ISRCTN10681553 https://doi.org/10.1186/ISRCTN10681553

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

Submission date
12/11/2021

Recruitment status
No longer recruiting

Registration date
12/11/2021

Overall study status
Completed

Last Edited
31/05/2024

Condition category
Nutritional, Metabolic, Endocrine

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] 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
Dr Aulo Gelli

ORCID ID
https://orcid.org/0000-0003-4977-2549

Contact details
1201 Eye Street NW
Washington, DC
United States of America
20005-3915
+1 202 862-5611
a.gelli@cgiar.org

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

Primary study design
Interventional

Study design
Randomized controlled pilot study

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?
Results article		13/12/2023	31/05/2024	Yes	No
Protocol article		06/12/2022	28/12/2022	Yes	No