

The Effects of Questionnaire Design and Survey Methodology on Child Disability Measurement – Evidence from the Multiple Indicator Cluster Survey II

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Abstract:

The “Ten Questions” method is widely utilized in international surveys to measure child disability prevalence. One large-scale study of women and children – the Multiple Indicator Cluster Survey (MICS) – includes a module modeled after the “Ten Questions.” While the “Ten Questions” technique has been tested for its effectiveness as a screen, its ability to act as a stand-alone instrument in a household survey is virtually unknown. Furthermore, it is unknown how other metadata factors such as sample design, response rates, and coverage affect child disability prevalence measures. A descriptive and regression analysis of the MICS data accounting for differences in metadata factors by country attempts to discover any independent effects on measurement. Once the effects of these metadata factors are known, a renewed examination at the country level will show if prevalence rates are more similar across localities.

a. Description of the Topic to be Studied:

Recently, delegates of the United Nations *Ad Hoc Committee on a Comprehensive and Integral International Convention on the Protection and Promotion of the Rights and Dignity of Persons with Disabilities* congregated in their sixth session to formulate an international agreement on equalizing the life opportunities for people with disabilities around the world. More than simply advocating for a “better” quality of life, this convention seeks to equalize opportunities for people with disabilities and promotes “full” participation in social, political, and economic aspects of life for people with disabilities. Essentially, enumeration of people with disabilities gives voice to a population who might otherwise be overlooked in policy and program planning and is a necessary intermediate step in the allocation of resources.

Counting the number of people with disabilities, though, is no simple task. The nature of children, especially the very young, makes it even more difficult for caretakers to assess disability. Methodological research is required for refinement of survey methods so that the data collected is a more accurate representation of child disability prevalence. This investigation attempts to contribute to that endeavor.

This research will attempt to address the following questions:

- What metadata factors affect the measurement of child disability prevalence?
- After accounting for metadata differences, are country prevalence rates similar?

b. Theoretical Focus

Although measurement of child disability prevalence is recognized as a special case within disability measurement, there are no specific international recommendations for collection of disability statistics among children. According to the United Nations, “It is important that the list (of disability types) be adapted to the experience of children and the elderly in order to identify disability among these categories of the population” (United Nations 1998: 94). In the case of children, this recommendation is made based on the following considerations:

- Disabilities may be in early stages and hard to detect. This may lead to underreporting.
- Children cannot always be asked directly about disabilities – caretakers must interpret their experiences.
- Parents (or other responsible adults) may not be aware of the disability because a child cannot yet articulate it, or it may not have manifested itself.
- Children who suffer from congenital disabilities have no frame of reference, except to compare to the experience of other children (the same may apply to parents).

Scholarly work in the area of child disability survey methodology is, unfortunately, sparse. Work that *has* been done largely focuses on the method of assessing child disability through interviews conducted with a caretaker, usually the parent of a child. The “caretaker interview” method is widely used in disability surveys because of its practical ease and since it does not necessitate the use of assessment by a clinician, which is often costly and slows down the survey process (Chamie 1994). Chamie and others advocate for the use of the “Ten Questions” method¹ developed and tested by Durkin *et al.* They argue that simplicity and reliability make this method superior to other methods. The “Ten Questions” method has been evaluated in a handful of studies across a variety of different countries (Durkin et al 1994; Zaman et al 1990).

Researchers conclude that the “ten questions” questionnaire is an extremely sensitive test that serves as an excellent screening tool for referring children to further clinical assessment. It is not known, however, how effective this questionnaire is as a stand-alone instrument for use in a household survey to discover basic statistical information about prevalence rates and disability type.

c. Data and Research Methods

The Multiple Indicator Cluster Survey (MICS), coordinated by UNICEF, seeks information on a variety of child indicators, including disability. However, administration of the survey occurs at the national level, and total discretion of the survey design and methodology is left to local bodies, usually national statistics offices. This, as one may expect, produces a lot of variation in question type, method of collection, sampling, and other important factors which may have an effect on the overall measure of disability prevalence.

MICS was conceived at the 1990 World Summit for Children as a means to monitor a set of internationally agreed upon goals to protect the rights of children. According to the United Nations Children’s Fund “(MICS) is a household survey program developed by UNICEF to assist countries in filling data gaps for monitoring the situation of children and women. It is

¹ The types of disability assessed by the 10 Questions include blindness, deafness, mental retardation, epilepsy, speech problems, and movement disorders.

capable of producing statistically sound, internationally comparable estimates of these indicators” (UNICEF 2005).

An optional module on child disability is included in the MICS. This module is heavily modeled after Durkin’s “Ten Questions.” Out of the 65 countries that participated in MICSII, 22 indicated the use of the child disability module, although not all countries reported results or made the disability data available (Loaiza and Cappa 2005). Certain factors on the metadata are captured, such as: sampling frame, sample size, response rates, coverage and limitations, collection method, and question structure/type. Copies of original questionnaires were obtained from UNICEF headquarters in New York City. Additionally, the country reports and data documentation, where available, are used in the analysis.

The analysis is two-fold. First, patterns are detected in the national prevalence rates, disaggregated by gender and then by gender, age, and disability type. The analysis will 1) identify any systematic patterns in prevalence by country correlated with metadata characteristics and 2) inform the building of models meant to establish a causal link between metadata characteristics and resulting prevalence rates. This part of the analysis is already well underway.

