



Piloting tools for caregiver-collected health and nutrition information

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Introduction

In 2019, an estimated 690 million people were malnourished¹. Improving access to accurate information on health and nutrition status is critical to monitoring for humanitarian disaster, assessing the impacts of interventions and monitoring national progress against benchmarks such as the Millennium Development Goals (MDGs). Hiring and managing teams

of enumerators to locate and collect data from households is one of the most expensive and logistically challenging aspects of conventional approaches to tracking household health and nutrition status over time. Indeed, collecting such data is often cost-prohibitive, especially at frequencies needed to reflect fast-changing dynamics caused by shocks or interventions. Training individuals to record and submit information on themselves and their surroundings is a promising alternative. While this option has been used in the past (e.g., consumption

diaries), the International Livestock Research Institute (ILRI) and the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) are collaborating to leverage advances in ICT for more inclusive participation, low-cost and near-real-time data acquisition, which will cover a broad range of indicators.

As participants in the *Improving Dietary and Health Data for Decision-making in Agriculture and Nutrition Actions in Africa* project, caregivers use smartphones to record and submit information on consumption, food

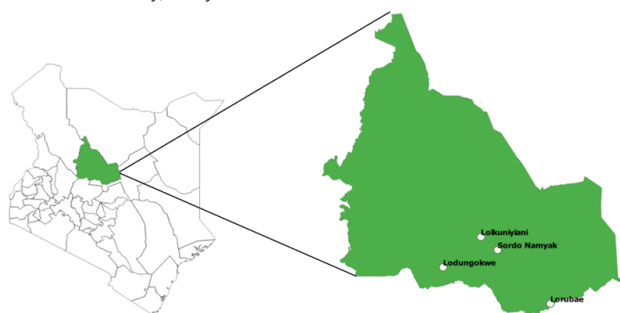
1. FAO, IFAD, UNICEF, WFP and WHO. 2020. The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO. <https://doi.org/10.4060/ca9692en>

security and nutritional status on themselves and their children, while also receiving feedback on their progress against internationally-recognized benchmarks. The application, known as 'Mbiotisho', which means 'our health' in Samburu, relies on icons and audio to help the caregiver record data without requiring literacy, numeracy, or any previous experience with smartphones. Data are stored on the phones until the caregiver has access to cellular connectivity, at which time the data are submitted to the server and evaluated.

Samburu pilot implementation

To pilot Mbiotisho, we partnered with the existing community health infrastructure in Samburu County, Kenya. The region's Community Health Extension Worker (CHEW) helped us identify four Community Health Units (CHUs) that vary in remoteness, accessibility, connectivity coverage, literacy levels and exposure to smartphone use (Figure 1).

Figure 1: Administrative centres for the four participating CHUs in Samburu County, Kenya.



Five Community Health Volunteers (CHVs) from each CHU were selected to participate on the basis of having been actively collecting and submitting data consistently for the last six months, familiarity with smartphones², and availability for the pilot duration. Here, we note that CHVs already perform monthly check-ups with clients, pregnant women and new caregivers and their infants, as part of their work. As participants in this project, these CHVs also collected verification data from the caregivers while performing their monthly rounds.

The CHVs were trained for three days on a data collection tool developed by the project for use by the CHVs, and on related technical modules (curriculum developed by Kenya's Ministry of Health) relevant to the indicators collected by the initiative. The CHVs were also trained on caregivers' application features and how to address basic ICT technical challenges. Partway through the training, two additional CHVs were recruited and added to the project in order to mitigate the impact of prospective CHV attrition.

The CHVs then developed a roster of eligible participants from their list of clients; caregivers aged 15–49 years with a child aged 5–7 months at the time of enrolment. The project selected nine caregivers from that roster. The selected caregivers were then invited to participate in the

project and trained in their respective CHUs for in-person training and unsupervised data collection practice at home. They were trained on basic smartphone use and maintenance, on the indicators being tracked and how to measure them (e.g., food groups, mid-upper arm circumference (MUAC)), plus the data collection tool and application features.

While participation was voluntary, and the caregivers could record and submit information as little as they liked, the application limited their maximum submissions to once every 24 hours for the child and caregiver check-ups, and once every week for the child MUAC measurement. The CHVs were to complete a child and caregiver check-up each month as they did their standard rounds.

Outcomes

During the 12-month pilot, the caregivers submitted over 60,000 records on their health and nutrition and that of one of their children. That is an average of six records per caregiver per week for the duration of the project. Highlighting an additional advantage of the caregiver-collected data model, submissions continued during the six months that our field teams were restricted from fieldwork due to the adverse conditions created by the COVID-19 pandemic and related policies³. Standard enumerator approaches would have resulted in a large data gap in this period, but the caregivers continued recording and submitted information the entire time without any in-person support from our team.

Feedback sessions

Six weeks after the pilot started, we launched a new feature on the caregivers' application, which provided them with reports comparing the consumption and MUAC readings of their index child to that of international benchmarks. Caregivers were briefly trained on the new reporting feature and provided feedback on the changes in the application that they would like to see. Caregivers responded enthusiastically to the new reporting feature and requested a similar addition, one that would track their own progress. The caregiver report was built into the app and launched remotely because field visits were restricted due to the COVID-19 pandemic.

Summary statistics: caregiver and CHV baseline survey

At the end of the pilot, a final feedback session was conducted. This was collected in the form of a structured set of questions administered by CHVs to the caregivers, and aimed at eliciting caregivers' views and experiences, plus their recommendations for possible improvements.

