Infant and Young Child Minimum Dietary Diversity (IYCMDD)

Overview

The infant and young child minimum dietary diversity (IYCMDD) score is a diet quality indicator designed by the World Health Organization (WHO) to assess complementary infant and young child feeding (IYCF) practices among children 6-23 months old. This indicator is one of eight IYCF indicators developed by the WHO to provide simple, valid, and reliable metrics for assessing IYCF practices at the population level (WHO 2008[1]). The other seven indicators are: early initiation of breastfeeding; exclusive breastfeeding under 6 months; continued breastfeeding at 1 year; introduction of solid, semi-solid, or soft foods; minimum acceptable diet; minimum meal frequency; and consumption of iron-rich or iron-fortified foods. The IYCMDD is also used to calculate the minimum acceptable diet [2] (IYCMAD) indicator, which is a composite indicator.

Method of Construction

Data are gathered from a questionnaire administered to the child’s caregiver. Respondents are asked to indicate whether or not their child consumed any food over the previous 24 hours from each of seven food groups. The seven food groups included in the questionnaire are:

1. Grains, roots, and tubers
2. Legumes and nuts
3. Dairy products
4. Flesh foods
5. Eggs
6. Vitamin-A rich fruits and vegetables
7. Other fruits and vegetables

The total number of food groups consumed is summed. The population level indicator is calculated based on the following formula:

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\frac{\text{Children 6-23 months of age who received foods from } \geq 4 \text{ food groups during the previous day}}{\text{Total number of children 6-23 months of age surveyed}}
\]

For more information on calculating this indicator, refer to the WHO measurement guidelines (WHO, 2010[3]).

Uses

Dietary diversity has been shown to be positively associated with mean micronutrient density adequacy (FANTA, 2006[4]). Thus, IYCMDD can be useful in capturing a population-level picture of infant and young child diet quality and the adoption of appropriate complementary feeding practices (FANTA, 2014[5]). As a simple and easy to interpret indicator, IYCMDD is
appropriate for population-level targeting, monitoring and assessment and target setting.

**Strengths and Weaknesses**

One advantage of the IYCMDD is that it is simple to collect, tabulate, and interpret and is applicable across sociocultural contexts. In addition, it can be applied to both breastfed and non-breastfed children between 6 and 23 months old (although these scores should not be directly compared to each other), since it is an indicator of complementary feeding and thus breastmilk is excluded from the list of foods. It is also easily disaggregated into smaller age groups, including 6?11 months, 12?17 months and 18?23 months (WHO, 2008 [6]).

However, this indicator cannot be used to compare populations with different rates of continued breastfeeding, nor can it be used to compare the same population over time if rates of breastfeeding have changed. (The IYCMAD, however, can be used for this purpose.) (WHO 2008 [1]). Another drawback of this indicator is that it does not provide quantitative food or nutrient intake information or indicate nutritional status. Research has shown that the ability of child dietary diversity scores to represent micronutrient adequacy could be improved by either imposing consumption minimums or by assigning different values to the food groups based on nutrient content (Gewa et al., 2014 [7]).

**Data Source**

The IYCMDD indicator can be constructed from a food recall survey administered to the child?s caretaker, usually as part of an IYCF module in a larger survey. Example questionnaires can be found in the WHO (2008) Indicators for assessing infant and young child feeding practices document, which includes 1) a household roster (page 4), 2) an initiation of breastfeeding module (page 5), and 3) an infant and young child feeding module (page 7). This indicator is also available for many countries in the United Nations International Children?8 Emergency Fund?8s (UNICEF) Infant and Young Child Feeding Database (UNICEF [8]), and is collected as part of many Demographic Health Surveys (DHS).

**Links to guidelines**

- WHO (2008), Indicators for assessing infant and young child feeding practices (Part 1 Definitions) [1]
- WHO (2010), Indicators for assessing infant and young child feeding practices (Part 2 Measurement) [3]

**Links to validation studies**

- Working Group on Infant and Young Child Feeding Indicators. (2007). Developing and validating simple indicators of dietary quality and energy intake of infants and young children in developing countries: Additional analysis of 10 data sets? [10]
Links to illustrative analyses

- Jones et al. (2013). "World Health Organization infant and young child feeding indicators and their associations with child anthropometry: a synthesis of recent findings" [14]

Data Sources

- Demographic and Health Surveys (DHS)

Unit of Observation

- Individual

Food Security Components

- Quality

Food Composition Database Required?

- No

Demographic and Health Surveys (DHS)

Open this information in a new window [9]

DEMOGRAPHIC AND HEALTH SURVEYS

Demographic and Health Surveys (DHS) are collected in over 90 countries. More than 300 surveys have been conducted since 1984 when DHS data were first collected. DHS contain information on select nutrition indicators, as well as fertility, reproductive health, maternal health, child health, immunization, HIV/AIDS, maternal and child mortality, malaria, and anthropometry, as well as other indicators. DHS data do not include comprehensive food consumption data, although several infant and young child consumption indicators on breastfeeding and feeding practices are collected. In addition, a number of indicators that are relevant to nutrition outcomes can be calculated (e.g. stunting and wasting).

Specific food consumption indicators that can be calculated with DHS data, include:

- Initial breastfeeding
Breastfeeding status
- Median duration and frequency of breastfeeding
- Percentage of children breastfed six or more times
- Percentage of children 6-23 months who are fed according to infant and young child feeding (IYCF) practices

Strengths:
- Publicly available and well documented
- Relatively easy to access and analyze
- Provides information on trends due to routine collection of data in many countries (~5 years)
- A core set of survey modules is standardized across countries allowing for comparability over time and place; some countries include additional modules (e.g. biomarker data)

Weaknesses:
- Does not include food consumption data on entire diet
- Only representative of children under five years old and women 15-49 years old

Key take-away points: Methods and types of indicators that can and cannot be derived with these data

There are a number of ways that DHS data can be leveraged for food security and nutrition analyses. Some specific examples of how they can be used include:
- Useful data source if you are interested in breastfeeding trends and infant and young child feeding practices within, or across, countries
- Can be used to provide insights related to nutrition and health outcomes both within, and across, countries over time

Sources:
1) DHS Overview: http://dhsprogram.com/
2) DHS and Nutrition: http://dhsprogram.com/topics/nutrition.cfm