



mVAM for Nutrition

Kenya Case Study



World Food Programme





Using Computer-Assisted Telephone Interviewing (CATI) to collect data on nutrition indicators

Collecting nutrition data at an individual level through Face-to-Face (F2F) surveys can be an expensive, slow, and difficult process, especially in remote areas or conflict zones. These factors limit the effective use of the data in monitoring and early warning. However, as mobile phone access and ownership increases exponentially around the world, mobile data collection methodologies offer a quick and affordable way to collect data remotely.

In order to monitor changes in food security and nutrition, the World Food Programme (WFP) has incorporated dietary diversity indicators for young children and women of reproductive age into its programmes, as well as innovative ways of

collecting this information using mobile methodologies.

The information collected via mobile methodologies helps to provide early warning of deteriorating nutrition situations and support global efforts to strengthen nutrition monitoring. The need for real-time nutrition data was highlighted in the [2016 Global Nutrition Report](#), which called for a data revolution to better track progress, strengthen accountability and reduce malnutrition faster.

Our innovative approach to nutrition data collection aims to contribute to achieve Sustainable Development Goal 2.2 (SDG 2.2) to tackle malnutrition by 2030.



MAD

Minimum Acceptable Diet

Who participates?

Primary caretakers of children aged 6 - 23 months

Why is it important?

WFP corporate indicator for interventions, including stunting prevention programmes.

MAD is an internationally validated Infant and Young Child Feeding Indicator, widely used in surveys and monitoring to assess diet quality, validated against sufficient micronutrient intake and healthy growth for children between 6-23 months of age.



MDD-W

Minimum Dietary Diversity for Women

Who participates?

Women of reproductive age (15 - 49 years)

Why is it important?

WFP corporate indicator for interventions, including nutrition-sensitive programmes.

Women tend to be more nutritionally vulnerable, require more nutrient-dense foods than men, and are sometimes disadvantaged in intra-household food distribution.

