MAX PLANCK INSTITUTE
FOR EVOLUTIONARY ANTHROPOLOGY

STUDY INFORMATION AND DATA USE AGREEMENT FOR THE RESEARCH PROJECT: "*CROSS CULTURAL COMPARISON OF HUMAN GROWTH TRAJECTORIES*"

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1. Brief Description

In this project, we will apply the growth model recently developed by Bunce, Fernández, and Revilla-Minaya 2022 (see: Causal models of human growth and their estimation using temporally-sparse data) to longitudinal datasets from populations inhabiting a wide range of ecoregions with the aim of distinguishing and describing general patterns and global variation in human growth trajectories. By using this model, we expect to be able to estimate, and hopefully disentangle, the relative contributions of different factors affecting growth in height and weight around the world, as well as to compare specific components of growth among diverse populations.

2. Intended use of the Data

The data provided by the collaborators in this project will be used for the sole purpose of this study on the comparison of growth trajectories. The final product will be one or more scientific articles on this topic. Data will not be used for any commercial purposes. We will not distribute these data to third parties under any circumstance. We will make no attempt to identify or contact research participants, their households or communities. Collaborators will have the option of making the de-identified data they contribute publicly available as an accompaniment to the published article(s) that result from this project (see below).

3. Dataset and population (s)

Please provide the following characteristics of the dataset (s), indicating population, location (s), a brief description of data collection methods and/or a reference for them, and indicate whether data was collected after IRB approval or other ethics review (please, indicate review board and protocol number). If other ethical protocols were followed, please specify.

- **Population name(s) and brief description (e.g., subsistence practices, refugees from another region, access to Western healthcare systems, common health challenges, etc.):**

This study took place in Rabat, Morocco at a public maternity hospital that serves the Rabat-Sale-Kenitra region. Women with singleton deliveries at the maternity hospital between May 30th and July 21st were recruited one to three days after delivery. In 2017, Ramadan lasted from sunset on May 26th to June 24thand the daily fasting duration was about 16 hours. Ramadan was ongoing during the first half of the recruitment period, so women who gave birth before Ramadan ended would not have had the opportunity to fast the full 29 days. Women who did fast but gave birth between June 26-July 23rd had the opportunity to fast for the whole month of Ramadan and had a number of non-fasting days between the end of Ramadan and delivery. Initially, the study sought only participants who were exclusively breastfeeding while in the hospital. However, due to a high rate of supplemental feeding among patients, this requirement constrained the potential sample size and was dropped early in the study.

This public hospital serves women who tend to have lower income, lower socioeconomic status, and fewer resources. Some women were local to the area while other women traveled for several hours to get to the hospital. Many of the women in this study gave birth via cesarean section because women with vaginal deliveries tended to leave the hospital about 24 hours postpartum, and the purpose of the study was to collect breast milk samples after 24 hours postpartum.

- **Location (s) (please be as specific as possible, and include GPS coordinates if available):**

All birth measurements were taken at Maternity Souissi in Rabat, Morocco (33.9876631, -6.8549092)

Some follow up measurements were also taken at the maternity hospital. Others were taken at participant homes in the Rabat-Sale-Kenitra region (within 3 hours by train).

- **Data collection methods (please include reference if available):**

Infant Anthropometry
Anthropometric measurements were taken for each newborn, within 48-72 hours postpartum. Measurements included weight, length, head circumference, mid-arm circumference, and triceps and subscapular skinfolds. Weight was measured using a portable scale. Length was measured with an infant measuring mat. Head and arm circumference were measured with a retractable tape measure for body measurements. Skinfold measurements were taken using high-quality body fat calipers. All measurements were taken at least twice when possible, although some measurements were taken only once if mothers were anxious to redress the infant or if medical personnel required the mother or infant.

An important note regarding infant weight: neonatal weight measurements were usually taken with clothing on the infant as many mothers were opposed to taking off the infant's clothing for the anthropometric measurements. Most women allowed the outer layers to be removed and allowed the hat and socks to be removed for the length measurement. Due to this, there is a degree of error to be expected for the infant weight measurements, and, for some infants, certain measurements are missing. Almost all infants were wearing diapers, which weigh approximately 16 g, and a short-sleeved or long-sleeved onesie, which weigh approximately 37 g, so a onesie and diaper are predicted to increase an infant's weight by about 53 g. In my own analyses, I adjusted for this for all weight measurements when calculating z-scores using standard equations for that hospital.

Maternal Anthropometry
The Tanita Ironman Body Composition scale was used approximately 72 hours postpartum to measure maternal weight, body fat percentage, and lean body mass, along with other measurements via bioelectric impedance. Age and height were manually entered to set up the Tanita scale for each participant. Age was reported by the participant. Maternal height was typically measured by the hospital upon check in to the hospital, but when this was not available, I took this measurement. It was taken from the record whenever possible to reduce the burden on participants who had recently given birth.

- **IRB/ethical review board approval (yes/no, explain):**

This research was approved by the IRB at Indiana University and by the hospital's ethical review board through Université Mohammed V and Faculté de Médecine et de Pharmacie in Rabat. Since many patients at the hospital were not literate, all recruitment was completed with a translator to ensure a complete understanding of the informed consent documents.

4. Full name, affiliation and e-mail of all contributors/collaborators for this dataset (s):

Meagan Guilfoyle, Indiana University, Meagan.Guilfoyle@yahoo.com

5. Data submission

Please send a **link to a folder** containing a file or several files (in case of more than one dataset) in **CSV format** to catalina_fernandez@eva.mpg.de.

- Please include the **name of the population in the file name**, and an additional dataset identifier in case of multiple datasets.
- If the dataset also contains single (as opposed to longitudinal) measures for some individuals, please do not remove them from the file. We will also use those observations in the analysis.
- If you have data on adult individuals, whether or not they were also measured as children/adolescents, please include these observations as part of your dataset.

Please, do not include any direct identifying information in the dataset relating to the individuals, their relatives or household members, such as names, addresses, telephone numbers, e-mail addresses or social media identifiers, etc.

For each dataset, we request collaborators on this project to share a **deidentified** data file (.csv) containing the following information and columns:

Column 1: Individual identification code or number that is consistent across longitudinal observations of the same individual.
Column 2: Date of birth in **dd/mm/yyyy** format.
Column 3: Date of data collection event in **dd/mm/yyyy** format.

* If date of birth is not available, please provide **age** in days, whenever possible, for each data collection event.

* If known age is uncertain, if possible, please provide a **range** of minimum, estimated, and maximum age, based on your best approximations.

Column 4: Sex; coded as **m** or **f**.
Column 4: Height in cm
Column 5: Weight in kg

*Note that, for longitudinal measures, you will have multiple rows with the same individual identification code, date of birth, and sex, but with different dates of data collection, heights, and weights.

6. Long term archiving and data access

One of the objectives of this project is to make the deidentified datasets and code (s) used in the data cleaning and analyses available in an open-access repository. We encourage all collaborators to commit to share and deposit deidentified data in a public repository created for this project, once they have checked that, by doing so, they are not violating compliance with their ethical review protocols (e.g., IRB) or other agreements with research participants and community members/leaders. Making data open-access is <u>not a requirement</u> to participate in this study, but we believe that by granting public access to the code and data used we will allow other researchers to check our analyses and reproduce our findings.
If you agree that data from your research site can be made publicly available for this purpose, we will create an appropriate repository (e.g., on Github) to curate this dataset and indicate the contact information for the researchers responsible for each field site, in case someone wishes to use the dataset for a purpose other than simply checking the results of our analysis. If for any reason, in the future, you wish to change your decision regarding data access and usage, we can either include or remove the data from this repository.

Use of the data and access on a public repository (choose <u>one</u> option):

X (Infant Anthropometry)_____ Restricted use. I agree that deidentified data can be made publicly available for the sole purpose of reproducing this specific analysis. Data cannot be used by the scientific community or the public for any other purpose.

_____ **Unrestricted**. I agree that deidentified data can be made publicly available without barriers to access or use.

X (Maternal anthropometry)_____ I do not consent to making this data available in a public repository. I am sharing this data only for the purpose of this study. I do not agree that this dataset(s) or any portion of it/them can be shared publicly under any circumstances.

7. Data sharing information to the communities involved

We believe that one of our responsibilities as scientists is to communicate research findings with the communities and individuals who provided their time and biometric information in order to make this study possible. We are aware that most, if not all, collaborators on this project have active field sites and engage regularly with the communities they work with for the purpose of informing and sharing research findings and other initiatives alike. We ask collaborators to this project to share the results of this study with the contributing communities, particularly the parts

that concern the specific population that they work with. If a collaborator is no longer in contact with the study population, please let the project leaders know so that together we can potentially brainstorm an alternative solution. Ideally, presenting results to participants will occur prior to publication, so that participating communities have the opportunity to (re)express their permission for us to publish the results. Sharing the results may take the form of a live Power Point presentation, a video, a written information sheet, or any other format that the collaborator believes is most culturally appropriate to present this kind of information to the communities and participants who provided the data. If it is of interest as a model or guide, the project leaders (Catalina Fernández, Caissa Revilla-Minaya and John Bunce) can share with the contributors the materials that they will design for the Matsigenka population that they work with.

8. Manuscript authorship

The project leaders (Catalina Fernández, Caissa Revilla-Minaya and John Bunce) will draft the main manuscript and decide the order of authorship and co-authorship. We will ask all collaborators for feedback once analyses are completed and while we draft the discussion. We are currently considering organizing a workshop at MPI in Leipzig for project collaborators, after analyses are completed, but prior to publication, in order to share the results of the analyses, discuss the main findings and potential causal mechanisms contributing to variation in growth in different populations. This can also be an opportunity for planning further analyses and related projects for the future. More information about this potential meeting/workshop will be shared in the next months.

9. Tentative timeline

- 30 June 2023: All datasets have been submitted to the project leaders.
- 30 September 2023: All datasets have been checked for errors and formatted for analysis.
- 30 March 2024: Data analysis is complete; manuscript is drafted by project leaders.
- Mid-May 2024: Potential workshop for contributors/collaborators at MPI Leipzig.
- 30 July 2024: Results have been presented to participating communities.
- 30 August 2024: Main manuscript is submitted for publication.

***Note that this is a very tentative timeline.**

10. Questions

For questions regarding data submission, data archiving, and other aspects of this study, or additional information, please contact Catalina Fernández by e-mail at catalina_fernandez@eva.mpg.de.

Name of the person in charge of the dataset: Meagan Guilfoyle

Date: July 28, 2023