

# **Measuring Children's Disability via Household Surveys: The MICS Experience**

**By**

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The findings, interpretations and conclusions expressed in this paper are entirely those of the authors and do not necessarily reflect the policies or the views of UNICEF.

## I. Introduction

One of the main recent priorities for UNICEF has been to improve protection of children from violence, abuse, exploitation and discrimination. Children with disabilities are particularly prone to discrimination from the very individuals and institutions with an obligation to protect them, including families, health and education services, and the state. This discrimination often leads to reduced access to basic social services, especially education, as well as a lack of recognition of their equal humanity by their families, peers and communities. They are also especially vulnerable to abuse, exploitation and neglect, due to the same misperceptions which result in other forms of discrimination, and due to their increased vulnerability as a result of their specific physical or intellectual difference.

To allow children with disabilities to claim their rights, the discrimination which stands in their way must be addressed. This approach is very much in line with the 'social model' of disability. This model recognizes that disability is not caused simply by a medical condition, but also by the social restrictions which result from discrimination. In some cases, addressing discrimination against children with disabilities requires working towards the provision of services that meet their special needs. This includes early detection and intervention in health, and specialized education for children with intellectual or sensory disabilities. Efforts to address discrimination against children with disabilities will also have the positive effect of preventing the development of discriminatory attitudes towards those with disabilities in subsequent generations.

In trying to identify the disability problem, one of UNICEF's common features of rights-based situation analysis and common country assessments is the identification of disparities, based on geography, sex, age groups, ethnicity and other factors. A limiting factor in such efforts, however, is the lack of data on children's disability. To address this difficulty, UNICEF as the named UN agency to monitor progress towards the goals of the 1990 World Summit for Children and the 2002 World Fit for Children, developed the Multiple Indicator Cluster Survey (MICS methodology). UNICEF has coordinated the implementation of two rounds of MICS (1995-1997 and 1999-2001). During the second round of MICS, UNICEF included an optional module on children's disabilities, which was included in 22 of the 65 countries conducting the survey. The analysis of this experience and its results is the main objective of this paper.

The disability module provides data mostly on the type of impairments children have (e.g. seeing, hearing, muscle movement impairments, language production and reception, etc.) or about actual health conditions (e.g. epilepsy). A few questions ask about activity limitations (difficulties doing activities required or desired for everyday living, e.g. walking, learning).

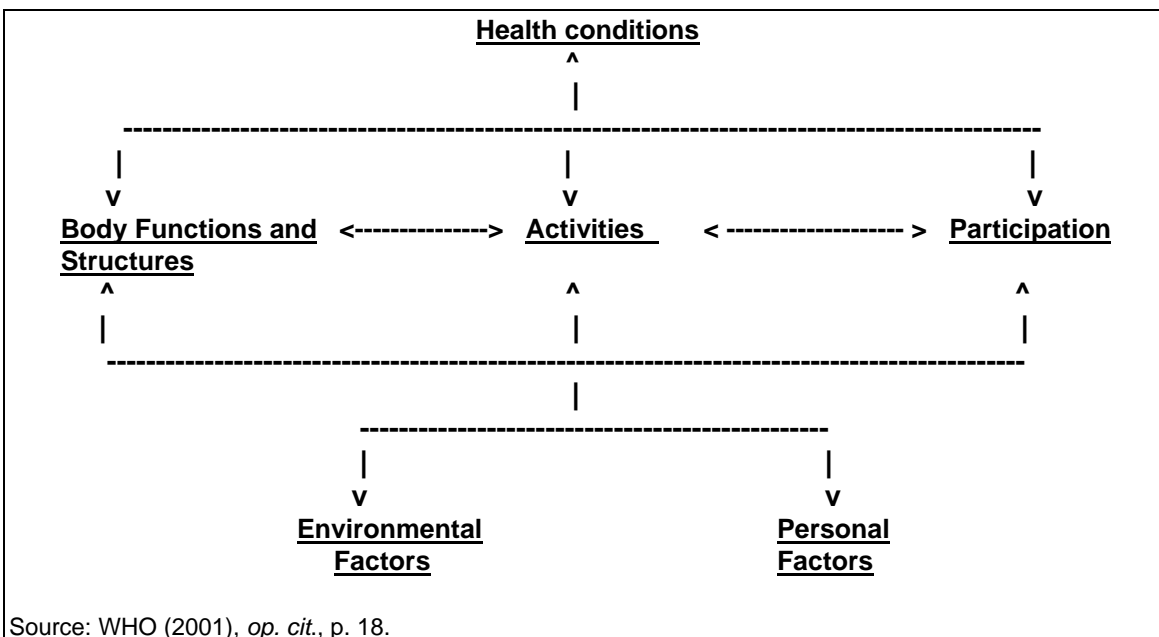
The MICS effort can also be seen within the framework of the World Health Organization (WHO) described in the 2001 International Classification of Functioning, Disability and Health (ICF)<sup>1</sup>. "As a classification, ICF systematically groups different domains for a person in a given health condition (e.g. what a person with a disease or disorder does do or can do). *Functioning* is an umbrella term encompassing all body functions, activities and participation, similarly, *disability* serves as an umbrella term for impairment, activity

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<sup>1</sup> WHO (2001), *International Classification of Impairments, Disabilities, and Handicaps*, ISBN 92 4 1545 42 9, WHO, Geneva.

limitations or participation restrictions<sup>2</sup>. In this framework, a child's functioning in a specific domain is an interaction or complex relationship between his/her health condition and the contextual factors surrounding his/her life (environmental and personal factors). The MICS measurement of disability falls within one of the main components of the ICF part of function and disability: activity limitations and participation restrictions, which are identified with an implicit assumption of performance and capacity as qualifiers. MICS also collects data related to the contextual factors of the ICF framework, particularly on the personal factors representing the background of an individual's life and living (age, gender, ethnic, education, household wealth, nutrition, health, etc.). The idea here is to use the collected data to explore associations between existing impairments in children's activities and participation in life situations, and their contextual factors.

### The ICF model of functioning and disability



Source: WHO (2001), *op. cit.*, p. 18.

With this framework in mind, the idea is to use the data collected under the MICS exercise to produce estimates on children with disability, describe their characteristics and look at the relationship between disability and child development. The results will be qualified to incorporate methodological and logistical imitations and to ultimately qualify the measurement of children's disability via household surveys. The second section of the paper is devoted to the description of the data and methods in use. This section is followed by a presentation of main descriptive results in terms prevalence of disability by type. The fourth and fifth sections are devoted to the presentation of analytical results, first including the differential of disability by background characteristics (age, gender, place of residence, etc.) and second including he relationship between disability and child development (education, nutrition, health). The final section of the paper summarizes the results and conclusions.

<sup>2</sup> *Ibidem*, p. 3.

## II. Data and methods

The data presented here was obtained as part of the second round of the Multiple Indicators Cluster Survey (MICS2) implemented during the period 1999-2001. The MICS2 data collection instrument included an optional module designed to assess disability among children 2-9 years of age. This optional module was included in 22 of the 65 countries that implemented MICS2 but unfortunately their results have not been analyzed or disseminated properly until now. Although the ten questions included in the disability module have performed relatively well in different cultural settings to identify potential cases of childhood disability, their inclusion in the MICS2 questionnaire was not systematically followed by a comprehensive strategy. When including the disability module, countries failed to address properly data collection issues (sample size, instructions to interviewers and field supervisors), results reporting issues (indicators and tabulation plan) and reporting and dissemination issues (final country report, sampling errors, and dissemination of data and findings strategies).

### Multiple Indicators Cluster Surveys (MICS)<sup>3</sup>

The Multiple Indicator Cluster Survey (MICS) is a household survey program developed by UNICEF in the mid 90's to assist countries to fill data gaps for a set of key indicators to monitor the situation of children and women. It is capable of producing statistically sound, internationally comparable estimates of these indicators. It is a flexible tool that is reasonably inexpensive and relatively quick to implement. The MICS was originally developed in response to the World Summit for Children (WSC) held in 1990 and the commitments made in the Declaration and Plan of Action for Children<sup>4</sup>. It was designed to measure progress towards an internationally agreed set of mid-decade goals. The first round of MICS was conducted around 1995 and more than 60 countries participated in this round of surveys.

At the end of the decade, a second round of surveys was conducted to assess progress towards goals and objectives set for the year 2000. This round built on the mid-decade round and the results of an evaluation of the surveys, and strengthened many aspects of the survey program. It included an expanded set of indicators to monitor most of the 27 goals of the World Summit for Children (WSC), plus an additional set of indicators to monitor child rights and newly emerging areas of concern including, for example, Integrated Management of Childhood Illness (IMCI), malaria, and knowledge of HIV/AIDS. The second round of MICS produced around 65 surveys, and resulted in an increasing wealth of data to monitor the situation of children and women, and, for the first time, permitted the monitoring of trends in many indicators and set baselines for many other indicators.

The tools developed around the MICS methodology have as a framework the indicators identified to report on the progress towards the goals to be achieved by the end of the decade. In this sense, MICS was basically developed to fill existing data gaps and to inform and complement existing data collection methods and instruments (e.g.

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<sup>3</sup> UNICEF (2000), *Monitoring Progress Toward the Goals of the World Summit for Children: End-decade Multiple Indicator Survey Manual*, Division of Evaluation, Policy and Planning, New York. More information about MICS can be obtained at [www.childinfo.org](http://www.childinfo.org)

<sup>4</sup> The WSC Declaration and Plan of Action was pledged by 159 countries encompassing nine out of ten children in the world.



## MICS Question Modules: Mid-Decade and End-Decade

MID-DECADE MICS	END-DECADE MICS
<p><b>Household modules</b></p> <ul style="list-style-type: none"> <li>Household composition</li> <li>Water and sanitation</li> <li>Salt iodization</li> </ul>	<p><b>Household modules</b></p> <ul style="list-style-type: none"> <li>Household composition</li> <li>Water and sanitation</li> <li>Salt iodization</li> <li>Literacy</li> <li>Alternative care and orphans</li> </ul>
<p><b>Modules for women</b></p> <ul style="list-style-type: none"> <li>Tetanus toxoid</li> </ul>	<p><b>Modules for women</b></p> <ul style="list-style-type: none"> <li>Tetanus toxoid</li> <li>Reproductive health (antenatal and delivery care)</li> <li>Family planning</li> <li>Vitamin A</li> <li>HIV/AIDS</li> </ul>
<p><b>Modules for children</b></p> <ul style="list-style-type: none"> <li>Education</li> <li>Diarrhea</li> <li>Vitamin A</li> <li>Immunization</li> <li>Child malnutrition</li> </ul>	<p><b>Modules for children</b></p> <ul style="list-style-type: none"> <li>Education (including early childhood)</li> <li>Diarrhea</li> <li>Vitamin A</li> <li>Immunization</li> <li>Child malnutrition</li> <li>Breastfeeding</li> <li>Care of acute respiratory illness</li> <li>Child mortality</li> <li>Low birth weight</li> <li>Birth registration</li> <li>Child labor</li> <li>Malaria</li> </ul>
<p><b>Optional modules</b></p> <ul style="list-style-type: none"> <li>Breastfeeding</li> <li>Care of acute respiratory illness</li> <li>Child mortality</li> </ul>	<p><b>Optional modules</b></p> <ul style="list-style-type: none"> <li>Maternal mortality</li> <li>Child disability</li> </ul>

### The disability module

The MICS module on disability is based on a two-stage questionnaire (The Ten Questions Module) that has been designed to identify children - in any cultural and social setting - who have congenital and developmental disabilities. This screening instrument is fairly easy to administer and its scientific validity has been tested in different epidemiological surveys involving screening and clinical assessments of more than 22,000 children (between 2 and 9 years of age) in Bangladesh, Jamaica and Pakistan<sup>7</sup>. These surveys have generated estimates of total prevalence rates that range from 1% to

<sup>7</sup> Chamie M. (1994), "Can childhood disability be ascertained simply in surveys?" *Epidemiology*, 5 (3): 273-275; Durkin MS et al. (1994), "Validity of the Ten Questions screen for childhood disability: results from population-based studies in Bangladesh, Jamaica and Pakistan", *Epidemiology*, 5: 283-9.

4.4% in the case of severe disabilities, and up to 20% for mild disabilities<sup>8</sup>. Indeed, the sensitivity of this module has proved to be higher for serious cognitive, motor and seizure disabilities, lower for vision or hearing disabilities (unless previously identified) and for mild disabilities<sup>9</sup>. The total percentage of disabled children may vary from 7% to 19% in general population, but it can be higher in clinical or risk population<sup>10</sup>.

### The Ten Questions Module

<b>DISABILITY MODULE (optional)</b> <i>To be administered to caretakers of all children 2 through 9 years old living in the household.</i> INTERVIEWER: I WOULD LIKE TO ASK YOU IF ANY CHILDREN IN THIS HOUSEHOLD AGE 2 THROUGH 9 ( <i>read names listed in the household roster</i> ) HAS ANY OF THE HEALTH CONDITIONS I AM GOING TO MENTION TO YOU.	
1. Child's name	
2. Line no.	
3. COMPARED WITH OTHER CHILDREN, DOES OR DID [ <i>name</i> ] HAVE ANY SERIOUS DELAY IN SITTING, STANDING, OR WALKING?	YES .....1* NO .....2
4. COMPARED WITH OTHER CHILDREN, DOES [ <i>name</i> ] HAVE DIFFICULTY SEEING, EITHER IN THE DAYTIME OR AT NIGHT?	YES..... 1* NO .....2
5. DOES [ <i>name</i> ] APPEAR TO HAVE DIFFICULTY HEARING? (USES HEARING AID, HEARS WITH DIFFICULTY, COMPLETELY DEAF?)	YES..... 1* NO .....2
6. WHEN YOU TELL [ <i>name</i> ] TO DO SOMETHING, DOES HE/SHE SEEM TO UNDERSTAND WHAT YOU ARE SAYING?	YES..... 1 NO ..... 2*
7. DOES [ <i>name</i> ] HAVE DIFFICULTY IN WALKING OR MOVING HIS/HER ARMS OR DOES HE/SHE HAVE WEAKNESS AND/OR STIFFNESS IN THE ARMS OR LEGS?	YES ..... 1* NO .....2
8. DOES [ <i>name</i> ] SOMETIMES HAVE FITS, BECOME RIGID, OR LOSE CONSCIOUSNESS?	YES ..... 1* NO .....2
9. DOES [ <i>name</i> ] LEARN TO DO THINGS LIKE OTHER CHILDREN HIS/HER AGE?	YES ..... 1 NO ..... 2*
10. DOES [ <i>name</i> ] SPEAK AT ALL (CAN HE/SHE MAKE HIM OR HERSELF UNDERSTOOD IN WORDS; CAN SAY RECOGNIZABLE WORDS)?	YES ..... 1 NO ..... 2*
11. A. (FOR 3-9 YEAR OLDS): IS [ <i>name</i> ]'S SPEECH IN ANY WAY DIFFERENT FROM NORMAL (NOT CLEAR ENOUGH TO BE UNDERSTOOD BY PEOPLE OTHER THAN THE IMMEDIATE FAMILY)?	YES ..... 1* NO .....2
11. B. (FOR 2-YEAR-OLDS): CAN [ <i>child</i> ] NAME AT LEAST ONE OBJECT (FOR EXAMPLE, AN ANIMAL, A TOY, A CUP, A SPOON)?	YES ..... 1 NO ..... 2*
12. COMPARED WITH OTHER CHILDREN OF THE SAME AGE, DOES [ <i>name</i> ] APPEAR IN ANY WAY MENTALLY BACKWARD, DULL OR SLOW?	YES..... 1* NO .....2

\* Screening result is positive if one or more of the responses with an asterisk is circled.

<sup>8</sup> Durkin M.S. et al. (1990), "Validity of the Ten Questions for Screening Serious Childhood Disability: Results from Urban Bangladesh", *International Journal of Epidemiology*, 19(3):613-20; Durkin MS et al. (1995), "Evaluating a Ten Questions screen for childhood disability: reliability and internal structure in different culture", *Journal of Clinical Epidemiology*, 48 (5): 657-66.

<sup>9</sup> Durkin MS et al. (1994), *op. cit.*

On the basis of ten questions, each child is classified as screened positive if he/she presents one or more of the problems required about or negative is no problem is reported<sup>11</sup>. Questions are presented as a personal interview with a parent or the caretaker who knows the child being screened. The interviewed is asked to provide a personal assessment of both the physical and mental conditions of the child, and to indicate the existence of impairments considered to be disabling. Answers can therefore be affected by subjective perception, deliberate omission, or unawareness, and are likely to be influenced by the social milieu in which the household lives.

In order to reduce the risk of subjective bias, the questionnaire entails a second stage, in which all children who screened positive and a random sample of about 10% of those screened negative are referred for medical and psychological assessment. The clinical evaluation is meant to provide a basis for detecting whether or not a child is actually disabled and for estimating overall prevalence of disability coming from the interviews. Unfortunately, the second-stage study was not conducted in a single country implementing the disability module in MICS2, mainly due to lack of planning, as well as for logistic reasons and budget limitations. Consequently, the results presented here could be affected by weak training and field work supervision as well as by an inaccurate adaptation of the instrument to the particular country conditions. These elements are considered later on when interpreting the main results of the surveys for which data was available and comparable across countries.

As mentioned earlier, the disability module was incorporated by 22 of the 65 countries that implemented MICS2. These are: Afghanistan, Algeria, Bangladesh, Bosnia & Herzegovina, Cameroon, Ecuador, Georgia, India, Iran, Iraq, Jamaica, Lebanon, Lesotho, Madagascar, Mongolia, Myanmar, Rwanda, Sao Tome and Principe, Sierra Leone, Sudan, Suriname and Tunisia. Eight countries however used different questionnaires from the standard Ten Questions Module<sup>12</sup>. Changes in questionnaire design vary considerably from one country to another, which makes inter-countries comparisons problematical also due to differences in age ranges.

Among the 14 countries that used the Ten Questions Module, only 7 included the complete set of 10 questions<sup>13</sup>. Indeed, India, Rwanda, Myanmar and Mongolia collected data only for a sub-set of questions and, in some cases, applied it to a different age group. India for example, included only 6 of the 10 questions for children 5-17 years of age, limiting in this way the comparability of its results with other countries (see Appendix).

After a detailed analysis of the questionnaires (length and type) and the data files, we decided to focus our attention on the countries that used the same set of questions and the same age range (children of 2-9 years of age), e.g. Cameroon, Iraq, Jamaica, Lesotho, Madagascar, Sao Tome and Principe, and Suriname.

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<sup>10</sup> Durkin MS et al.(1995), *op. cit.*

<sup>11</sup> Durkin MS et al. (1994), *op. cit.*

<sup>12</sup> These are : Afghanistan, Algeria, Bangladesh, Iran, Lebanon, Sierra Leone, Sudan (North) and Tunisia. It is worth noting that Iran, Lebanon, Sierra Leone and Sudan (North) included specific questions on the sources of disability, whether from birth, disease, accident, war, landmines, assaults, etc., in order to make the questionnaire more sensitive to local conditions. A detailed list of all questions on disability included by these countries can be found in the appendix

<sup>13</sup> For Ecuador and Georgia datasets are not available, while for Bosnia and Herzegovina data on disability have not been included in the datasets. These countries are therefore excluded from our analysis.

### III. Descriptive results

Of the 65 countries that implemented MICS2 during the period 1999-2001, 22 included a disability module, but only 14 made use of the 10 questions described before. The data collected was available for 11 of the 14 countries and after a detailed analysis of the data files, the following 7 countries included comparable data for the 10 questions and for children 2-9 years of age: Cameroon, Iraq, Jamaica, Lesotho, Madagascar, Sao Tome and Principe, and Suriname<sup>14</sup>. The remaining sections of this paper present results for these seven countries only.

#### Disability prevalence

A first analysis of the prevalence of disability by type of disability on each of the seven countries indicated that the question on “Speech (3-9)” and “Name Objects (2)” appear to have been wrongly implemented during the data collection<sup>15</sup>. This can be seen in the table below for Cameroon, Iraq and Madagascar, where a high proportion of parents/caretakers indicated that their children have impairments in their speech or in naming at least one object. It is plausible to assume that these results were driven by a general misunderstanding of the two questions, for which reverse answers were given. While flagrant in the cases of Cameroon, Iraq and Madagascar, a misinterpretation of these two questions is likely to have occurred in other countries and high frequencies (with high percentage of missing data) are also found for Sao Tome and Principe. Since it is not possible to ascertain for all countries the accuracy of answers, these two questions were not included in the analysis.

#### Proportion of children 2-9 years of age with at least one impairment according to type and country. MICS2 2000-01

<b>Impairment</b>	<b>Cameroon</b>	<b>Iraq*</b>	<b>Jamaica</b>	<b>Lesotho</b>	<b>Madagascar</b>	<b>Sao Tome &amp; Principe</b>	<b>Suriname</b>
<b>Development</b>	3.1	0.9	1.0	14.4	14.9	10.7	3.1
<b>Vision</b>	1.7	0.8	1.0	5.8	2.5	3.0	4.2
<b>Hearing</b>	3.1	0.6	0.7	6.5	4.4	6.8	3.6
<b>Understanding</b>	4.2	1.0	3.1	11.5	6.0	9.7	5.3
<b>Movement</b>	2.1	1.1	0.8	4.3	2.2	5.3	2.3
<b>Crisis/Fits</b>	4.2	0.5	0.5	3.7	4.6	14.3	3.0
<b>Learning</b>	3.1	1.0	1.8	5.4	2.1	8.0	2.6
<b>Speaking</b>	6.5	2.1	1.7	8.9	3.7	14.8	3.2
<b>Speech (3-9)</b>	77.7	1.8	3.3	14.9	96.1	28.2	14.7
<b>Name objects (2)</b>	7.3	99.1	5.6	22.1	9.5	25.4	7.1
<b>Mental</b>	6.3	1.3	2.8	11.1	11.2	3.1	4.2
<b>TOTAL</b>	78.7	15.7	11.1	44.8	91.9	55.0	28.7

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

<sup>14</sup> India, Myanmar, Mongolia and Rwanda either included a sub-set of the 10 questions and/or applied it to a different age group.

<sup>15</sup> The questions are: “Is the child’s speech in any way different from normal, i.e. not clear enough to be understood by people other than his/her immediate family?” and “Can the child name at least one object (for example: an animal, a toy, a cup, a spoon)?”

After eliminating these two questions the disability prevalence ranges from 44 per cent in Sao Tome and Principe to 4 per cent in Northern Iraq (see table below). Available empirical evidence appears to confirm the plausibility of these results. However, the comparison between countries is not strictly possible because it is likely that the questions were not necessarily interpreted in the same way across countries and therefore the differences could be not necessarily real. What we can do for this analysis is to observe the differences within countries by type of impairment as presented in the following table.

**Proportion of children 2-9 years of age with at least one impairment according to type and country. MICS2 2000-01**

TYPE OF DISABILITY	COUNTRY						
	Cameroon	Iraq*	Jamaica	Lesotho	Madagascar	Sao Tome & Principe	Suriname
<b>Development</b>	3	1	1	14	15	11	3
<b>Vision</b>	2	1	1	6	3	3	4
<b>Hearing</b>	3	1	1	7	4	7	4
<b>Understanding</b>	4	1	3	12	6	10	5
<b>Movement</b>	2	1	1	4	2	5	2
<b>Crisis/Fits</b>	4	1	1	4	5	14	3
<b>Learning</b>	3	1	2	5	2	8	3
<b>Speaking</b>	7	2	2	9	4	15	3
<b>Mental</b>	6	1	3	11	11	3	4
<b>TOTAL</b>	23	4	9	40	34	44	20

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

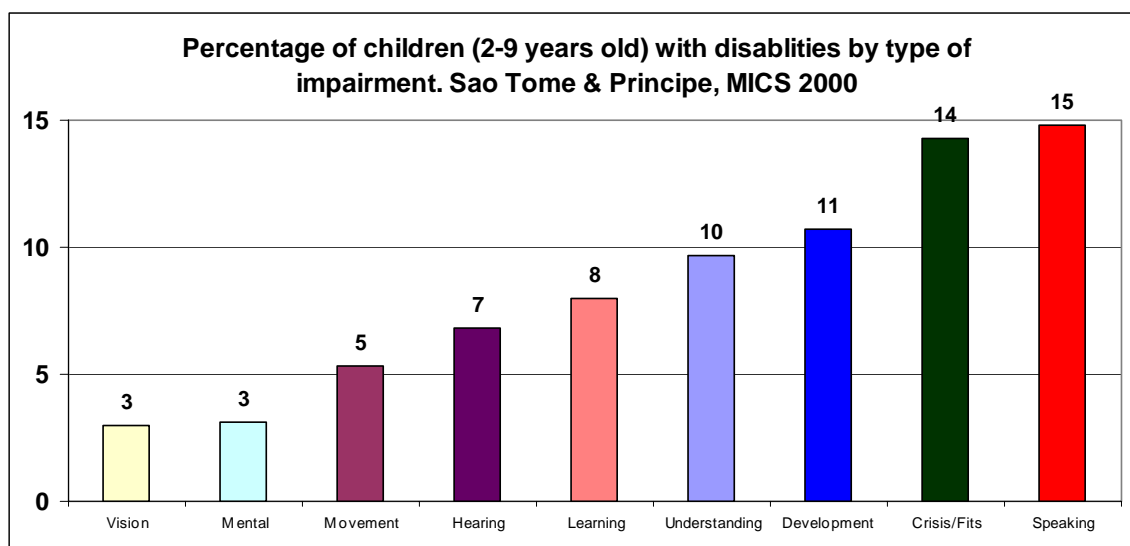
In Cameroon, for example, 23 percent of the children 2-9 years of age were identified by their parents/caretakers with at least one impairment. The most common type of disability in Cameroon is related to spoken communication (7%) followed by mental impairment (6%). The remaining seven types of disability appear with values between 2-4 per cent. Similar distributions are observed in Northern Iraq, Jamaica and Suriname.

Lesotho, Madagascar, and Sao Tome and Principe present, for some types of disability, values of at least 10 per cent. In the case of Sao Tome and Principe (see graph below), four of the nine disabilities present values of ten per cent or more (Understanding, 10%; Development, 11%; Crisis/Fits, 14%; and Speaking, 15%).

It is well documented that variations in disability rates among countries can be attributable to some endogenous causes, such as differentials in life expectancy, age structures of the population, nutritional status, rates of exposure to environmental risks, the occurrence of accidents and/or conflicts, chronic and infectious disease patterns, as well as the variations in public health services and practices<sup>16</sup>. This means that the likelihood that a child is disabled is strongly related to his/her environment. In this regard, situational analysis can provide helpful information in identifying the causes of disability and, thus, in the assessing differentials in prevalence rates. It is also possible that

<sup>16</sup> UNICEF, *Childhood Disability: its Prevention and Rehabilitation*, UNICEF Document EI/L.1410, 1980.

differences in disability rates reflect not only variations in the level of disability but also differentials in survey methods and conditions.



Given that the total disability rate is the proportion of children with at least one impairment, a significant proportion of them were identified by their parents/caretakers as having more than one impairment.

#### IV. Differentials in disability

As with many other variables, the average disabilities observed at the country level have embedded a range of variation. Intuitively, there is the tendency to believe that child disability affects differently societal groups. One way of expressing this variation, at least for decision and action at the policy and program level, is by controlling by demographic and socio-economic variables (e.g. age, gender, place of residence, mothers education and household wealth).

##### Age

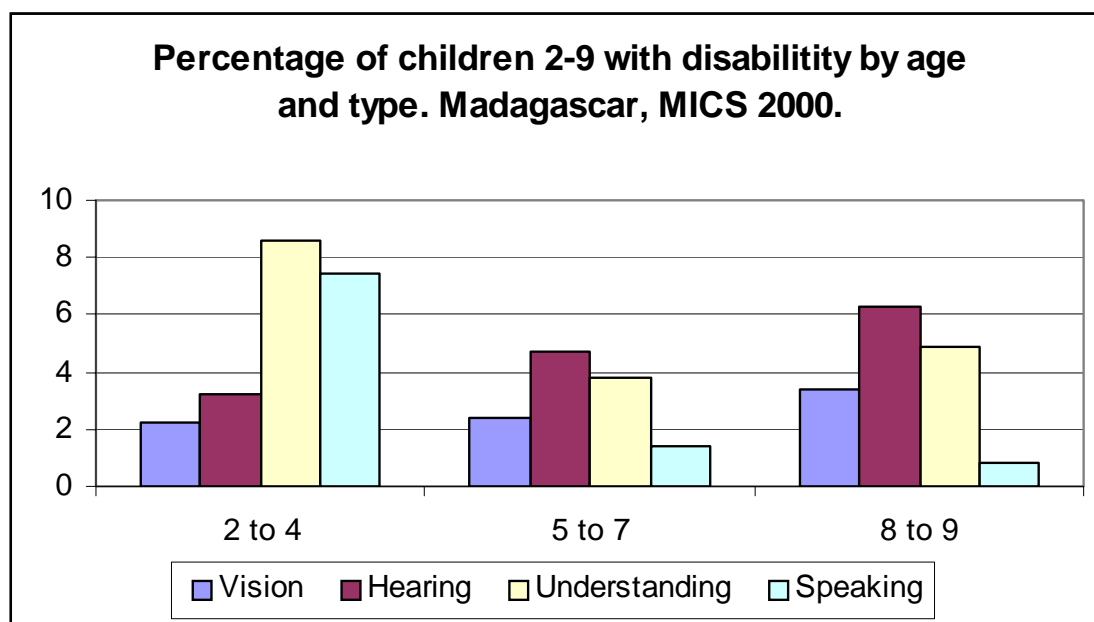
Although, it does not seem to be a clear pattern of variation in the proportion of disability by age of the child, it is worth mentioning that among the two years old we can observe greater levels of impairment in those countries where more than 20 per cent of the children were identified by their parents/caretakers as disabled. That is, Sao Tome and Principe, Lesotho, Madagascar and Cameroon. For the remaining countries and for ages 3-9 in all countries, the levels of disability does not show significant variations and it is possible to conclude that their values remain approximately constant.

If we like at the types of disability by age, we can notice that important differences in prevalence rates exist among age cohorts. As illustrated by the case of Madagascar (see graph below), the percentage of children with difficulties in speaking and understanding tend to decrease drastically with age, while difficulties in seeing and hearing increase. Obviously, these results may partially been driven by the fact that

certain types of impairments, like hearing disability, are more likely to be detected at an older age. Likewise, children below a certain age cannot perform certain activities, and some forms of disability, as for instance the inability to speak (that are quite normal below a certain age) are likely to be over reported by respondents.

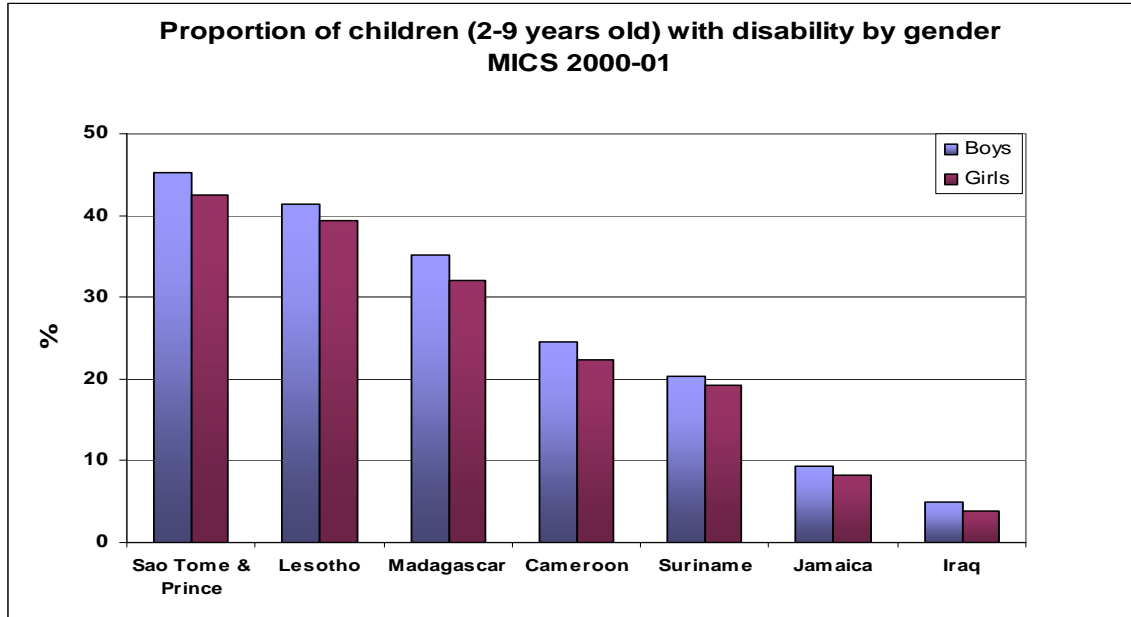
Percentage of children, 2-9 years old, with disability by age. MICS 2000-01									
COUNTRY	AGE (years)								
	Total	2	3	4	5	6	7	8	9
Sao Tome & Prin.	44	58	44	39	39	44	42	41	42
Lesotho	40	50	42	35	41	37	38	40	40
Madagascar	34	43	33	35	30	30	33	33	34
Cameroon	23	37	27	20	21	20	22	21	21
Suriname	20	20	20	18	15	21	26	18	20
Jamaica	9	9	10	8	5	10	9	8	11
Iraq*	4	3	5	3	5	6	4	5	5

\* Three governorates only: Dohouk, Suleimaniya and Erbil



### Gender

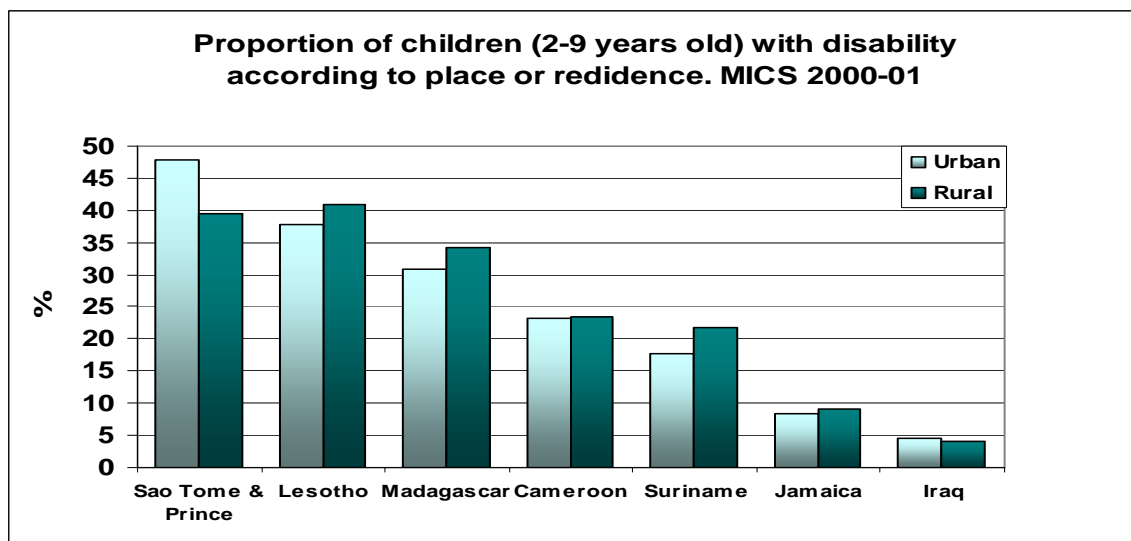
The graph included below presents the levels of disability according to the sex of the child. Although in all the countries analyzed here boys appear to have greater levels of impairment than girls, it is also true that the differences are small and probably not significant due to sampling errors. A more in depth analysis of the data will be required to elaborate in the significance of the differences, including multivariate analysis. It is also true that in general terms, there is not enough empirical evidence to substantiate differences in disability among 2-9 years old children due exclusively to their sex.



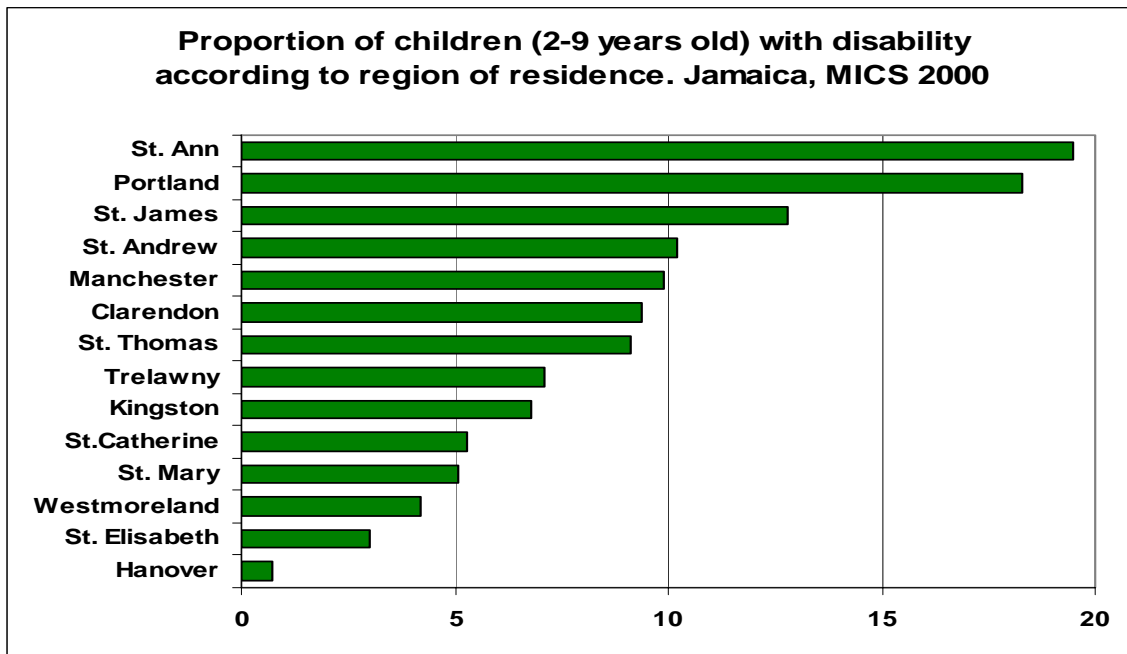
### Place of residence

Place of residence at the moment of the survey is analyzed here by using two variable: urban/rural and administrative regions. In both cases, the place of residence is important not only from the point of view of access to services to prevent disability but also in terms of diagnosis, treatment, rehabilitation and support for the impairment. The data presented in the next three graphics presents these differences by urban/rural and by administrative region.

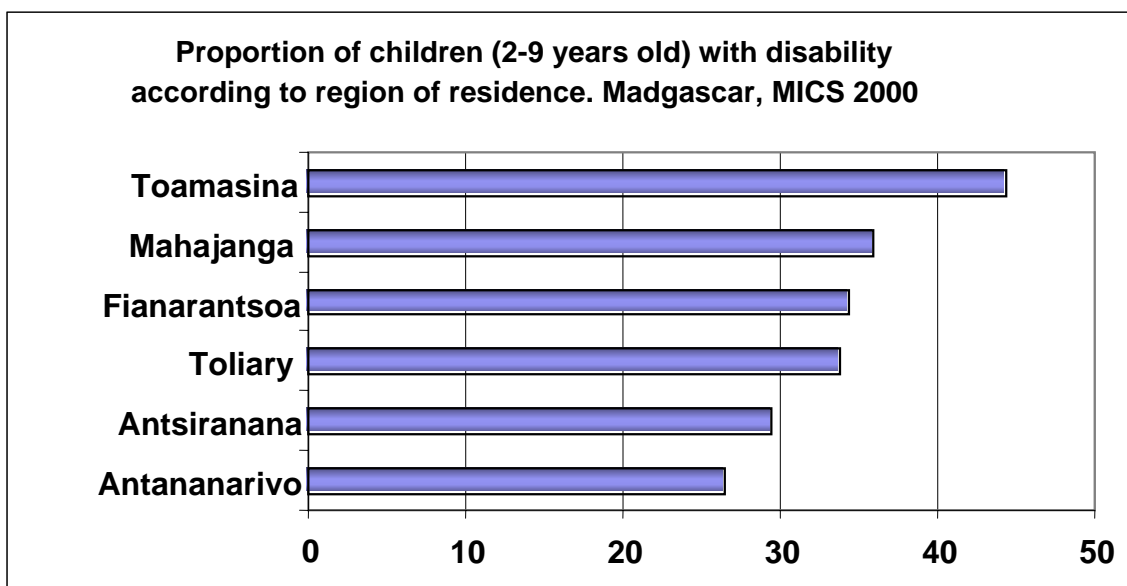
In Sao Tome and Principe, the proportion of disabled children is greater in the urban areas while in Lesotho, Madagascar and Suriname the opposite is observed. In Cameroon, Jamaica and Iraq, the percentage of disabled children is the same across urban and rural areas.