Fieldwork sites

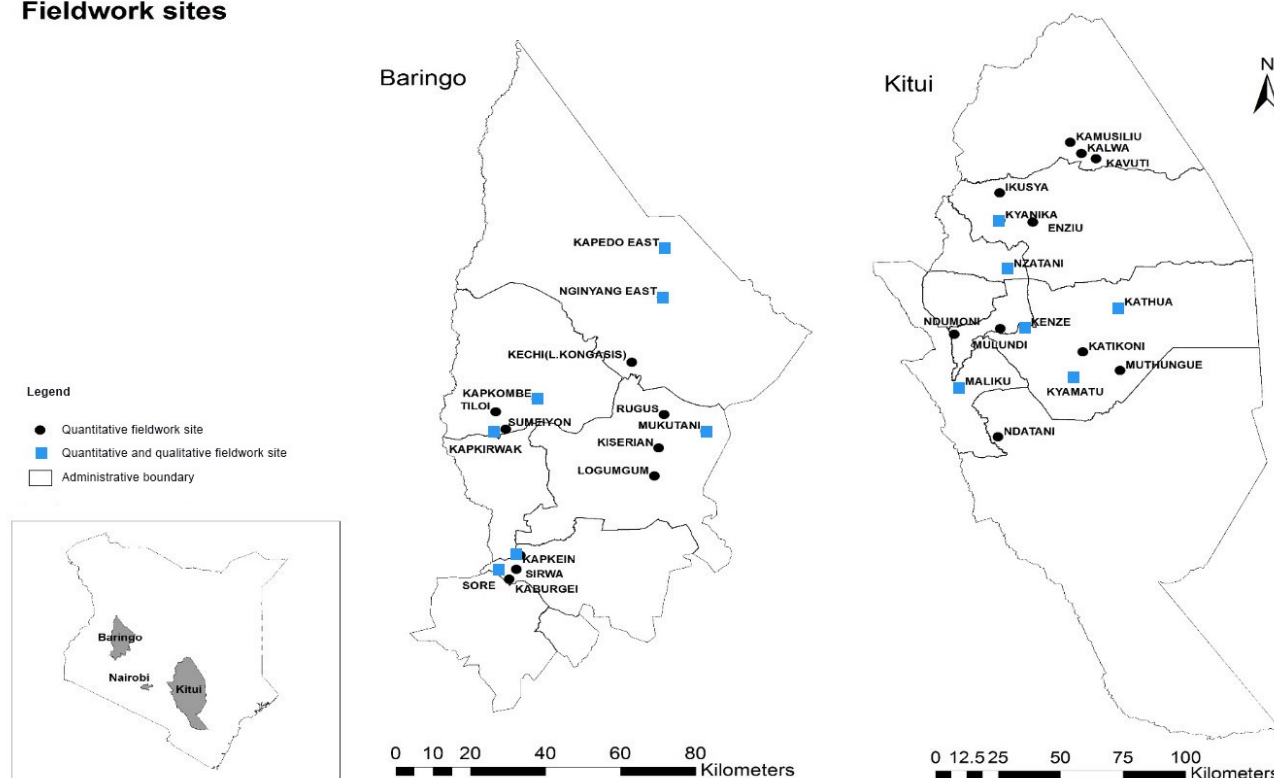


Figure 1. Nutrition fieldwork sites, Kitui and Baringo counties, Kenya

In collaboration with the World Agroforestry Centre (ICRAF), WFP undertook a study to assess whether mobile data collection methodologies such as Computer-Assisted Telephone Interviewing (CATI) can be used to collect useful information on nutrition indicators.

Kenya Case Study

The study evaluated whether CATI could be used in rural areas to collect data on two of WFP's corporate nutrition indicators, Minimum Acceptable Diet (MAD) and Minimum Dietary Diversity for Women (MDD-W). It was conducted in two phases, using a mixed-method approach.

Phase I: A formative study determined the viability of using CATI as a methodology for collecting dietary data on women and young children.

Phase II: A mode experiment measured the accuracy of information collected on MAD and MDD-W using CATI versus information collected using traditional Face-to-Face interviews.

Data collection took place during October-November 2016 in two counties in Kenya: Kitui County in Eastern Kenya and Baringo County in the Central Rift Valley Region. In Phase I, data was collected from 16 sub-locations for the formative study; in Phase II, data was collected from 32 sub-locations for the quantitative mode experiment.

The locations were selected based on the following criteria:

- WFP's physical presence in the areas (for logistical support);
- Availability of adequate mobile phone coverage;
- Diversity of observed socioeconomic status and environmental conditions.

The study was a collaboration between WFP's mobile Vulnerability Analysis and Mapping (mVAM) initiative, WFP's Nutrition Division and the Surveillance of Climate-smart Agriculture for Nutrition (SCAN), a project run by ICRAF with the London School of Hygiene and Tropical Medicine and the University of Cape Town. Funding was provided from USAID's Office of Food for Peace through WFP's Nutrition Division and a UKAID-funded IMMANA grant to the SCAN project. The study protocol received the research clearance and ethical approval from the National Commission for Science, Technology and Innovation (NACOSTI) in Kenya and the London School of Hygiene and Tropical Medicine.

Phase I: Formative Study

In order to better understand cultural contexts and local diet patterns, and to identify constraints and success factors in receiving mobile surveys, a formative study was conducted prior to the CATI survey. Information on local diet and women's mobile phone usage patterns were collected through 17 focus group discussions, 16 in-depth interviews and 22 key informant interviews with mobile phone vendors, local nutritionists and local government

representatives. Data extracted from these conversations was analysed using NVivo 10 and coded using defined and emerging themes.

“Since the introduction of mobile in 2001, a lot of people have embraced this technology ... Phones have become a basis for communication, it cuts across [rich and poor]. The rich have expensive phones; the poor have phones still but cheap ones. Even families who eat once a day keep a very cheap phone, which they can use when they want to use.”

