ISRCTN68568514 https://doi.org/10.1186/ISRCTN68568514

Integrated data system to empower female health cadres in the village-based decision-making process for the nutrition program (Puspadaya)

Submission date
25/04/2025

Recruitment status
No longer recruiting

Registration date
28/04/2025

Overall study status
Ongoing

Last Edited
22/10/2025

Condition category
Other

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims

Stunting is defined as lower than average height for a child's age. The global prevalence of stunting in children under 5 years of age has decreased from 33% in 2000 to 22.3% in 2022, with an average annual reduction of 1.65% over the past decade. It is estimated that 39.6 million children will fail to meet the SDG target of 13.5% stunting prevalence by 2030, with 19% of these children living in South and Southeast. In Indonesia the prevalence of stunting has decreased from 37.6% in 2013 to 21.6% in 2022 but remains higher than the target of 14% set for 2024.

Currently, the Banyuwangi District Government has implemented the Banyuwangi Tanggap Stunting (BTS) Program to identify children experiencing stunting and wasting. Cadres collect monthly nutrition data at Integrated Service Posts (Posyandu) and manually input this data into books. However, the information reported in the BTS program only includes data for children experiencing stunting and wasting. Villages have the authority and budget to plan nutritional interventions. However, the participation and quality of data used in decision-making are still limited, resulting in insufficient funding for village nutrition programs and low payments for Posyandu cadres.

There are approximately 300,000 Posyandu in Indonesia with around 780,000 cadres, most of whom are women. Posyandu cadres provide essential services to the community, including home visits, data recording, and providing complementary feeding to malnourished children. However, their work is considered voluntary with minimal payment from the regional budget. The budget for cadre incentives is less than 2%, and their voices in village planning and decision-making are limited, as men predominantly dominate village meetings.

To address this gap, we will empower Posyandu cadres by involving them in project design, data collection training, data interpretation on a village-based dashboard, and enhancing their skills in presenting data and negotiating in village planning and decision-making. This will lead to better intervention processes and adequate incentives for their contributions.

This study aims to transform the health data system into a real-time platform, empowering FHC with verifiable data to influence decision-making at the village level regarding child nutrition interventions in Banyuwangi and Central Maluku District, Indonesia.

Who can participate?
The co-design process will involve both stakeholders and cadres in Banyuwangi District and Central Maluku District. Stakeholders will be selected based on their involvement in nutrition intervention and decision-making at the village level, district level and national level.
Two Community Health Centers in each district are selected as study locations. Two to three villages in the service area of the Community Health Centres are selected based on the proportion of child malnutrition cases. Next, all cadres in the selected villages will receive training.

What does the study involve?
Stakeholders and female health cadres in the study locations will be involved in the design of the mobile application, data dashboard and training modules. The mobile application will be used by cadres to collect routine data and the data will be integrated into the data system at the Community Health Centres. All female health cadres in the study locations will be trained to use the mobile applications to collect routine data of children under 5 years of age and pregnant women in their service area. They will also be trained on how to interpret the data they collect and present it to the community members and use it to negotiate for a better nutrition program in village-based meetings.

What are the possible benefits and risks of participating?
Cadres may benefit from the more efficient data collection system. Cadres will receive internet quota compensation. The data collection procedure involves focus group discussion, inputting data through the mobile application and observation of the cadres' work. This method may cause some inconvenience due to the time required for participation. However, we will strive to implement a system that minimizes any inconvenience.

Where is the study run from?
The study is run from Indonesia. The study in Banyuwangi District is run by the research team at Universitas Airlangga Banyuwangi Campus and the study in Maluku Tengah District is run by the research team at the Universitas Pattimura in Ambon City, Maluku. The database is managed by the Banyuwangi Polytechnique in Banyuwangi. The research team from the University of Sydney provides support to the research team remotely.

When is the study starting and how long is it expected to run for?
The development of the study starts from 1 July 2024. The study is conducted in three stages:
Stage 1: Formative Research (Survey and Qualitative Data Collection using interviews and focus group discussions): from 22 October 2024 to 6 December 2024
Stage 2. Co-design process for data integration, mobile application, data dashboard and training modules (Focus group discussions and acceptance test): from 12 to 26 February 2025
Stage 3. Prospective Uncontrolled System Trial: from 7 May 2025 to 30 September 2026

Who is funding the study?
This study is funded by the Australian Government through the KONEKSI program

Who is the main contact?
Dr Susy K. Sebayang, sksebayang@fkm.unair.ac.id

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Dr Susy Katikana Sebayang

ORCID ID
https://orcid.org/0000-0003-0470-8308

Contact details
Faculty of Health, Medicine and Life Sciences
Universitas Airlangga
Jalan Ikan Wijinongko No 18, Sobo
Banyuwangi
Indonesia
68417
+62 (0)81288283367
sksebayang@fkm.unair.ac.id

Additional identifiers

Protocol serial number
KONEKSI Ref. No.: 1447/CRG/2024/40-UNAIR

Study information

Scientific Title
A prospective cohort study integrated data system to empower female health cadres in the village-based decision-making process for the nutrition program