The region of residence indicates greater levels of disparity than the ones observed in the urban/rural divide. This is illustrated with data for Madagascar and Jamaica in the two graphs included below.



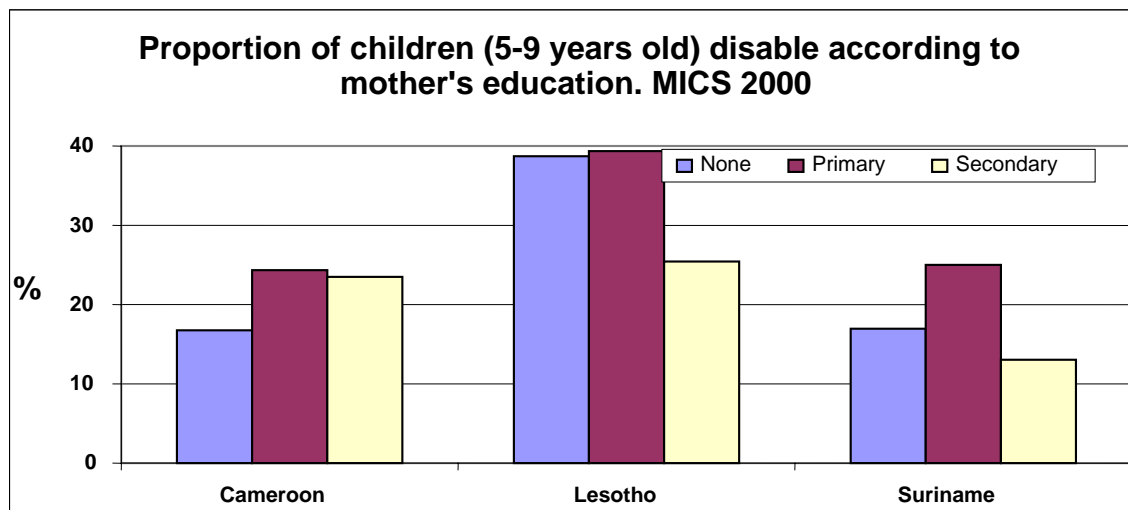
In the case of Madagascar, the capital Antananarivo shows much lower levels of disability than the ones observed in the Toamasina or Antsiranana regions. Similarly in Jamaica, the values observed in Hanover, Westmoreland and St. Mary regions are significantly lower than the ones observed in St. Ann or Portland. As indicated before, this may be the result of greater access to diagnosis of the different forms of impairment, greater levels of education among parents/caretakers (analyzed below), or a combination of them.



## Mother's education

In general, women that have received some education tend to raised healthier children in part because educated mothers are able to identify early signs of disease, have increase access to services and make efficient use of current technologies. The prevalence of disability according to the education of the mother/caretaker is difficult to assess. Educated mothers, on one hand, may be able to identify disability in their children at early ages and therefore to pursue services. In this case, mothers with some education may have greater levels of disability than those without education. On the other hand, mothers without education are more affected by preventable diseases that tend to increase levels of disability and therefore may tend to report greater levels of disability than their more educated counterparts. The data analyzed here seems to support both hypothesis (see graph below).

In Cameroon the disability prevalence is much less among mothers without education, while in Lesotho and Suriname, mothers with secondary education present the lowest prevalence of disability compared to those with none or primary education. Further analysis is required to identify the benefits of mother's education to prevent disability due to avoidable causes and to early detection, rehabilitation and treatment of disability. Multivariate analysis and qualitative analysis are two of the possible approaches available to either estimate the net effects of mother's education (keeping constant other variable influencing disability) or to better understand social constructs that are not quantified via household surveys.



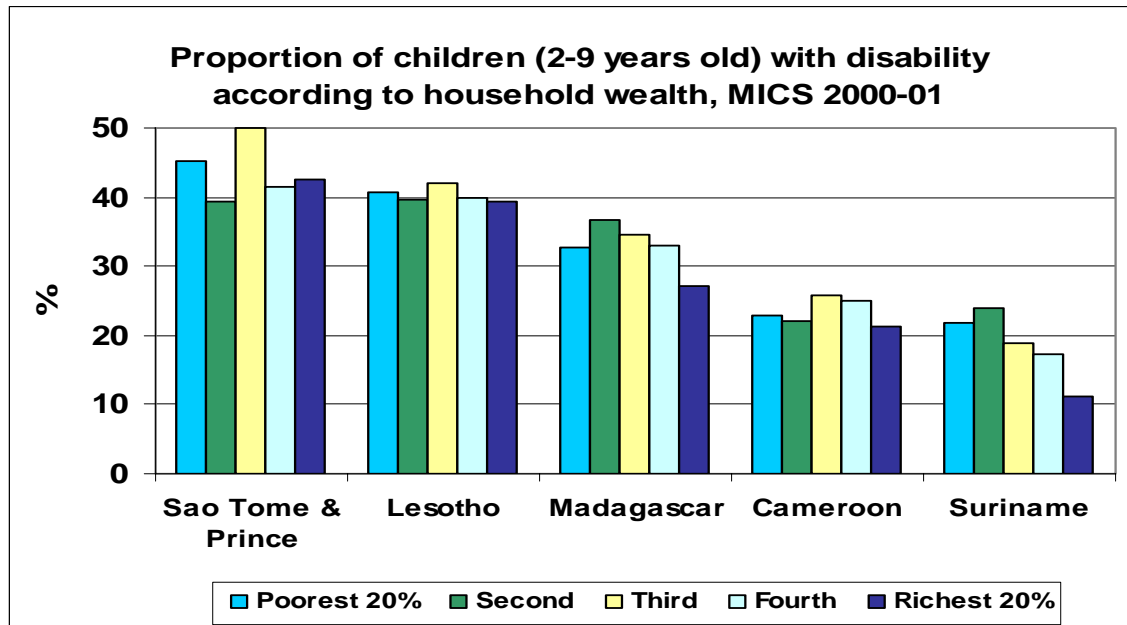
## Household wealth

As with mother's education, household wealth may have associated different disability prevalence in the MICS studies. The wealth of households is measured here by the wealth index<sup>17</sup>, which classifies households and individuals in quintiles, allowing for

<sup>17</sup> Household wealth is used here as a proxy for poverty of the household in which children live. This indicator is constructed with data on household assets that was collected in MICS and DHS. Filmer and

multiple ways to compare groups by income level. Levels of disability by quintile are presented in the graph below for five countries.

In Madagascar and Suriname, the lowest prevalence of child's disability is observed among the richest 20% of the households and in general it is possible to say that in these two countries, children's disability are positively associated with household wealth. In Sao Tome & Principe, Lesotho and Cameroon the prevalence of disability among children 2-9 years of age do not change in a significant way across quintiles.



## V. Disability and child development

Disabled children may experience difficulties not only in the early detection of their impairment, but also in the access to services that could allow them a normal live in society. One of the main concerns embedded in the MICS exercise is to be able to identify and document the relationship between disability and their development.

The MICS questionnaire included questions for children under the age of five to measure birth registration, vaccinations, nutrition and early education. Similarly, for children 5-9 years of age, MICS collected data on school participation. These results are presented below.

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Pritchett (2001) have shown that an asset-based indicator of household wealth is a good alternative to indicators that are based on household income and expenditures. Filmer D., Pritchett L. H. (2001), Estimating wealth effects without expenditure data or tears: an application to educational enrolments in states of India, *Demography* 38 (1) : 115-132.

## Children 2-4

For children 2-4 years of age we are interested in looking at the proportion of them by condition of disability that are: a) registered, b) have received the recommended vaccinations by age one, c) of malnourished expressed by the levels of stunting (height by age below -2SDs), d) attending an early education program. These proportions are included in the graphs below.

### Proportion of children 2-4 years attending early education by disability status. MICS 2000-01

COUNTRY	Birth registration		Early education		All vaccinations		Stunting	
	Disability status		Disability status		Disability status		Disability status	
	Yes	No	Yes	No	Yes	No	Yes	No
Cameroon	79	82	13	16	41	49	---	---
Lesotho	54	52	22	23	---	---	19	17
Madagascar	74	78	5	6	---	---	---	---
Sao Tome & Principe	82	83	16	19	52	62	14	11

Over all, it is possible to see that children identified as disabled also have associated lower levels of birth registration and smaller levels of early education participation. Note however that their differences with the levels of registration and early education participation observed among non-disabled children are small and could be to just sampling errors.

