

Introduction: What is cognitive interviewing?

National household surveys are an important tool for gathering population-specific information that are used to guide policy decisions. It is essential that the questions posed accurately capture data about respondent demographics, views, and experiences. Survey responses are influenced by psychological processes; cognitive errors may occur at multiple points in the survey process and influence a respondent's answer (Schwarz, 2007).

Cognitive interviewing is an applied qualitative technique for assessing a respondent's comprehension of survey questions and whether their responses impart the information as intended by survey designers (Willis, 2017). The [theoretical underpinning of cognitive interviewing](#) is based on the four-stage model of the cognitive process involved in answering a survey question: understanding the question (comprehension), recalling relevant facts (retrieval), making a judgement wherever needed (judgement), and giving a response (response) (Tourangeau, 1984). During the cognitive interview, a respondent is asked to provide information on each of these cognitive stages (Beatty, 2007). Cognitive interviewing can be used to improve survey question design, reduce measurement and response errors, and enhance the validity of conclusions drawn from responses.

Purpose: Why cognitive interviewing questions about MIYCN counselling?

For health and nutrition program monitoring and evaluation, household surveys are frequently used to measure the reach and impact of interventions. Surveys may ask about timing of service contacts (e.g., during pregnancy, after delivery, first few days, or months after birth), type of service provided (e.g., individual or group counselling), place of contact (e.g., home or health facility), service providers (e.g., nurses, doctors, community workers, etc), frequency of services provided (e.g., weekly, monthly), and what participants received or retained. For some interventions there is a significant time gap between service provision and the survey, which can lead to response errors.

The objectives of this study were to understand respondent comprehension of household survey questions about maternal, infant, and young child nutrition (MIYCN) counselling and to identify key cognitive challenges related to answering these questions over the phone compared to in person. We used findings to develop specific recommendations for revising questions about MIYCN intervention coverage and improving the validity of responses for a program evaluation survey.

Context: MIYCN counselling study in Bangladesh during COVID-19

Non-governmental organizations (NGOs) are providing essential primary care services in urban Bangladesh with funding from the government and development partners. Alive & Thrive (A&T) contributed to health systems strengthening by testing a package of MIYCN interventions delivered through NGO platforms in Dhaka. The maternal nutrition intervention package included capacity strengthening for health providers and nutritional counselors, creating friendly environments for MIYCN counselling in urban health facilities, community-level demand creation for MIYCN services, and interpersonal counselling about MIYCN practices.

In February 2020, a baseline survey for the program impact evaluation was conducted by a research team from the International Food Policy Research Institute (IFPRI) using face-to-face interviews (Nguyen et al., 2020). In September-October 2020 follow-up surveys were conducted by phone to examine the effects of the COVID-19 pandemic on

program participation. As part of the phone survey design, the IFPRI team carried out cognitive testing of survey questions in August 2020.

Methods

We used cognitive interviewing to qualitatively assess respondents' interpretation of and responses to questions pertaining to maternal and child nutrition intervention coverage. A total of thirty-three participants (11 pregnant women, 10 mothers with children < 6 months old, and 12 mothers with children 6- 12 months old) were selected from the sampling frame of the main impact evaluation study.

Semi-structured interviews in the local language were used to assess a short list of survey questions about the coverage and content of counselling on antenatal care services, infant and young child feeding services, and service provision in the COVID-19 context. The counselling questions were tailored to the specific services received by mother and child per life cycle stage. Probing questions were used to capture the four cognitive domains: comprehension, retrieval, judgement, and response (see example in *Box 1* below). Enumerators noted all participant responses and other reactions to each survey question. Field notes and transcripts from the cognitive tests were qualitatively coded by question and respondent type. The responses were thematically summarised by cognitive stage and analysed for common and unique patterns.

Box 1: Examples of probing questions

Comprehension:

- **Recall period:** What recall period did you include in your answer?
- **Abstract terms/concepts:** Can you describe for me in your own words what the [TERM] means?

Retrieval: Many people find it difficult to recall [X]; how well do you remember [X]? What did you think about with regard to [X]/what thoughts came to mind when asked about [X]?

Judgment: Do you think other people would find this question difficult? If so, why? Do you think other people would be reluctant or afraid to answer this question? If so, why?