Acronym
Puspadaya

Study objectives
Rationale:
Health systems in low-resource settings often face critical gaps in data-driven decision-making, particularly at the community level. Frontline health cadres (community health workers) play a pivotal role in collecting and managing health data, yet they frequently lack the technical skills, tools, and institutional support to translate raw data into actionable insights. This disconnect undermines efforts to address pressing health challenges, such as child nutrition, disease surveillance, and equitable healthcare delivery. The global prevalence of stunting in children under five has decreased from 33% in 2000 to 22.3% in 2022, with an average annual reduction of 1.65% over the past decade. It is estimated that 39.6 million children will fail to meet the SDG target of 13.5% stunting prevalence by 2030, with 19% of these children living in South and Southeast (UNICEF et al., 2023). In Indonesia, stunting prevalence has decreased from 37.6% in 2013 to 21.6% in 2022 but remains higher than the target of 14% set for 2024 2024 (Kementerian Kesehatan RI, 2022a). Effective nutrition intervention requires robust data for

identifying at-risk children, monitoring progress, and tailoring programs. Additionally, fragmented health data systems hinder effective resource allocation and program monitoring. Female health cadres (FHCs) collect monthly nutritional data at community health posts (Posyandu), but this paper-based information remains disconnected from the national data system. This study focuses on integrating child nutrition data collected by FHCs into a unified digital platform.
There are approximately 300,000 Posyandus in Indonesia, with around 780,000 cadres, mostly women. The FHCs provide essential services to the community, including home visits, data recording, and delivering complementary food to malnourished children. However, their work is considered voluntary with a small payment from the village budget. The budget for FHC incentives is less than 2%, and their voices in village planning and decision-making are limited, as men dominate village meetings. To address the inequalities, we will empower the FHCs by co-designing the project, training in data collection, data interpretation of the village-based dashboard, and improving FHCs' ability to present data and agency to negotiate in village planning and decision-making processes for better intervention and adequate incentives for their contribution.

Ethics approval required
Ethics approval required

Ethics approval(s)
1. Approved 17/07/2024, Ethical Research Committee of the Faculty of Public Health, Universitas Airlangga (Universitas Airlangga (Kampus C Unair, Mulyorejo, Kec. Mulyorejo, Surabaya, 60115, Indonesia; +62 (0)315920948; adm.kepk@fkm.unair.ac.id), ref: 179/EA/KEPK/2024

2. Approved 23/09/2024, Health Research Ethics Committee - National Research and Innovation Agency (Gedung B.J. Habibie Lantai 8 Jalan M.H. Thamrin No. 8, Jakarta, 10340, Indonesia; +62 (0) 81119333639; klirensetik@brin.go.id), ref: 180/KE.03/SK/09/2024

3. Approved 11/12/2024, Research Integrity and Ethics Administration, University of Sydney (Level 3, Michael Spence Building (F23) The University of Sydney, Sydney, NSW 2006, Australia; +61 (0)2 9036 9161; human.ethics@sydney.edu.au), ref: 2024/HE001186

Primary study design
Observational

Study design
Prospective uncontrolled system trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Health information, primary health care

Interventions
The research team co-designed with the stakeholders and health cadres a mobile application and data dashboard to support health data integration at the selected Community Health Centres (Puskesmas).

Health cadres in the selected villages in the service area of these Community Health Centres will be trained to use the mobile application, to interpret the data collected using the mobile application, to present the data and to negotiate for a better nutrition program in the village.

Intervention Type
Other

Primary outcome(s)
Number of cadres' activities recorded through the data system measured monthly from baseline to endline using the system database

Key secondary outcome(s)
1. Percentage of trained female health cadres demonstrating improved data interpretation knowledge and skills, measured using a batch of questions and skill test at baseline, at the end of training, 6 months and 12 months after training
2. Percentage of trained female health cadres demonstrating improved negotiation skills, measured using a skill test at baseline, at the end of training, 6 months and 12 months after training
3. Percentage of female health cadres actively presenting data in community meetings as reported by cadres and observed by field facilitators at baseline, at the end of training, 6 months and 12 months after training

Completion date
31/12/2026

Eligibility

Key inclusion criteria
1. Cadres working in the selected Puskesmas area
2. Able to read and write

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
75 Years

Sex
All

Key exclusion criteria
Cadres retiring from his/her position

Date of first enrolment
07/05/2025

Date of final enrolment
31/12/2025

Locations

Countries of recruitment
Indonesia

Study participating centre
Puskesmas Benculuk
Jl. Banyuwangi No 71, Krajan, Benculuk, Kecamatan Cluring
Banyuwangi
Indonesia
68482

Study participating centre
Puskesmas Tampo
Jl. Raya Lapangan Simbar, Krajan, Tampo, Kecamatan Cluring
Banyuwangi
Indonesia
68482

Study participating centre
Puskesmas Saparua
Jl. Kampung Jati, Saparua, Kecamatan Saparua
Maluku Tengah
Indonesia
97584

Study participating centre
Puskesmas Porto Haria
Haria - Amaratu, Portho, Kecamatan Saparua
Maluku Tengah
Indonesia
97584

Sponsor information

Organisation
Airlangga University

ROR
https://ror.org/04ctejd88

Funder(s)

Funder type
Government

Funder Name
The Australian Government through the KONEKSI program

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available due to the design of the study to help the Government of Indonesia collect routine health data in real time more efficiently from the primary care. Data cannot be made available without a permit from the Government of Indonesia.

IPD sharing plan summary
Not expected to be made available