Second, we use regression analysis to discover the effects of metadata factors net of other observables. Although analysis has yet to be completed, one first order model we use is a binomial generalized linear model with the proportion disabled for the i^{th} country, j^{th} gender group, and k^{th} age group as the dependent variable and metadata and demographic factors as the independent variables. Included in the model are demographic controls such as gender, age, and a country’s Human Development Index score (preliminary) – meant to account for socioeconomic and health variation across countries.

d. Expected Findings

A preliminary analysis of weighted country level prevalence shows two different types of patterns² (see figure 1). The most pronounced pattern is the difference between the group of countries with relatively high prevalence rates (some *extremely* high) and the country with a nearly non-existent prevalence rate. Sierra Leone differs from the other countries as it is the only one that asks a single general question which directly uses the word “disability.” The other countries have prevalence rates ranging from 20-100% and all use the “Ten Questions” module.

The second major pattern (among countries using the “Ten Questions” module) is the extreme variation that exists around age 2 and age 3, but stable rates (albeit at different levels) for children age 3 and beyond. An examination of the prevalence rates disaggregated by age, gender, and disability type shows that much of this variation is due to one single question – the question on talking (see figures 2-4 for three specific examples).

Other authors have noticed this trend. For example, Loaiza and Cappa 2005 also found very high prevalence associated with the questions on talking and removed the question from their analysis since it is extremely unlikely that a country have a near 100% disability prevalence rate.

² The prevalence rates are disaggregated by sex, but there are no major differences to report between the graphs (i.e. the trends hold across sex).

They make the very feasible assumption that a data entry or other administrative error is at fault for the anomalous figures. Interestingly, in our analysis, the trend seems to be patterned across a several countries (Tables/Figures 2-4) – could it be a systematic “misbehaving” of the question itself?

From the preliminary analysis, two major hypotheses are formed:

- 1) *Questionnaire design matters in a systematic way.*
- 2) *Collection methods probably matter, but in a much less systematic way than questionnaire design.*

References:

1. Chamie, Mary. 1994. Can Childhood Disability Be Ascertained Simply in Surveys? *Epidemiology* 5(3), 273-275.
2. Durkin, Maureen *et al.* 1994. Validity of the Ten Questions Screen for Childhood Disability: Results from Population-Based Studies in Bangladesh, Jamaica, and Pakistan. *Epidemiology* 5(3), 283-289.
3. Loaiza, Edilberto and Claudia Cappa. 2005. Measuring Children’s Disability via Household Surveys: The MICS Experience. Presented at the 2005 Population Association of America (PAA) annual meeting – Philadelphia, PA; March/April, 2005.
4. United Nations Statistics Division. 1998. Principles and Recommendations for Population and Housing Censuses, Revision 1. Department of Economic and Social Affairs – Statistics Division, United Nations.
5. Zaman, Sultana S *et al.* 1990. Validity of the ‘Ten Questions’ for Screening Childhood Disability: Results from Urban Bangladesh. *International Journal of Epidemiology* 18(3), 613-619.

Figure 1:

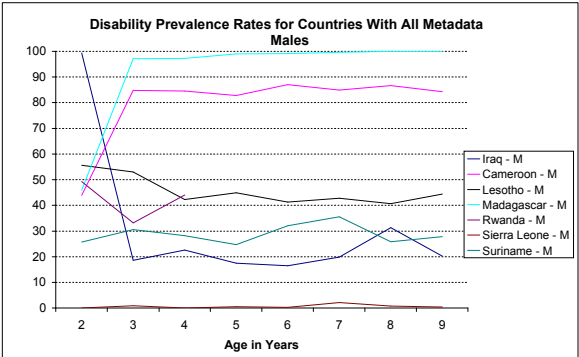


Figure 2:

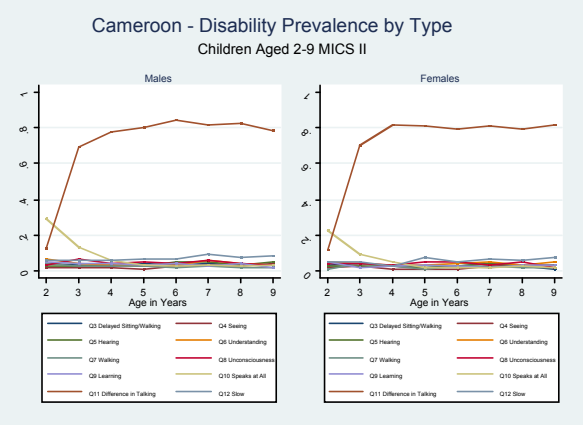


Figure 3:

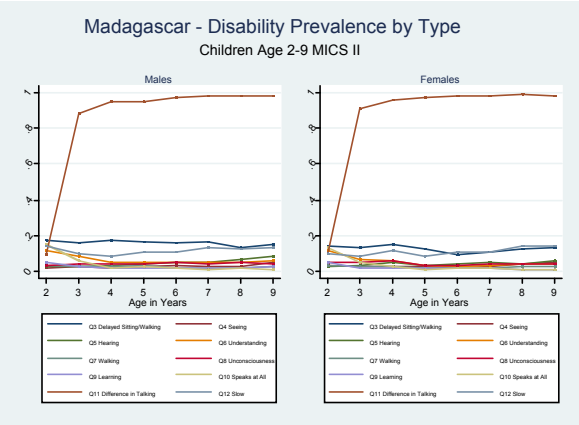


Figure 4:

