



Modeling Interviewer Effects in DHS Surveys (MR32)

An Analysis Brief from The DHS Program

Why study interviewer effects?

The characteristics of interviewers can influence survey responses, affecting data quality and reliability. In 2015, The DHS Program began implementing a standard fieldworker questionnaire to all interviewers. These data allow analysts to explore the possible effects individual DHS interviewers have on survey responses. The first analysis ([Methodological Report #24, 2018](#)) found that the age, education level, and previous experience working on a DHS-type survey of interviewers were associated with better data quality.

Previous research in other settings has suggested that question length, highly sensitive or personal questions, and those that are attitudinal rather than factual may be more affected by interviewer characteristics than shorter, simpler, less sensitive questions. That is, the age, education, or experience of an interviewer may be more important when dealing with long, complex, sensitive questions.

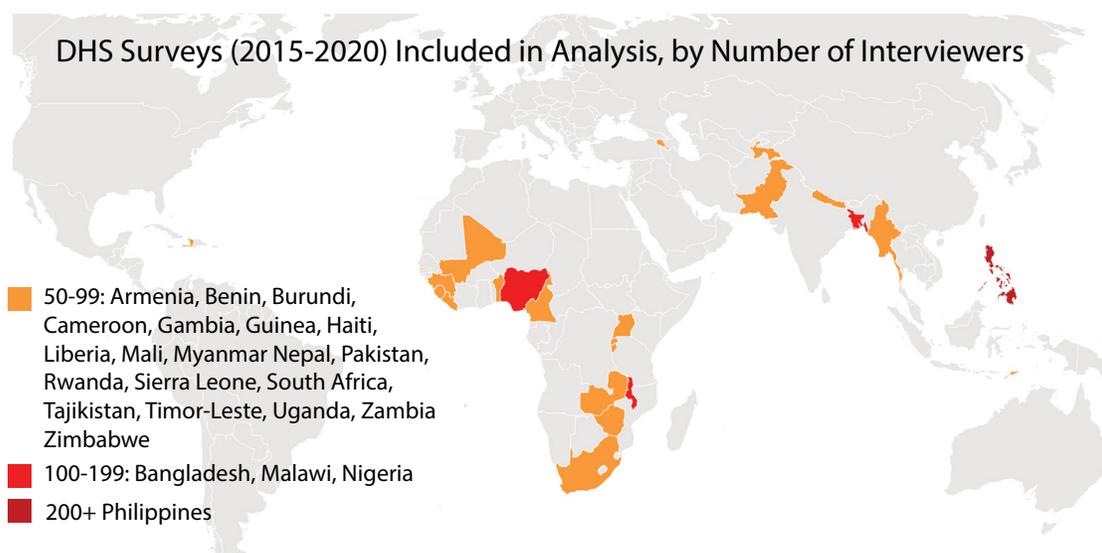
Studying interviewer effects provides the opportunity to improve data quality as results may direct implementers to targeted changes to question format, interviewer training, and fieldwork staffing.

What are interviewer effects?

Interviewer effects, measured in this study with intra-interviewer correlation estimates (IICs), are the ways in which an individual interviewer effects the response of a respondent. High IICs may be a cause for concern, as they indicate a strong interviewer effect; that is, the tendency of the interviewer to obtain the same response regardless of who is being interviewed.

Which countries were included in the study?

This analysis included data from 24 recent DHS surveys conducted between 2015 and 2020.



What methods were used to conduct this analysis?

This report used multilevel statistical modeling to estimate interviewer effects in DHS surveys while accounting for interviewer and respondent characteristics as well as the survey clusters (enumeration areas) to which interviewers were assigned. Specific methodological elements are summarized below:

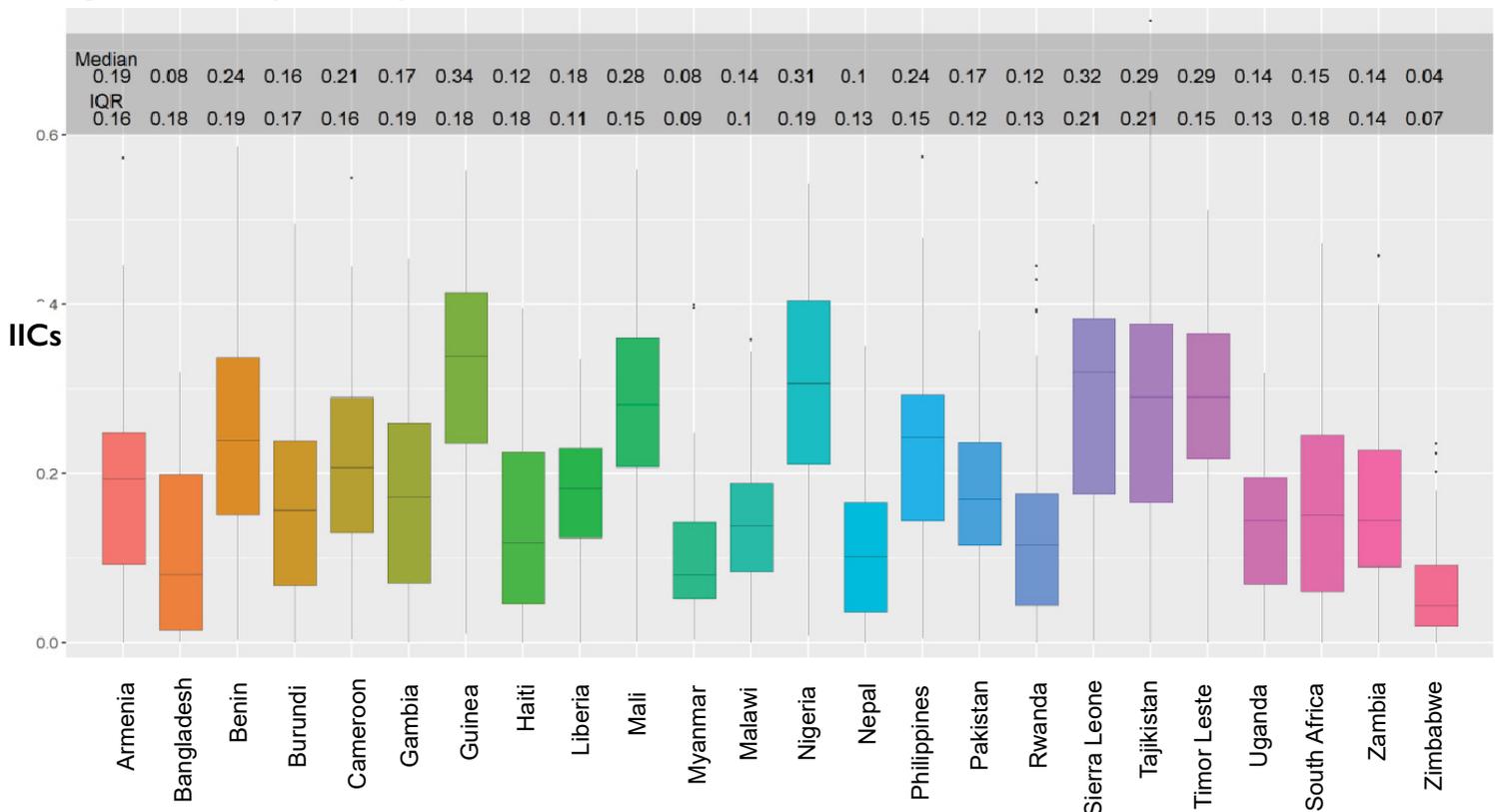
- **Classification of questions by characteristics:** 116 questions across 9 sections of the woman's questionnaire were coded by length (long or short), type of question (factual or attitudinal/subjective), sensitivity (e.g., highly personal, uncomfortable to answer), social desirability (e.g., is a respondent likely to want to provide a favorable response), and difficulty/complexity (difficult to recall or understand, or too complex a topic).
- **Mixed-effects logistic regression models:** Covariates in multilevel models included respondent characteristics (age, marital status, education, and whether interview was translated into another language), interviewer characteristics (age, marital status, education, previous DHS or other survey experience), and cluster characteristics (geographic region and rural/urban).
- **Intra-Interviewer correlation estimates:** IIC estimates were compared across question characteristics (e.g., long versus short questions) and were analyzed by question. Median and inter-quartile ranges were calculated for all intra-interviewer correlation estimates. Beta regression models were used to test for significant differences in IICs after controlling for all question characteristics.

What are the key results?

Major results from the quantitative analysis include:

- Intra-interviewer effects varied significantly across countries and within countries. Median IICs were lowest in Bangladesh, Myanmar, and Zimbabwe, and highest in Guinea, Nigeria, and Sierra Leone. Within countries, IICs were least varied in Myanmar and Zimbabwe, and most varied in Sierra Leona and Tajikistan (Figure 1).

Figure 1. IICs by Country



Three of the studied question characteristics were significantly associated with interviewer effects:

- **Length of questions:** the median IIC for longer questions was significantly higher than that for short questions in most surveys (Figure 2). In the final beta regression models which controlled for all covariates, these differences remained significant in 17 out of 24 countries.
- **Question type:** the median IIC for non-factual/subjective questions was significantly higher than that for factual questions in all countries (Figure 3). In the beta regression, these differences remained significant in 22 out of 24 countries.
- **Question complexity:** the median IIC for complex questions was significantly higher than that for simple questions in 8 out of 24 countries (Figure 4). In the beta regression, these differences remained significant in only 6 countries.

There were few significant differences in IIC found by question sensitivity or social desirability.

Figure 2. IICs according to Question Length Across Surveys

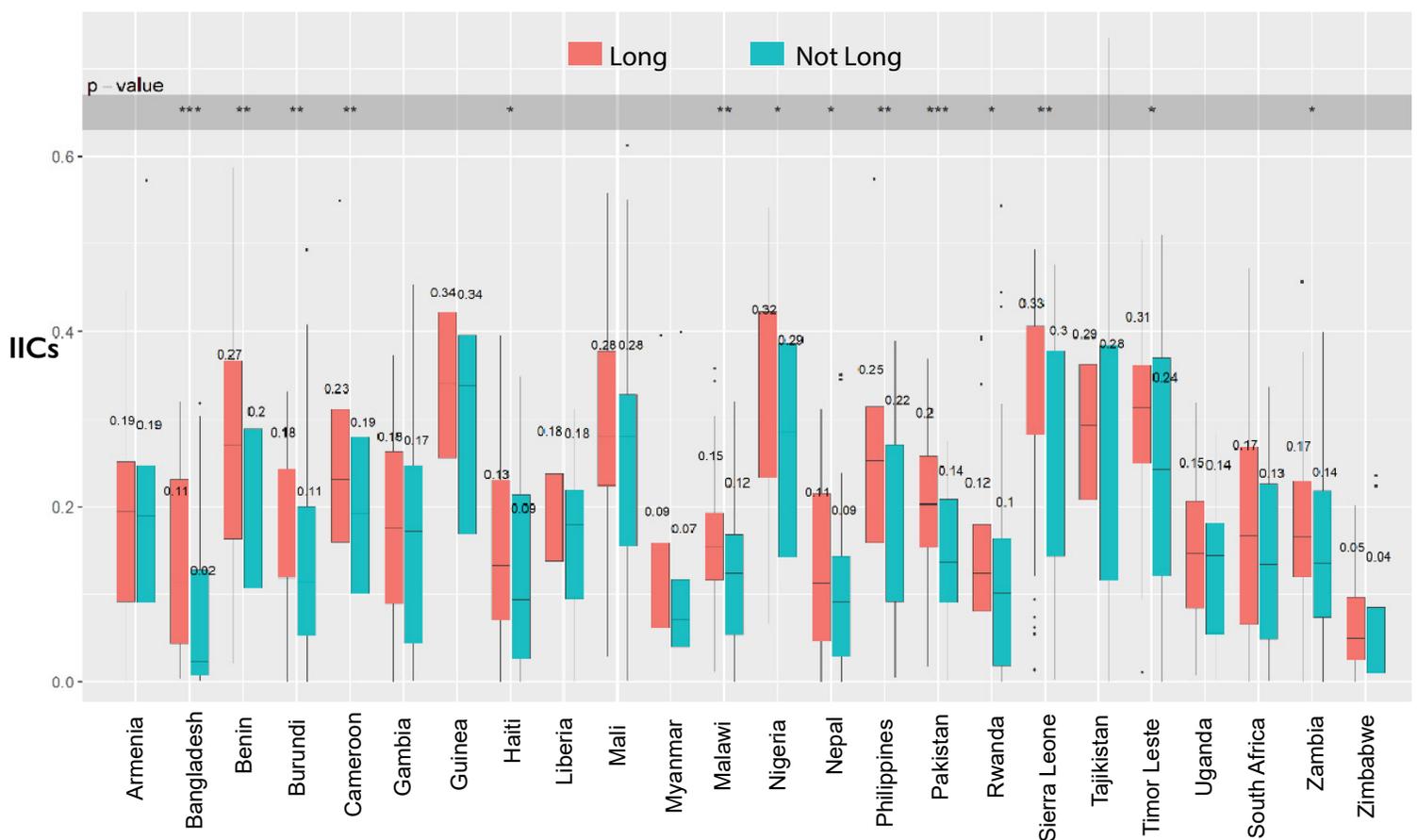


Figure 3. IICs according to Factual/Non-Factual Question Type Across Surveys

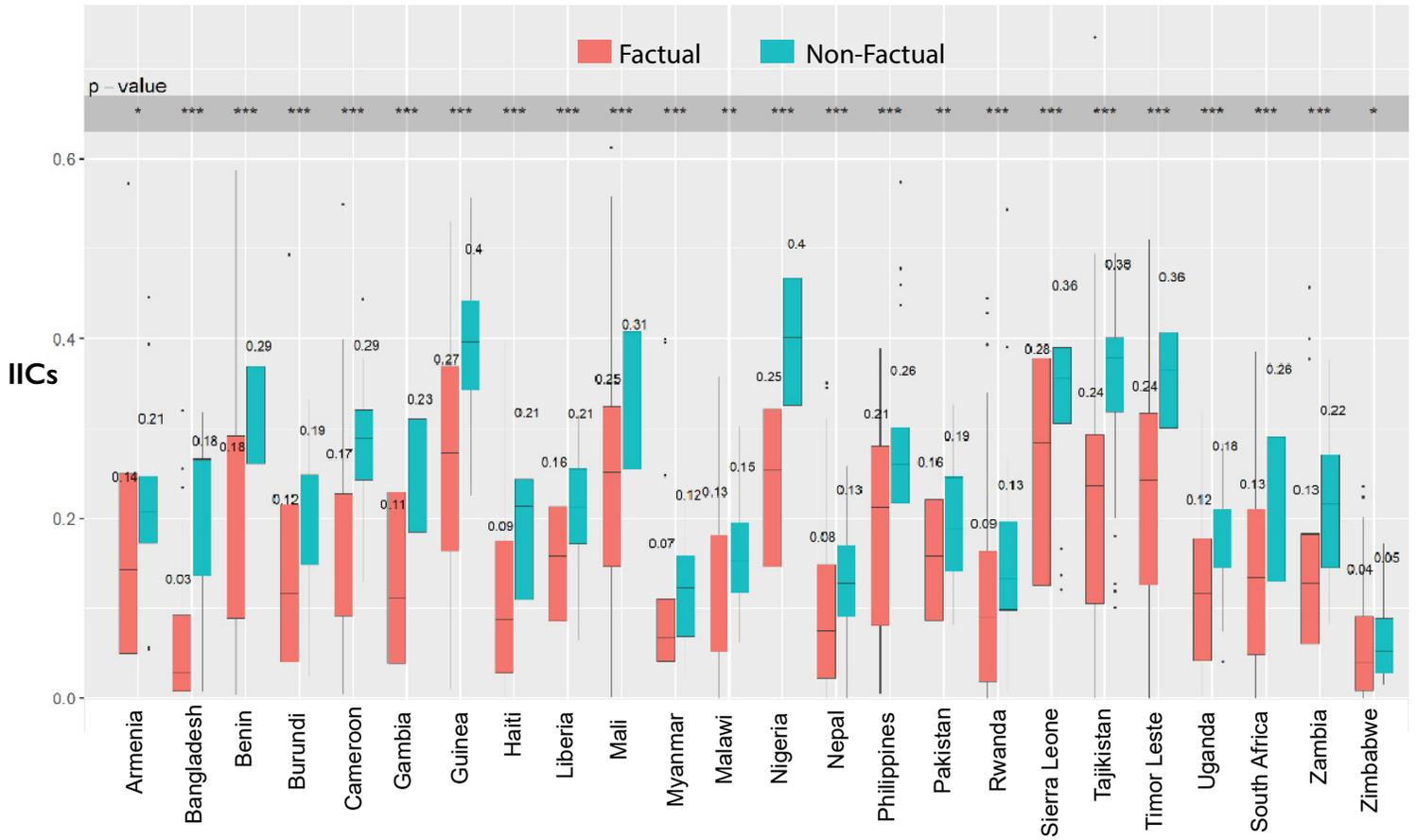
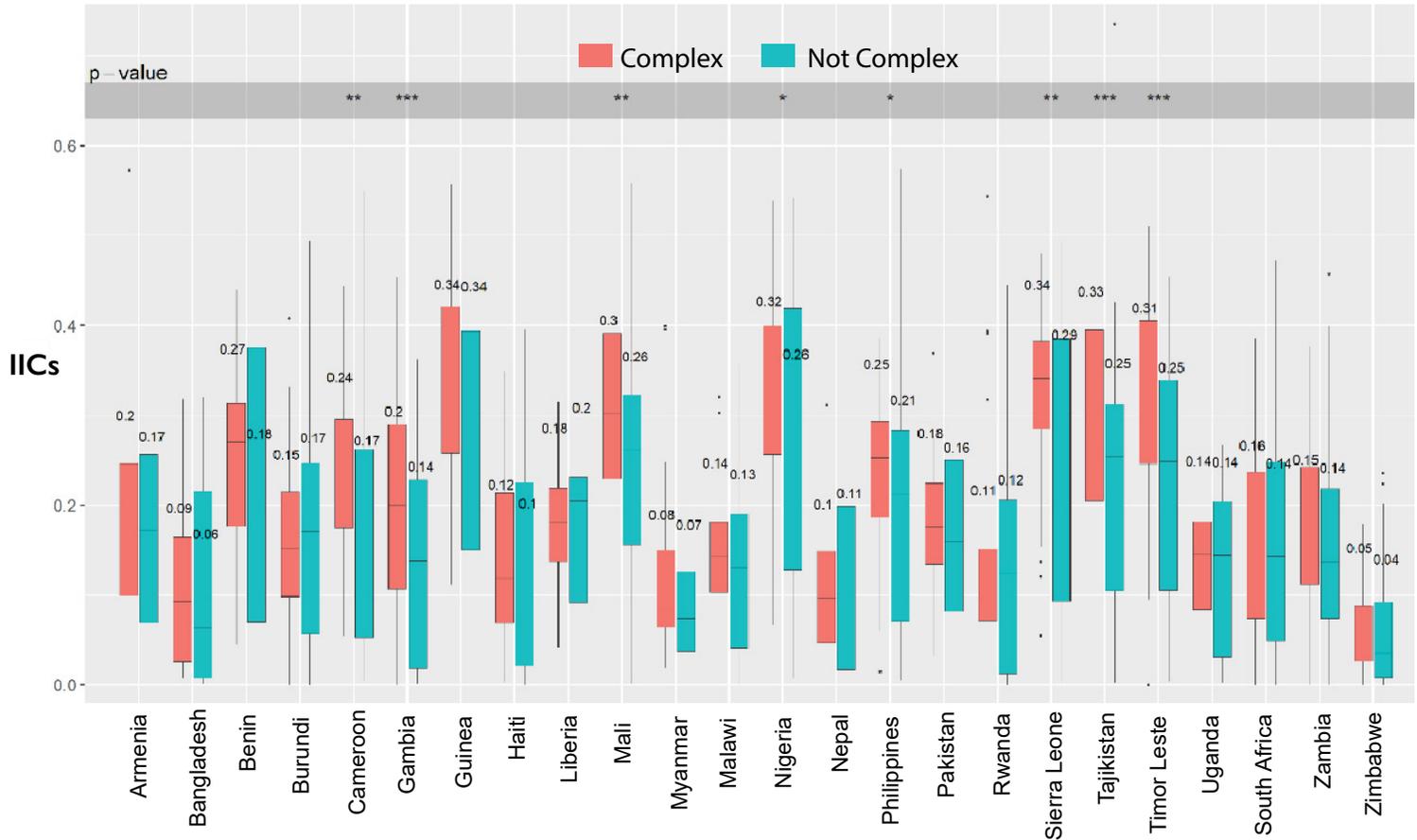


Figure 4. IICs according to Question Complexity Across Surveys



Conclusions and Recommendations

This analysis found that long questions, non-factual questions, and questions on complex topics were associated with larger interviewer effects compared to the shorter questions, factual questions, and questions on less complex or difficult topics. These differences were consistent across most of the 24 surveys in the analysis. There were no significant differences found in interviewer effects for questions that were sensitive/personal or could be biased by a socially desirable response.

These findings can be used to identify the questions and interviewer characteristics that contribute significantly to variance. Such results could inform interviewer recruitment and training, as well as questionnaire design.

The authors suggest that this type of analysis be extended to include questions from other parts of the DHS questionnaire, particularly child health and nutrition and domestic violence, as these areas are the most complex and sensitive. In addition, this analysis was based on the English language questionnaire. Further study is warranted to explore the impact of questionnaire translations, as they may affect the length and complexity of questions.



Nigina Abdurahmonova, an interviewer in the 2017 Tajikistan DHS, approaches a household.

This brief summarizes The DHS Program's Methodological Report 32, by Mahmoud Elkasabi and Azam Khan with funding from The United States Agency for International Development through The DHS Program implemented by ICF. The full report is available at <https://dhsprogram.com/pubs/pdf/MR32/MR32.pdf>