The proportions of children 2-4 years of age that have received all the required vaccinations and those considered as stunted are considerably lower among non-disabled children. In Sao Tome and Principe, for example, 62% of the children have received the whole set of required vaccines compared to only 52% among disabled children. Similarly, the proportion of stunted children is 11% compared to 14% for non-disabled and disabled children respectively.

## School participation

School participation is measured via the primary school attendance among children 6-9 years of age. The table below shows, for six countries, the proportion of children attending primary school<sup>18</sup> according to their disability status. With the exception of Iraq, there are no differences in the levels of school participation by disability status of the children.

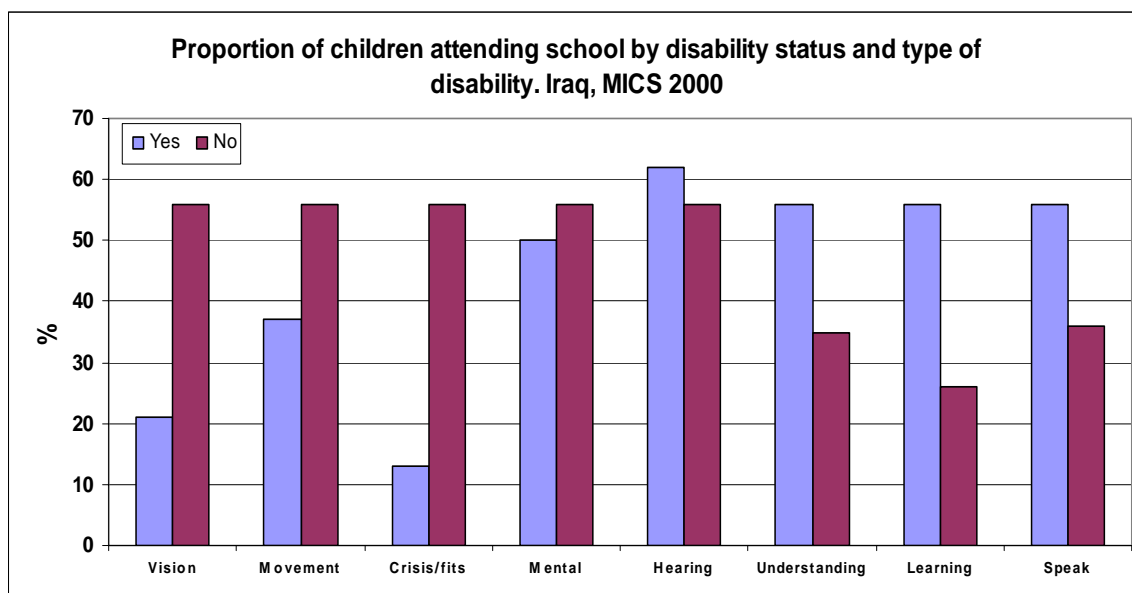
In Northern Iraq, impaired children have a much lower levels of school attendance than those without disability (52% versus 70% respectively). Note however that this finding is only true for some of the impairments: vision, movement, crisis/fits or mental (see graph below). For the remaining types of impairment (hearing, understanding, learning and speak) the opposite is observed, that is children with these impairments tend to have higher levels of school attendance than those without the impairment.

<sup>18</sup> Attending primary school at the moment of the survey or at some moments during the school year.

<b>Proportion of children 6-9 years attending school by disability status. MICS 2000-01</b>		
<b>COUNTRY</b>	<b>Disability status</b>	
	<b>Yes</b>	<b>No</b>
Cameroon	75	72
Iraq*	52	70
Lesotho	84	82
Madagascar	58	56
Sao Tome & Principe	69	69
Suriname	90	92

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

These results substantiate the need for further analysis and research to document and understand these differences in a way that specific policies, programs and interventions can be put in place to the benefit of children and to prevent instances of discrimination.



## VI. Summary of main results and conclusions

This paper documents the intent for data collection on child disability via household surveys, specifically via the second round of the Multiple Indicators Cluster Survey (MICS2). During the period 1999-2001 a total of 65 countries implemented MICS, of which 22 included a disability module of ten questions measuring activities and participation of children 2-9 years of age. Parents/caretakers of these children responded questions about the following impairments: vision, hearing, understanding, movement, crisis/fits, learning, speak, speech (3-9 years old), name of objects (2 years old), and mental.

The implementation of the disability module in these countries was affected by the following problems:

- 1) Not all countries used the same numbers of questions
- 2) The training, data collection, supervision, processing, analysis, reporting and data archiving shows substantial variation across countries limiting to 7 the number of countries over which comparable analysis could be completed.
- 3) In spite of the clear recommendation in the MICS methodology to follow the data collection by a second-stage to further refine and qualify the number of children identified by their parents as disabled, this was not implemented in any of the 22 countries including the module.
- 4) In Iraq the modules was implemented only in the North part of the country.
- 5) In Cameroon and Madagascar the question on speech applied to children 3-9 years old was not properly administered and produced unlikely results. A similar situation was observed in Iraq with the question on naming objects. These two questions were not included in the analysis.

The total disability prevalence, defined as the proportion of children (2-9 years of age) with at least one impairment, showed a wide variation between countries (4% in Northern Iraq to 44% in Sao Tome and Principe). The data collected do not allow for an analysis with conclusions around the differences between countries. The results rather emphasize the complexity of the problem at the country level and the need for further and more detailed analysis. Wide variations were also observed within and between countries in the prevalence by type of disability. In Sao Tome and Principe for example, four type of disabilities (understanding, development, crisis/fits and speak) have prevalence values of ten per cent or more.

Disability prevalence was further analyzed by demographic and socio-economic characteristics of the children, their mother/caretaker or their household. Disability prevalence appears to be constant across ages and countries, although among countries with total disability of 20% or more the two years old experience significantly higher disability. Boys showed slightly higher levels of disability than girls but these differences could be within the range of sampling errors.

The place of residence variables also provided mixing results. In some countries, children living in the urban areas exhibit greater disability than their rural counterparts. In other countries those of the rural areas showed higher disability and in other no differences were observed between urban and rural residents. On the other hand region of residence appears to be better discriminator of disability and with important variations.

The socio-economic status of the household measured via mother's education and household wealth was also included to explain variations in disability. As with the demographic and place of residence variables, the results were not conclusive and call for a more detailed further analysis of these results. Wealthy households or those where mothers have some education may have greater chances to identify disability and resources to support the child. On the other hand, poorer households or those where mothers have no education are perhaps more exposed to preventable disabilities and therefore may exhibit greater levels of disability than their favored counterparts.

Finally, the paper analyzed the relationship between disability and child development by looking at levels of registration, stunting, vaccination, and early education participation among children 2-4 years of age. Among children 5-9 years of age we looked at the levels of school attendance by disability status of the child. Although disabled children 2-4 years of age appeared to be in disadvantage in the four variables used, a more detailed analysis will be needed in order to clarify the statistical relationship.

With the exception of Northern Iraq (where disabled children present lower ratios of school attendance), in all the remaining countries there were no significant differences in school participation by disability status. However, the global result for Northern Iraq is only true for some of the impairments: vision, movement, crisis/fits or mental. For the remaining types of impairment (hearing, understanding, learning and speak) disabled children tend to have higher levels of school attendance than those without the impairment.

These results substantiate the need for further analysis and research to document and understand these differences in a way that specific policies, programs and interventions can be put in place to the benefit of children and to prevent instances of discrimination.

