CanWaCH’s
Canadian
Collaborative for
Global Health

The Collaborative model enabled us the time, resources and flexibility to explore a complex and important question. The support and encouragement we received from the Collaborative team is much appreciated.

Acknowledgements

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Maximizing Use of Existing Data
to Strengthen Program Design, Evaluation and Impact
Non-governmental organizations (NGOs) spend substantial resources collecting their own data to assess baseline conditions; however, estimates of numerous indicators may already exist in publically available datasets, such as the Demographic and Health Surveys (DHS) and the Multiple Indicator Cluster Surveys (MICS).

Estimates calculated from publically available datasets were not always similar to the NGO estimates.

The impact of differences in year, geographical level, and season explains only a small part of the total variation in the difference between estimates.

Publically available data can be used if the NGO is tolerant of imprecise estimates.

To read more about this project, please visit: canwach.ca/project-explorer/#/project-details/1381
DO NGOs NEED BASELINE SURVEYS?

DHS AND MICS:
DHS and MICS are population-based health surveys that provide standardized data collected using rigorous methods for over 90 low- and middle-income countries. DHS and MICS are collected every 3-10 years and are available online on request and for free.

CAN DHS/MICS DATA BE USED FOR BASELINE ASSESSMENT?
Among the challenges of using DHS or MICS for baseline assessment is that data are not collected yearly and these surveys are not designed to be representative at lower geographical levels, such as district or village where NGOs often work.
WHY ARE NGO AND DHS/MICS ESTIMATES DIFFERENT?

We hypothesized that large differences between estimates from NGO baseline reports and publically available data might be due to three main reasons:

1. They might not be measuring the same underlying true value due to differences in location, year or season.
2. They might not be measuring the indicators in the same way due to differences in methods, regarding sampling, collecting, processing or analyzing data.
3. They might be measuring the indicators with high technical error of measurement, which can result in bias in unpredictable direction and dimension.

RECOMMENDATIONS

There are some situations where DHS/MICS might be used to the NGO’s advantage:

- When the estimates are expected to be less than 15% or above 85%
- When the indicator of interest is one of the few with consistent similarity between DHS/MICS and NGO estimates
- When the NGO has tolerance for estimates of low or unknown accuracy
To identify indicators related to maternal and child health that could be estimated using publically available datasets in low- and middle-income countries.

To assess the impact of differences in year, geographical level, and season in the estimation of indicators.

Discussion & Recommendations
Methods

Our analyses were done in three parts:

**PART 1: NGO VS DHS/MICS**

We compared indicators related to maternal and child health extracted from NGOs’ baseline reports with indicators calculated using publically available datasets (DHS or MICS)

- 139 indicators grouped into 41 subgroups
- From 46 NGO baseline reports
- Covering 23 countries

A total of 2,174 pairs of NGO-DHS/MICS indicators were retained for our analyses.

This graph summarizes the results from the three parts of our analyses.

- The DHS/MICS-NGO differences are largest when the indicator is between 35-65%, and smaller at the extremes.
- The DHS-DHS differences are very similar to the DHS/MICS-NGO differences, suggesting that it is not methodological differences that are responsible for the DHS/MICS-NGO differences (since DHS’s methods are largely consistent across years and geographical locations).
- The DHS/MICS-NGO differences are probably in smaller part due to random sampling error, as the simulation indicates that sampling error contributes only a small amount to the differences between the estimates.
Some of the indicators included:

**Child anthropometrics**
- Stunting
- Underweight

**Child diet**
- Early initiation of breastfeeding
- Ate 4+ food groups

**Child health**
- Diarrhea in the last 2 weeks
- Received diarrhea treatment

**Household**
- Has a car
- Has agricultural land

**Maternal health**
- Had at least 4 antenatal care visits
- Received iron supplements

**WASH**
- Has improved drinking water
- Shares toilet

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**PART 2: DHS VS DHS**
We compared DHS data across multiple years and regions to examine the sources of variation in differences in the estimates due to sampling error, year of data collection or geographical level, but not in methods, since the DHS methods are largely consistent across surveys.

- **Same indicators as in Part 1**
- **2 DHS cycles per country**
- **7 countries**
- **117,875 pairs of indicators**

**PART 3: SIMULATIONS**
We performed simulations where the indicators were measured without systematic error, only sampling error. The simulation sampled for a “true” prevalence of 1%, 10%, 20%, up to 99%.

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**GRAPH 2:**
Absolute difference between estimates by the indicator reference value.

1 Absolute difference between estimates calculated as:
   - Simulation: Simulated estimate 1 - Simulated estimate 2
   - DHS vs DHS: DHS-DHS
   - DHS/MICS vs NGO: DHS/MICS-NGO

2 Reference value: DHS or the estimate simulating DHS.
Main Findings

80% of the pairs of indicators of NGO and DHS/MICS were within a 20% difference

33% of the pairs were within a 5% difference

**GRAPH 1:**
Difference between estimates (DHS/MICS minus NGO) by subgroup of indicators.

This boxplot shows that very few indicators had all pairs within a 20% difference. Indicators with very low or very high prevalence tended to have the highest agreement:

- **Bottle fed yesterday (%)**
- **Continued breastfeeding (%)**
- **Diarrhea in the last two weeks: 0-5m (%)**
- **For those with diarrhea in the past two weeks: given more to eat (%)**
- **Household has a car (%)**

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**Difference between estimates (%)**
(DHS/MICS - NGO)

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