- Key Informant, Baringo

Formative Study: findings

The formative study examined the following key themes:

Access: The study found that the majority of women had access to mobile phones through personal ownership or sharing within and between households.

Phone ownership: Women’s mobile phone ownership was found to be high in both counties (between 60-90% of women were estimated to own phones). Simple feature phones were the predominant type of mobile phone owned by women.

Mobile phone usage: Women mostly used phones to make and receive calls, and usage of other phone functions such as SMS was very low in the study populations, suggesting that CATI would be the optimal modality to reach women through mobile surveys in similar contexts.

Mobile phone network: Poor network coverage proved to be the biggest barrier to phone surveys in the two counties, with some locations having poor or no network coverage. However, even in areas with poor network coverage, phone ownership was found to be high. Women were also willing to travel to find the nearest network hotspots to make or receive phone calls.

Engagement in phone surveys: Women demonstrated a high degree of willingness to participate in mobile phone surveys, and had no hesitation about answering questions about their diet.

Trust: Women voiced concerns about receiving phone calls from unknown numbers, but study participants who mentioned trust as a barrier also said that prior sensitization in the community would help to resolve trust issues.

Phone charging: Although the majority of the households did not have electricity or solar panels, most women charged their phones at least once a week, either at a neighbour’s house or at a local charging shop, and did not consider phone charging as barrier to taking part in mobile surveys.

Gender dynamics: A select number of women in Baringo County stated that they would have to seek approval of their husbands prior to participating in mobile phone surveys.

Formative Study: conclusions and recommendations

The results of the formative study demonstrated that innovative mobile data collection methodologies such as CATI could be used to collect nutrition information from rural women, as long as phone access is high and women are willing to participate in phone interviews and answer questions about their diet. Phone surveys can be feasible even in areas where personal phone ownership is low, as women who do not own a phone personally may have access to mobile phones that can be used to participate in phone surveys. Potential barriers for women’s participation in phone surveys included poor network coverage, trust issues linked to unknown numbers and gender norms.

However, these barriers could be addressed in the following ways:

- For communities in remote areas, phone sharing practices may make it difficult to reach some participants, as the phone can be used by many members of a household or community. This has implications, especially for panel surveys that aim to reach the same respondent over a specified period of time. Scheduling times for phone calls in advance can minimize non-response and allow women to be ready to receive a call. This is particularly important in areas with limited phone network.
- Preparations for a mobile phone survey should include community consultations to understand optimal times and days to reach respondents. Budget and human resource planning at the operator set-up stage should account for the need to make multiple phone call attempts at different times of the day and on different days of the week, in order to minimize non-response.
- Prior engagement with men/husbands is vital to implement mobile surveys targeting women, especially in areas where cultural or gender norms can be a barrier. Prior sensitization in the community is also important to overcome trust issues related to answering calls from an unknown number.

