

Long run effects of early life growth faltering: a retrospective analysis of 847 birth cohorts in low- and middle-income countries

Submission date 02/10/2017	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 05/10/2017	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 08/07/2019	Condition category Other	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Early life growth faltering (slower than expected rate of growth) has increasingly been recognized as a risk factor for children's long run developmental and economic potential. While several studies have linked adult outcomes to child growth at the individual level, there is a lack of evidence on the long run benefits of reducing stunting rates at the national or subnational (population) levels. The aim of this study is to estimate the associations between early life growth faltering at the subnational (population) level and adult height and education outcomes in a representative sample of low- and middle-income countries.

Who can participate?

Adults born between 1985 and 1995 across 34 Demographic and Health Surveys (DHS) conducted between 2006 and 2014 in 24 low- and middle-income countries

What does the study involve?

Data from the DHS surveys is used to calculate average height-for-age for children under age 5 at the country-region and birth cohort level (a group of people born during a particular period or year). The measures of early life growth are then compared with adult height and educational attainment.

What are the possible benefits and risks of participating?

This study only uses de-identified data from the DHS Program and there is no further data collection.

Where is the study run from?

ICF International (USA)

When is the study starting and how long is it expected to run for?

April 2017 to September 2017

Who is funding the study?
Boston University (USA)

Who is the main contact?
Prof. Mahesh Karra

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Protocol serial number
IRB16-0515

Study information

Scientific Title
Long run effects of early life growth faltering: a retrospective analysis of 847 birth cohorts in low- and middle-income countries

Study objectives
To estimate the associations between exposure to early life growth faltering at the subnational (population) level and adult height and education outcomes in a representative sample of low- and middle-income countries.

Ethics approval required
Old ethics approval format

Ethics approval(s)
This study obtained a human subjects exemption from the institutional review board at Harvard University, 05/04/2016, protocol number IRB16-0515. Only de-identified data were obtained from the Demographic and Health (DHS) survey program at <https://dhsprogram.com/>

Primary study design
Observational

Study design

Observational cross-sectional cohort study

Study type(s)

Other

Health condition(s) or problem(s) studied

Early life growth faltering (height and stunting at childhood)

Interventions

All available anthropometric data collected through the Demographic and Health Surveys (DHS) is combined to construct country-region measures of early childhood exposure to growth faltering, and this dataset is used to quantify the long-term outcomes of cohort-level changes in early life environments. The final analytic sample consists of 211,318 adult records across 34 DHS surveys that were conducted between 2006 and 2014 in 24 low- and middle-income countries.

Data from the Demographic and Health Surveys were used to compute average height-for-age z-scores for children under age 5 at the country-region and birth cohort level. The cohort measures of early life growth were then linked to adult height and educational attainment. The primary exposure of interest was population-level early life growth faltering, with adult height and adult educational attainment as primary outcomes. Multivariable linear regression models were used to estimate the associations between adult outcomes and population-level measures of early life linear growth.

Intervention Type

Other

Primary outcome(s)

1. Adult height, measured by reported height in adulthood, taken from DHS surveys conducted between 2006 and 2014
2. Educational attainment, measured by the highest educational grade completed, taken from DHS surveys conducted between 2006 and 2014

Key secondary outcome(s)

No secondary outcome measures

Completion date

28/09/2017

Eligibility**Key inclusion criteria**

211,318 adults who born between 1985 and 1995 across 34 DHS surveys that were conducted between 2006 and 2014 in 24 low- and middle-income countries

Participant type(s)

Mixed

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Sex

All

Key exclusion criteria

Missing income data

Date of first enrolment

01/01/1985

Date of final enrolment

31/12/1995

Locations

Countries of recruitment

Burkina Faso

Cameroon

Colombia

Côte d'Ivoire

Dominican Republic

Egypt

Ghana

Haiti

Jordan

Kenya

Madagascar

Malawi

Mali

Nepal

Niger

Nigeria

Pakistan

Peru

Rwanda

Senegal

Tanzania

Uganda

United States of America

Zambia

Zimbabwe

Study participating centre

ICF International

530 Gaither Road, Suite 500

Rockville

United States of America

20850

Sponsor information

Organisation

Boston University

ROR

<https://ror.org/05qwgg493>

Funder(s)

Funder type

University/education

Funder Name

Boston University

Alternative Name(s)

Newbury Biblical Institute, Methodist General Biblical Institute, Boston Theological Seminary, Boston Theological Institute, Universitas Bostoniensis, BU

Funding Body Type

Private sector organisation

Funding Body Subtype

Universities (academic only)

Location

United States of America

Results and Publications

Individual participant data (IPD) sharing plan

The trialists only used de-identified data from the DHS Program and were in no way involved with any of the data collection or human subjects processes. Further information about participation in a DHS survey can be found here: <https://dhsprogram.com/What-We-Do/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm>. The DHS data are publicly available at <https://dhsprogram.com/> - the data can be accessed free of charge upon request from ICF International, the organization that manages the DHS data.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	04/07/2019	08/07/2019	Yes	No