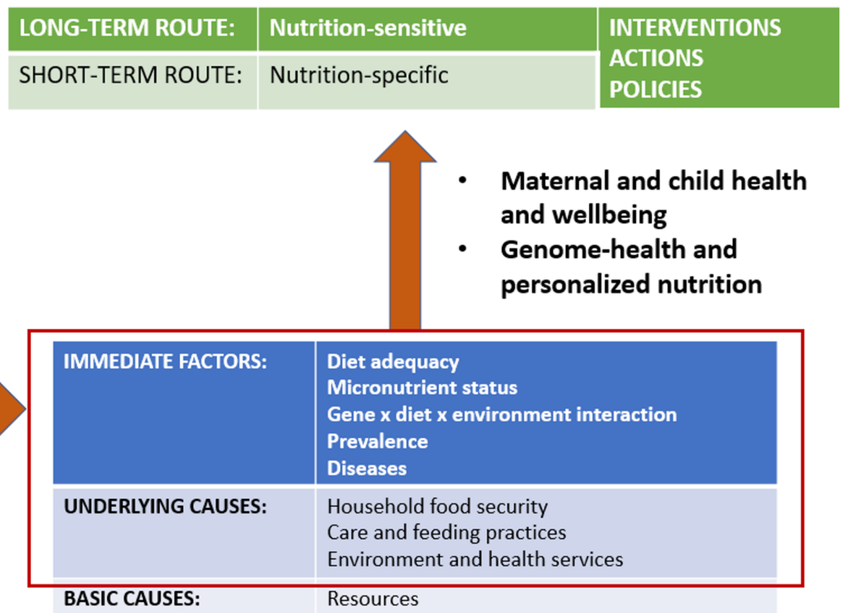
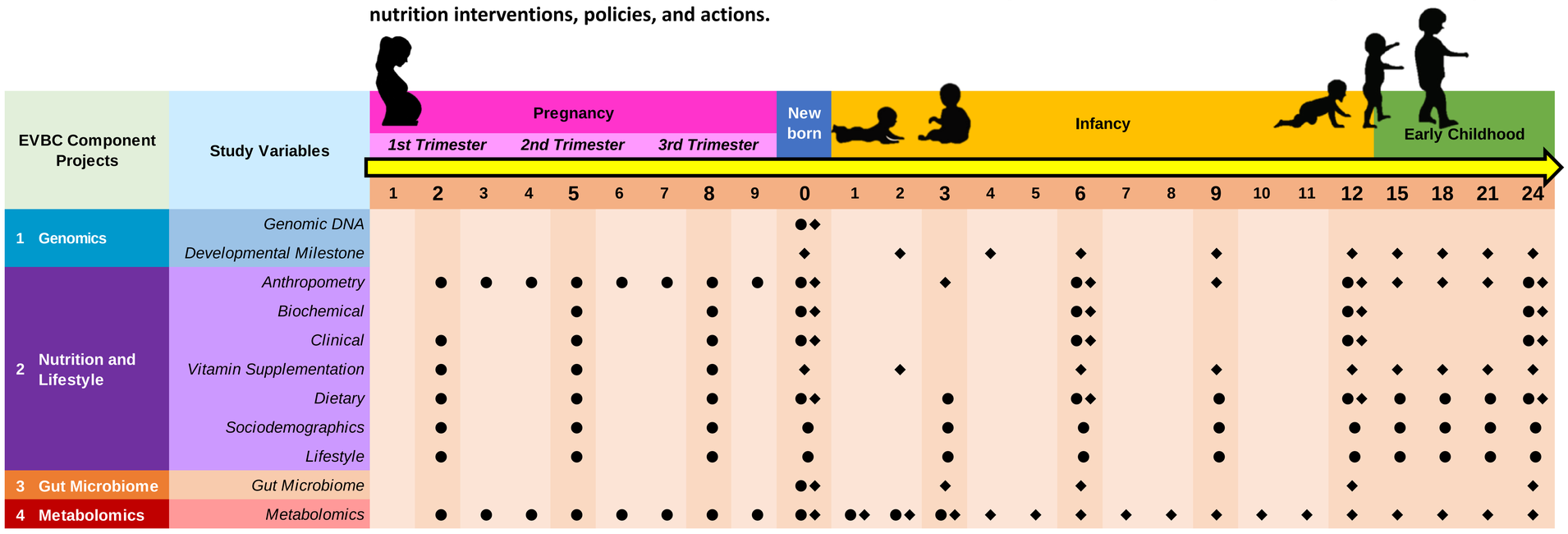


Figure 1. The EVBC will examine the aggregated contributions of maternal genetics, nutrition, health, lifestyle, environment, intestinal microbiome, and the metabolome in shaping the early-life health and development of offspring. This inquiry aims to deepen our understanding of the determinants of maternal and early-life nutrition, thereby contributing to the development of nutrition interventions, policies, and actions.

Figure 2. The project will collect longitudinal information over 54-months from 4,900 mothers who are on their first trimester of gestation during a one-year recruitment period. Study visits are as follows: first, second, and third trimester for the Baseline and follow-up surveys, any time during the first seven days after the birth of the infant (Birth Information Survey), and every monthly thereafter until the infant reaches his or her second birthday (Longitudinal Survey).



EXPECTED RESULTS

The EVBC offers a framework for following mothers and children from the first trimester of pregnancy to two years of age, aiming to enhance our understanding on the contributions of prenatal to early life health and development. It was designed to track women and children for outcomes such as gestational diabetes, gestational weight gain, small-for-gestational age, and stunting, among others.

DISCUSSION

The multi-omics approach holds the potential to advance our comprehension of human development, health, and disease, laying the groundwork for targeted intervention and personalized healthcare approaches. Importantly, these insights are contextualized within the dynamics of low- and middle-income economies, providing valuable perspectives for public health interventions and policies.

ETHICS STATEMENT

This study has been reviewed and approved by the Food and Nutrition Research Institute Ethics Review Committee (FIERC) and the Eastern Visayas Health Research and Development Consortium Ethics Review Committee.

Department of Science and Technology
Food and Nutrition Research Institute