Lessons and Insights from the adaptation of the novel INDDEX24 Dietary Assessment Platform: The experience from the Nigeria National Food Consumption and Micronutrient Survey 2021

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Introduction

Nigeria continues to face high rates of chronic undernutrition, micronutrient deficiency, overweight and obesity, and associated diet-related non-communicable diseases. A lack of current data on food consumption from a representative sample remain a major constraint to understanding nutrient and dietary gaps in Nigeria. The National Food Consumption and Micronutrient Survey (NFCMS) 2021 is the third nationally representative survey of its kind conducted in Nigeria, following those implemented in 1968 and 2001. The dietary component of NFCMS was designed to assess the type and amounts of foods consumed and nutrient adequacy of the diet. The Nigerian NFCMS is the first large-scale survey to adopt the INDDEX24 Dietary Assessment Platform which consists of the Global Food Matters Database and the INDDEX24 Mobile App. The INDDEX24 mobile application was selected for the survey as it was specifically developed for use in large surveys in low income developing countries. It offers the following advantages over paper questionnaire: guides enumerators and respondents through a i24-hour dietary recall interview in a structured manner; contains modifiable instructions to allow adjustments to the interview process; allows for real time data monitoring and checking by on-site supervisors and remote data managers; and provides instant calorie count for foods consumed as a quick data quality check, among others.

Methods or Approach

The NFCMS is a cross-sectional population-based survey and national in scope. Sampling within each geopolitical zone followed a 2-stage random selection strategy, In the first stage, Enumeration areas were selected with Probability Proportional to Size using systematic sampling. In the first stage, Primary Sampling Units (PSU) or sixty-five (65) EAs within each region were selected. In the second stage, eligible respondents were randomly selected within the sampled EAs. The sample size for the dietary component was 11,219 respondents and includes children 6-59 months, women of reproductive age (WRA) 15-49 years, and pregnant women. The INDDEX24 Mobile Application was adapted for Nigeria and used for data collection using tablets between March and July 2021. A random sample of non-pregnant WRA and children 6-59 months (about 25%) from respondents who completed the 24-hour dietary recall was visited for a repeat 24-hour dietary recall interview and collection of food samples on nonconsecutive days.

Objectives

Adapt INDDEX24 Mobile Application for use in a large-scale National Survey in Nigeria

Findings and Interpretations

The Nigerian NFCMS is the first new-generation fully digitalized survey that successfully leveraged and adapted the novel INDDEX24 Dietary Assessment Platform. Processes and procedures for conducting pre-survey activities were developed or adapted to generate inputs for modifying the INDDEX24 Mobile Application. The pre-survey work included the development of unique dietary inputs (databases of commonly consumed foods, standard recipes, conversion factors, portion size estimation methods and food composition data) and extensive testing of the app. Key learning with the use of the INDDEX24 Dietary Assessment Platform include 1) adaptation of the INDDEX24 requires time, funds, and skilled personnel and approximately takes between 9-12 months; 2) each interviewer needed a username and password, making it difficult to switch responds once allocated to an interviewer; need to establish during planning how INDDEX24 will be linked to other applications, especially in a multi-component survey; 3) supervisor form-which allows for real time data quality checks during field work resulting in improved data quality, 4) availability of Global Food Databases for future dietary intake surveys, 5) need for good connectivity to be able to sync data daily and use supervisor form function, and 6) generation of additional variables resulting in a lengthy process requiring considerable level of effort. The dietary data collected is currently being processed and cleaned, and results are expected to be available in 2023.

Conclusion

The adaptation and adoption of the INDDEX24 Mobile Application in a large-scale survey in Nigeria is an important milestone for future NFCMS. We leveraged the digital advancements to create a system and dashboards for real-time data monitoring that improved data quality. Adapting the tool eliminated the need for paper-based data collection and its tedious double entry and processing of dietary data, which ultimately saved time in the survey cycle. More extensive and intentional capacity building for pre-survey data activities and post-survey data processing is needed to create an enabling environment for mainstreaming the application into national food consumption and micronutrient surveys in low- and middle-income countries.

Acknowledgement

Figure 1. Pre-survey activities

Figure 2. Adapted Application

Figure 3. Training photo

Figure 4. Photo on data collection

Figure 5. Computer database on 24-hr recall

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