EXPERIMENTAL DESIGN Test/Re-test method

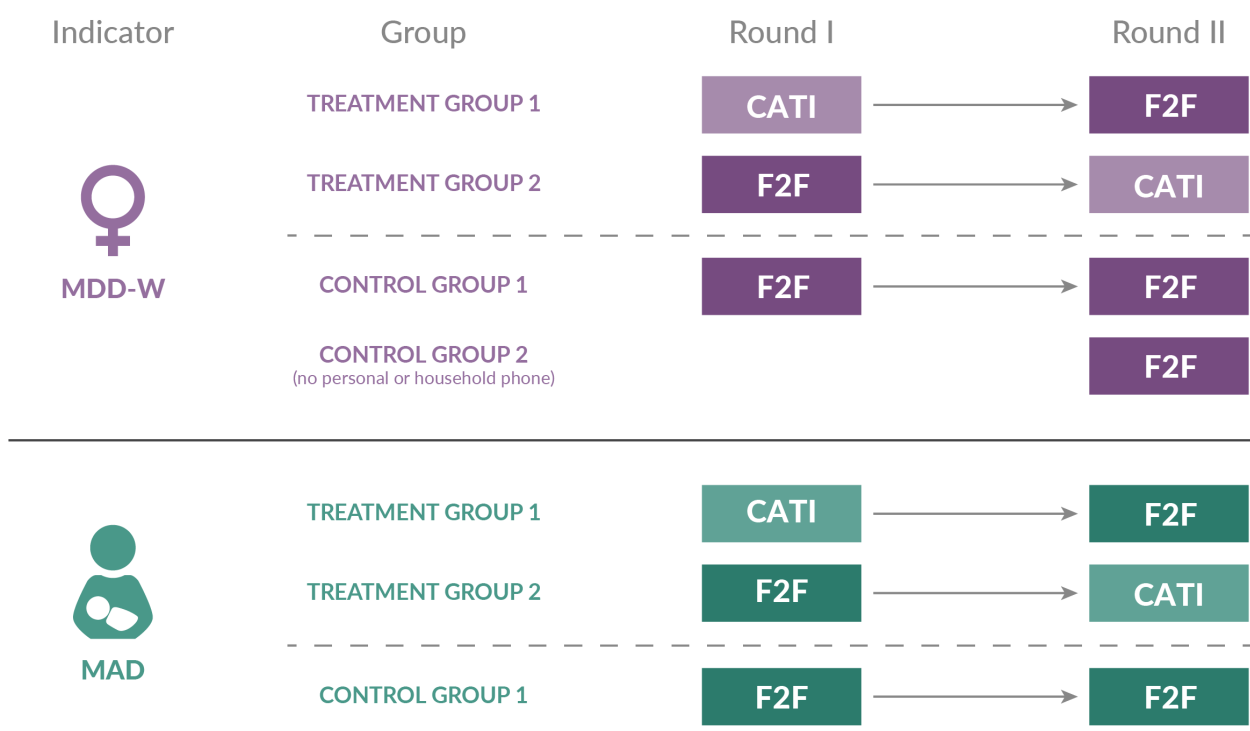


Figure 2. Mode experiment

No phone group includes individuals with no personal mobile phone or shared mobile phone within the household. "Treatment group" refers to the group of participants that receives the treatment. In this study, CATI is considered as the treatment. Participants in control groups received the standard mode of data collection, i.e. Face-to-Face survey.

Phase II: Mode Experiment

Following the formative study, a mode experiment was carried out to determine whether different modes of data collection resulted in different estimates of MAD and MDD-W. 2,200 respondents participated in the mode experiment, which used the test/re-test method (see Figure 2) to compare results from Face-to-Face (F2F) surveys and mobile phone surveys using CATI.

Respondents in Kitui and Baringo were asked the same information twice, once using CATI and once in an F2F survey. The mode was randomized by rounds, meaning that respondents that were interviewed using F2F in the test round (Round 1) were interviewed using CATI in the re-test round (Round 2) approximately 8 days later, and vice versa.

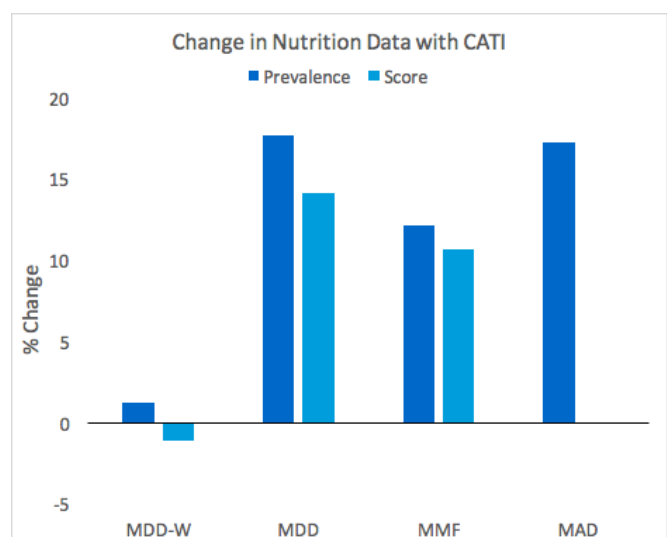
Some respondents received F2F surveys in both rounds in order to understand potential learning effects in the second round of surveys due to participation in the first round. (Control Group 1). Additionally, in the second round, F2F interviews on MDD-W were also conducted with women who do not own a personal or household phone (Control Group 2). As women who own phones may have different socio-demographic profiles from women who do not own phones, these results helped to provide an understanding of subpopulation bias in

conducting CATI interviews with women who own a personal or household phone.

Mode Experiment: Findings

A total of 1,466 respondents for MDD-W and 953 for MAD completed at least one round of the study. Twenty-four percent of participants did not participate in both rounds.

Figure 3. Changes in nutrition data with CATI



Failure to reach respondents was largely due to network issues for phone interviews, or security issues for Face-to-Face interviews.

Results of the study showed that mode had no significant effect on MDD-W scores, but MAD scores were substantially higher via CATI, with prevalence of adequate meal frequency 12% higher and adequate dietary diversity 18% higher.

For MDD-W, the magnitude of measured differences in scores between the modes was small enough to make CATI a valid mode of data collection (0.1 food groups on a scale of 0-10 food groups). However, for the two components of MAD (Minimum Dietary Diversity and Minimum Meal Frequency), the magnitude of differences in score with mode was large, meaning further work is required to test the validity of using CATI for collecting and reporting point estimates on MAD. When the CATI mode was used, caregivers reported that children were consuming an average of 0.5 more food groups per day (on a scale of 0-7 food groups) and eating an average of 0.75 more meals per day.

The results of the mode experiment also showed that while women with mobile phones were generally more affluent than those without (in terms of assets, education levels and household head's employment status), no significant differences were observed in the MDD-W scores of women in either category.

“... you find more women with phones than men. You find a man telling you, I have borrowed this phone from my wife to make a call.”

- Key Informant, Kitui

Conclusions

The findings of the study suggest that CATI has the potential to be used as a rapid and cost-efficient approach to accurately collect data on MDD-W and MAD. However, MAD data collected via CATI is biased towards higher dietary diversity and more adequate diets for young children.

For MAD, further work is required to test the validity of using CATI for collecting and reporting single point estimates; however, if the objective is to conduct trends analysis for program performance monitoring, CATI can be used as a cost-effective method of data collection. While this was not tested in this study, future research could assess the potential of using CATI to conduct trends analysis for both MAD and MDD-W. In conjunction with other data on nutrition and food security, both MDD-W and MAD time series data collected using CATI can be used to provide timely early warning for deteriorating nutrition situations and for nutrition monitoring.

Recommendations

While the study demonstrated that CATI is a viable method for collecting nutrition data, it is important to keep the following recommendations in mind:

- Triangulation of data with other sources of contextual information will be important to interpret the data.
- Future research could evaluate the applicability of advanced statistical methods to make adjustments for the mode effects and sub-population biases.

Best Practices

Additionally, the following best practices should be taken into account when conducting mobile phone surveys:

- A qualitative formative study should inform the design and implementation of any survey using CATI.
- Community sensitization and engagement with women prior to conducting CATI surveys is important to address potential barriers for conducting CATI surveys with women.
- The recruitment of motivated and qualified call centre operators is essential. Operators should receive intensive training, followed by daily supervision and regular feedback sessions.
- Perform pre-tests of survey instruments as well as the methodology to assess functionality of the survey and identify any possible challenges that need to be addressed prior to actual data collection.

For additional information please contact:

Kusum Hachhethu
World Food Programme
Kusum.hachhethu@wfp.org

Todd Rosenstock
World Agroforestry Centre (ICRAF)
T.Rosenstock@cgiar.org