Response: Did you find this question easy or difficult? If difficult, why?

Key Findings

Comprehension: Many women had difficulty comprehending questions, understanding technical terms used in the questions, and remembering the recall period. Nearly 45% of pregnant women had a poor understanding of the term "iron-folate supplementation"; 25% did not understand the meaning of this term. Similarly, 18% did not know about calcium supplements. A majority of women had difficulty understanding the time-period specified for food type and food quantity questions during pregnancy. For child feeding questions, many women failed to explain technical terms, and/or they failed to account for the time period associated with the service or question.

Respondents remembered the COVID-19 lockdown recall period better than other recall periods such as the previous 30 days and last month, or a recall period referring to a life stage (e.g., during pregnancy); however, most respondents did not specify the exact time interval of the lockdown period.

Retrieval: Most women who received counselling had good retrieval and provided clear responses about the nutrition and health advice they received. Most respondents who received exclusive breastfeeding counselling recalled being told to give their child only breast milk (and nothing else), but only a few specified up to what age. The women who received complementary feeding counselling recalled being given pictures of cooked food, instructions on how to cook, and dietary recommendations. When asked about the specifics of the complementary feeding advice they received, most women recalled the food items they were told to give to their child; fewer women

remembered other details specific to complementary feeding, such as continuation of breastmilk and/or appropriate child-age group.

Response and judgement: Nearly all women said the questions were simple to answer and that other women like them would find the asked questions simple to answer, but only a few respondents were able to describe in detail how they found the questions easy to understand. Some respondents had mixed feelings about other women's ability to respond to the question related to child feeding practices. Women who have previously received services, are aware of counselling, or have previously had a child may be able to answer the question; however, women who are unfamiliar with COVID-19 and live in rural, poor, or less educated areas may struggle.

Conclusion

The findings of our study contributed to revisions to questions about MIYCN intervention coverage for the Alive & Thrive phone survey. Our findings could be used to improve the quality and accuracy of MIYCN coverage data collected by other initiatives, however additional testing across multiple contexts is needed. Cognitive interviewing can be an effective tool and should be considered as a critical component in survey design.

References

- Beatty, P. C., & Willis, G. B. (2007). Research synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287–311. <https://doi.org/10.1093/pog/nfm006>
- Nguyen, P., Pramanik, P., Tran Mai, L., Menon, P. (2020) A Feasibility Study of Integrating Maternal, Infant and Young Child Nutrition Counselling Services in Urban Maternal, Neonatal and Child Health Services in Bangladesh. Alive & Thrive Baseline Survey Report. Washington, D.C.: Alive & Thrive.
- Schwarz, N. (2007). Cognitive Aspects of Survey Methodology. *Applied Cognitive Psychology*, 21(September 2007), 277–287. <https://doi.org/10.1002/acp.1340>
- Tourangeau, R. (1984). Cognitive Sciences and Survey Methods: A Cognitive Perspective. *Cognitive Aspects of Survey Methodology: Building a Bridge between Disciplines*, November, 73–100.
- Willis, G. B. (2017). Cognitive interviewing in survey design: State of the science and future directions. In *The Palgrave Handbook of Survey Research* (Issue October 2017, pp. 1–676). <https://doi.org/10.1007/978-3-319-54395-6>

Suggested Citation

Nguyen, P., Pant, A., Kachwaha, S. Shapleigh, S. 2022 Using Cognitive Interviewing as a Tool to Improve MICYN Counselling Survey Questions. DataDENT/International Food Policy Research Institute.

Brief: This work was supported by the Bill and Melinda Gates Foundation through Alive & Thrive, managed by FHI Solutions (grant numbers: OPP1170427) and DataDENT (grant number OPP1174256). DataDENT is a four-year initiative (2017-2021) that aims to transform the availability and use of nutrition data by addressing gaps in nutrition measurement and advocating for stronger nutrition data systems. DataDENT is funded by the Bill & Melinda Gates Foundation, and is implemented by three institutions: Institute for International Programs (IIP) at the Johns Hopkins Bloomberg School of Public Health, the International Food Policy Research Institute (IFPRI), and Results for Development (R4D).