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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

Registration date
05/10/2017

Overall study status
Completed

Last Edited
08/07/2019

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] 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 calculated 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
Prof Mahesh Karra

ORCID ID
http://orcid.org/0000-0003-0962-092X

Contact details
152 Bay State Road, Room G04C
Boston
United States of America
02215

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
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/

Study design
Observational cross-sectional cohort study

Primary study design
Observational

Secondary study design
Cross sectional study

Study setting(s)
Other

Study type(s)
Other

Participant information sheet
Not available in web format, please use the contact details to request a patient information sheet

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 measure
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

Secondary outcome measures
No secondary outcome measures

Overall study start date
18/04/2017

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

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
211,318

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

Sponsor details
121 Bay State Road
Boston
United States of America
02215

Sponsor type
University/education

ROR
https://ror.org/05qwgg493

Funder(s)

Funder type
University/education

Funder Name
Boston University

Alternative Name(s)
Universitas Bostoniensis, Newbury Biblical Institute, Methodist General Biblical Institute, Boston Theological Seminary, Boston Theological Institute, BU

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
United States of America

Results and Publications

Publication and dissemination plan
The trialists intend to submit the results of the study for publication to the American Journal of Clinical Nutrition.

Intention to publish date
31/12/2017

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