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## VIII. Appendix: Tables

### Countries with a module on disability

COUNTRY	QUESTIONNAIRE	AGE RANGE
Afghanistan	Other	1-4; 7-17
Algeria	Other	<15
Bangladesh	Other	<15
Bosnia & Herzegovina	TQM*	2 to 9
Cameroon	TQM	2 to 9
Ecuador	TQM	2 to 9
Georgia	TQM	2 to 5
India	TQM (partial)	5 to 17
Iran	Other	No range
Iraq	TQM	2 to 9
Jamaica	TQM	2 to 9
Lebanon	Other	< 5
Lesotho	TQM	2 to 9
Madagascar	TQM	2 to 9
Mongolia	TQM (partial)	2 to 9
Myanmar	TQM (partial)	2 to 9
Rwanda	TQM (partial)	2 to 9
Sao Tome & Principe	TQM	2 to 9
Sierra Leone	Other	No range
Sudan (North)	Other	5 to 17
Suriname	TQM	2 to 9
Tunisia	Other	< 5

\* TQM: Ten Questions Module

### Countries that included a disability module in MICS2

Country	Age range	Type of questionnaire
Afghanistan	1-4 7-17	Does "name" have any mental or physical difficulty? If yes, What type of difficulty does s/he have? Vision, hearing/speech, paralysis, amputee, mental, other, healthy.
Algeria	< 15	1) Did the traumatism have side effects? 2) If yes, What kind: movement, sensorial, both, other?
Bangladesh	< 15	Does "name" have any mental or physical disabilities? Mental, hand/leg, eye, ear, dumb, others, uncertain.
Bosnia & Herzegovina	2-9	Ten questions module
Cameroon	2-9	Ten questions module
Ecuador	2-9	Ten questions module
Georgia	2-5	Ten questions module
India	5-17	1) Compared with other children does the child have difficulty seeing, either in the daytime or at night? 2) Does the child appear to have difficulty hearing? 3) Does the child have difficulty in walking or moving his/her arms or does he/she have weakness and/or stiffness in the arms or legs? 4) Does the child sometimes have fits, become rigid, or lose consciousness? 5) Does the child speak at all (can he/she make himself/herself understood in words; can he/she say any recognizable words)? 6) For three to nine-year-old children ask: Is the child's speech in any way different from normal (not clear enough to be understood by people other than his/her immediate family)?
Iran	No range	1) Does a member of the HH have physical disability or mental retardation? 2) Is yes, what kind of disability is s/he suffering from and what is the source of this disability? Congenital, disease, accident, war, he/she does not know, blindness (completely), deafness (completely), visible physical disability or movement, mental retardation, others.
Iraq	2-9	Ten questions module
Jamaica	2-9	Ten questions module
Lebanon	< 5	The questionnaire focuses on injuries by type, cause, place of accident, method of treatment and side-effect (no side effect/permanent disability)
Lesotho	2-9	Ten questions module
Madagascar	2-9	Ten questions module
Mongolia	2-9	1). Compared with other children, did the child have any serious delay in sitting, standing or walking? 2). Compared with other children does the child have difficulty seeing, either in the daytime or at night? 3). Does the child appear to have difficulty hearing? 4). When you tell the child to do something, does he/she seem to understand what you are saying? 5). Does the child sometimes have fits, become rigid, or lose consciousness? 6). For three to nine-year-old children ask: Is the child's speech in any way different from normal (not clear enough to be understood by people other than his/her immediate family)? 7). Compared with other children of his/her age, does the child appear in any way mentally backward, dull or slow?
Myanmar	2-9	1) Compared with other children, did the child have any serious delay in sitting, standing

		<p>or walking?</p> <p>2) Compared with other children does the child have difficulty seeing, either in the daytime or at night?</p> <p>3) Does the child appear to have difficulty hearing?</p> <p>4) Does the child have difficulty in walking or moving his/her arms or does he/she have weakness and/or stiffness in the arms or legs?</p> <p>5) Does the child sometimes have fits, become rigid, or lose consciousness?</p> <p>6) Does the child speak at all (can he/she make himself/herself understood in words; can he/she say any recognizable words)?</p> <p>7) Compared with other children of his/her age, does the child appear in any way mentally backward, dull or slow?</p>
Rwanda	2-9	<p>1) Compared with other children, did the child have any serious delay in sitting, standing or walking?</p> <p>2) Compared with other children does the child have difficulty seeing, either in the daytime or at night?</p> <p>3) Does the child appear to have difficulty hearing?</p> <p>4) Does the child have difficulty in walking or moving his/her arms or does he/she have weakness and/or stiffness in arms or legs?</p> <p>5) Does the child sometimes have fits, become rigid, or lose consciousness?</p> <p>6) Does the child learn to do things like other children his/her age?</p> <p>7) Does the child speak at all (can he/she make himself/herself understood in words; can he/she say any recognizable words)?</p> <p>8) For three to nine-year-old children ask: Is the child's speech in any way different from normal (not clear enough to be understood by people other than his/her immediate family)?</p> <p>9) For two-year-old children ask: Can he/she name at least one object (for example: an animal, a toy, a cup, a spoon)?</p> <p>10) Compared with other children of his/her age, does the child appear in any way mentally backward, dull or slow?</p>
Sao Tome	2-9	Ten questions module
Sierra Leone	No age range	<p>1) Does any member of the household have a disability such as being blind, or deaf, or dumb, or crippled, or mentally disabled, or having lost one or more arms legs?</p> <p>2) Cause of disability: Congenital, accidents, war, illness, assaults, other (specify)</p>
Sudan (North)	5-17	<p>1) Are there any disabled children in the family?</p> <p>2) Type of disability: mental, physical, both, do not know.</p> <p>3) Causes of disability: polio, deformity, meningitis, Gila worn, others do not know.</p> <p>4) Did "name" enrolled in school? Yes, no, do not know.</p> <p>5) Did "name" participate in daily activities? Yes, no, do not know.</p> <p>6) If yes which activities: cleaning playing, preparing food, more than activity, all above, others, do not know.</p> <p>7) Did "name" participate in social activities? Yes, no, do not know.</p>
Suriname	2-9	Ten questions module
Tunisia	<5	<p>1) Compared to other children does "name" have any disability? Vision, hearing, movement, speech, mental, other.</p> <p>2) Is s/he assisted by a care institution?</p>

**Percentage of children, 2-9 years of age, with disability by gender and country. MICS 1999-2001**

<b>COUNTRY</b>	<b>Total</b>	<b>Boys</b>	<b>Girls</b>
Cameroon	23.4	24.5	22.3
Iraq*	4.3	4.9	3.8
Jamaica	8.8	9.4	8.2
Lesotho	40.3	41.4	39.3
Madagascar	33.7	35.2	32.1
Sao Tome & Principe	43.8	45.2	42.4
Suriname	19.9	20.4	19.3

\* Three governorates only: Dohouk, Suleimaniya and Erbil

**Percentage of children, 2-9 years of age, with disability by type of impairment and country. MICS 1999-2001**

<b>COUNTRY</b>	<b>TYPE OF IMPAIRMENT</b>									
	<b>Total</b>	<b>Develop.</b>	<b>Vision</b>	<b>Hearing</b>	<b>Understanding</b>	<b>Movement</b>	<b>Crisis/Fits</b>	<b>Learning</b>	<b>Speak</b>	<b>Mental</b>
Cameroon	23	3	2	3	4	2	4	3	7	6
Iraq*	4	1	1	1	1	1	1	1	2	1
Jamaica	9	1	1	1	3	1	1	2	2	3
Lesotho	40	14	6	7	12	4	4	5	9	11
Madagascar	34	15	3	4	6	2	5	2	4	11
Sao Tome	44	11	3	7	10	5	14	8	15	3
Suriname	20	3	4	4	5	2	3	3	3	4

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

**Percentage of children, 2-9 years of age, with disability by place of residence and country. MICS 1999-2001**

<b>COUNTRY</b>	<b>Total</b>	<b>PLACE OF RESIDENCE</b>		
		<b>Capital</b>	<b>Other Urban Centers</b>	<b>Rural</b>
Cameroon	23	23		24
Iraq*	4	5		4
Jamaica	9	8	8	9
Lesotho	40	38		41
Madagascar	34	22	33	34
Sao Tome & Principe	44	48		39
Suriname	20	18		22

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

**Percentage of children, 2-9 years of age, with disability by household wealth and country. MICS 1999-2001**

COUNTRY	WEALTH INDEX					
	Total	Poorest 20%	Second	Third	Fourth	Richest 20%
Cameroon	23	23	22	26	25	21
Iraq*	4	4	5	5	n.a.	0
Lesotho	40	41	40	42	40	39
Madagascar	34	33	37	35	33	27
Sao Tome & Principe	44	45	39	50	42	43
Suriname	20	22	24	19	17	11

\* Three governorates only: Dohouk, Suleimaniya and Erbil.

**Proportion of children 6-9 years attending school by disability status. MICS 1999-2001**

COUNTRY	Disability status	
	Yes	No
Cameroon	75	72
Iraq*	52	70
Lesotho	84	82
Madagascar	58	56
Sao Tome & Principe	69	69
Suriname	90	92

\* Three governorates only: Dohouk, Suleimaniya and Erbil