

# Is it possible to use a mobile app to improve the quality of dietary choices of adolescents in Ghana and Vietnam?

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<b>Registration date</b> 12/11/2021	<b>Overall study status</b> Completed	<input checked="" type="checkbox"/> Protocol
<b>Last Edited</b> 31/05/2024	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Unhealthy diets are a critical global concern while dietary measure methods are time-consuming and expensive. There is limited evidence that phone-based interventions can improve nutrition data collection as well as dietary quality, especially for adolescents in developing countries. We developed an artificial-intelligence based phone application called Food Recognition Assistance and Nudging Insights (FRANI) to tackle these problems. The objectives of this study are to measure the acceptability, adherence, and likeability of FRANI, as well as its impact in the food choices of adolescents in Accra, Ghana and Thai Nguyen, Vietnam.

### Who can participate?

Adolescent girls aged 12-18 years

### What does the study involve?

In each setting, we randomly allocate participants into two groups: The intervention group with the full version of FRANI including the gamified nudges to encourage healthier food choices. The control group will receive FRANI without the gamified nudges. Both groups will have their food choices tracked for four weeks. The control groups will then receive the full version of FRANI and both groups were tracked for a further 2 weeks to assess acceptability, adherence, and likeability.

### What are the possible benefits and risks of participating?

Evidence generated from this study will assess the potential for new technology to improve scalable data collection in nutrition, and healthier food choices for a population at risk of malnutrition.

No risks.

### Where is the study run from?

International Food Policy Research Institute (IFPRI) (USA)

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

January 2021 to January 2022

Who is funding the study?

Fondation Botnar (Switzerland)

Consortium of International Agricultural Research Centers (CGIAR) program on Agriculture, Nutrition and Health (France)

Who is the main contact?

Dr Aulo Gelli, a.gelli@cgiar.org

## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

## Study information

### Scientific Title

Food Recognition Assistance and Nudging Insights. Measuring measuring the feasibility (acceptability, adherence, and likeability) of a mobile app designed to improve the quality of dietary choices of adolescents in Ghana and Vietnam: A pilot study

### Acronym

FRANI

### Study objectives

The FRANI mobile app is designed to improve diets by increasing the consumption of healthy foods and beverages, whilst crowding out the consumption of energy-dense foods.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Approved 08/12/2020, Institutional Review Board (IRB) of the IFPRI (2033 K Street, NW, Washington, DC, 20006-1002, USA; no telephone number provided; IFPRI-IRB@cgiar.org), ref: #00007490

## **Study design**

Randomized controlled pilot study

## **Primary study design**

Interventional

## **Study type(s)**

Other

## **Health condition(s) or problem(s) studied**

Low quality diets in adolescents

## **Interventions**

The intervention group with the full version of FRANI including the gamified nudges to encourage healthier food choices. The control group will receive FRANI without the gamified nudges. Participants in both groups will have their food choices tracked for four weeks. The control groups will then receive the full version of FRANI and both groups will be tracked for a further 2 weeks to assess acceptability, adherence, and likeability. Total data collection period will be 6 weeks.

The intervention group will be able to take pictures of their meals, set dietary goals, and will receive personalized medals and badges according to the dietary quality of the foods they ate. They will be able to see the scores and statistics about the quality of their diet. They will receive a daily report summarizing everything they ate and notifications reminding them to take pictures. In contrast, the participants in the control group will have access to a mobile phone with a limited version of FRANI, without possibility of setting dietary goals, nor a home screen, daily reports, scores and statistics. They also will not receive medals and badges. Both groups will see the same notifications, except daily report reminders for the control group. A computer-generated sequence will be used to randomly allocated participants to the intervention and control groups at a 1:1 ratio for each country separately.

## **Intervention Type**

Behavioural

## **Primary outcome(s)**

The feasibility of the FRANI was assessed by measuring outcomes related to adherence, acceptability. Adherence in this pilot study is defined as the number of days the participants completed dietary recalls on the FRANI divided by the total number of days of the pilot test. Participants will be considered adherent if this is equal to 70% or higher, starting to count from the first and ending on the last day of the pilot. Acceptability summarizes likeability, satisfaction, intent to use, and intent to continue using the FRANI, while usability summarizes what affects the use of the FRANI. Acceptability and usability are measured according to answers from structured questionnaires. If participants grade the acceptability or usability of the FRANI as 30 or more points in their respective structured questionnaires, the app will be considered accepted or usable.

## **Key secondary outcome(s)**

Measured using data captured by FRANI over the entire duration of the pilot:

1. Percentage of total meals recorded in FRANI
2. Quality of dietary choices measured using the Individual Dietary Diversity Score
3. Quality of dietary choices measured using the EAT-Lancet Diet Score

**Completion date**

30/01/2022

## Eligibility

**Key inclusion criteria**

Adolescent girls aged 12-18 years in the targeted community

**Participant type(s)**

Healthy volunteer

**Healthy volunteers allowed**

No

**Age group**

Child

**Lower age limit**

12 years

**Upper age limit**

18 years

**Sex**

Female

**Key exclusion criteria**

Participant not providing assent or parent not providing consent.

**Date of first enrolment**

01/07/2021

**Date of final enrolment**

30/12/2021

## Locations

**Countries of recruitment**

Ghana

Viet Nam

**Study participating centre**  
**Noguchi Memorial Institute for Medical Research, University of Ghana**  
S Legon Dr  
Accra  
Ghana  
LG 581

**Study participating centre**  
**Thai Nguyen National Hospital**  
479 Luong Ngoc Quyen Phan Dinh Phung  
Thanh pho Thai Nguyen  
Thai Nguyen  
Viet Nam  
479999

## **Sponsor information**

**Organisation**  
Fondation Botnar

**ROR**  
<https://ror.org/033ztm745>

## **Funder(s)**

**Funder type**  
Research organisation

**Funder Name**  
Consortium of International Agricultural Research Centers

**Alternative Name(s)**  
CGIAR

**Funding Body Type**  
Private sector organisation

**Funding Body Subtype**  
Other non-profit organizations

**Location**  
France

# Results and Publications

## Individual participant data (IPD) sharing plan

The data will be shared on the IFPRI dataverse 1 year after the completion of the study

## IPD sharing plan summary

Stored in publicly available repository

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		13/12/2023	31/05/2024	Yes	No
<a href="#">Protocol article</a>		06/12/2022	28/12/2022	Yes	No