In total, 18 CHVs and 128 caregivers participated in the endline survey. Note that a number of issues, including migration, mobility and COVID-19 restrictions reduced participation in the endline survey, which was collected in-person during the closing meetings and required that participants travel to a central location.

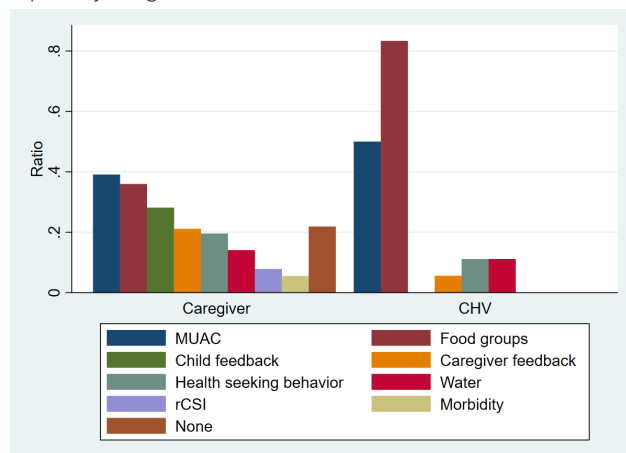
2. In addition to data collecting responsibilities, the CHVs also provided frontline communication and ICT support to the caregivers when needed.

3. See [Lepariyo \(2020\)](#) for more information on details on how the project thrived during the pandemic.

Which sections did the participants like and dislike most?

We asked the participants to identify the subsections of the application that they liked and disliked the most. Both CHVs and caregivers liked the subsections on consumption of food groups and on measuring and photographing MUAC the most (Figure 2). On dislike, 2% of caregivers reported that they did not like the MUAC section and 1% of the caregivers most disliked the food groups and health-seeking behaviour.

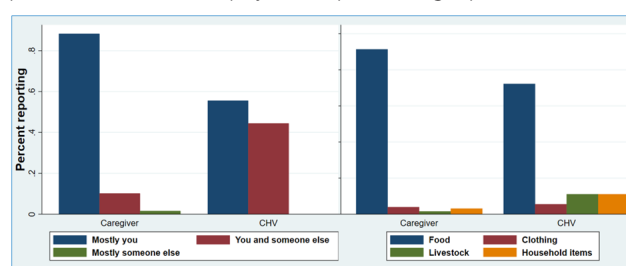
Figure 2: The ratio of caregivers and CHVs that reported especially liking each subsection.



Who controlled the payments received and what were they spent on?

Participants received a small payment for each submission made. During the endline survey, they were asked what those payments were spent on and the decision-maker for the expenditures. Eighty-eight percent (88%) of the caregivers reported that they had mostly controlled what the payments were used for, while 56% of the CHVs reported the same (Figure 3, left panel). A large proportion of the participants – 91% of the caregivers and 72% of the CHVs reported using the incentive to purchase food (Figure 3, right panel). Here we note two large differences between the CHVs and caregivers that could influence the responses to this question. First, all the caregivers were women, but some of the CHVs were men. Second, the CHVs received a steady stipend each month of about USD 30 for their work with the project, and that stipend was more than double the average monthly payments received by the caregivers.

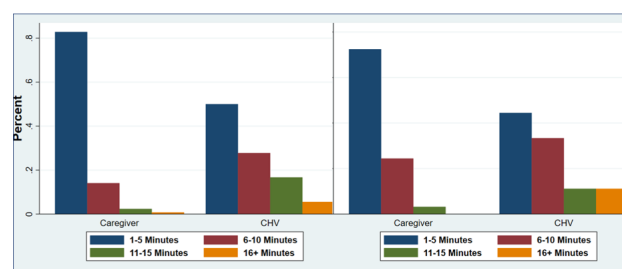
Figure 3: Who controlled what payments were spent on (left panel)? What were the payments spent on (right panel)?



Time taken to complete check-ups

The time that CHVs and caregivers took to complete the check-ups is summarized in Figure 4. The left panel presents the time taken for the caregiver check-up, while the right panel is for the child check-up. Most CHVs and caregivers spent 1-5 minutes to complete each check-up.

Figure 4: Time taken to complete the caregiver check-up (left panel). The child check-up (right panel).



Additional application features suggested Improving the Mbiotisho application before rolling it out to new regions is key to its future success. Therefore, caregivers were asked to suggest improvements. The most popular response (21%) was to add a measurement of the caregiver's MUAC and accompanying photos. Other suggestions included adding questions on how the food was prepared (11%), adding height and weight measurement questions (7%), and adding a confirmation indicator that the data had been successfully delivered to the server (6%). Seventeen percent (17%) of the caregivers thought the application was good enough and did not require additional features.

Next steps

Based on feedback collected by the caregivers and CHVs, as well as analysis of data variation and accuracy, the application is being updated. Our main lessons from the pilot were that caregivers are willing and able to record and submit information on themselves and their children. In addition, they are interested in the process and value the feedback provided in the app.

We are now in the process of launching Mbiotisho three new locations among three different 'difficult-to-reach' populations. This will also require customizing the application to meet the specific needs of each collaborator. For example, in one case we are working with the World Food Program (WFP) and the National AIDS and STIs Control Program (NASCO) to monitor undernutrition and overnutrition among people living with HIV. For that implementation, we have added questions related to access to treatment and adherence to treatment regimens, as well as maintaining the core modules on health and nutrition.

Acknowledgements

The authors would like to thank the International Development Research Centre (IDRC) for believing in this effort and funding the work described in this publication. We are extremely grateful to the caregivers, their children and the community health volunteers for their enthusiasm, patience and support. The project could not have been implemented without the application development team at Logic.



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