
Subject: Re: Documentation on nutritional 'score' variable

Posted by [Liz-DHS](#) on Fri, 30 May 2014 14:23:21 GMT

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Dear User,

The Guide to DHS Statistics <http://dhsprogram.com/publications/publication-dhsg1-dhs-questions-and-manuals.cfm> contains the following:

CHILDREN'S AND WOMEN'S NUTRITIONAL STATUS

CHILDREN'S NUTRITIONAL STATUS

Statistics: Percentages of Children Under 5 Years of Age, by Stunted, Wasted, and Underweight

Definition

A. Coverage:

1. Population base: Living children born 0 to 59 months before the survey.
2. Time period: Current status at the time of the survey.

B. Numerators:

1. Severely stunted: Number of children whose height for age z-score is less than -3.0 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.
2. Moderately stunted: Number of children whose height for age z-score is between 2.0 and -2.99 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.
3. Severely wasted: Number of children whose weight for height z-score is less than 3.0 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.
4. Moderately wasted: Number of children whose weight for height z-score is between 2.0 and 2.99 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.
5. Severely underweight: Number of children whose weight for age z-score is less than 2.0 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.
6. Moderately underweight: Number of children whose weight for age z-score is between 2.0 and 2.99 standard deviations (SD) below the mean on the NCHS/CDC/WHO international references standard.

C. Denominator: Number of living children between ages 0 and 59 months before the survey.

Calculation

A. The assignment of anthropometric z-scores based on the NCHS/CDC/WHO International Reference Standard is done through a complicated interpolation function that takes into account sex, age (measured by difference in date of birth and date of interview, both precise to day of month), height in centimeters, and weight in kilograms (precise to 100 grams). As part of a creation of a recode file variables with the z-scores are calculated and included in that file. In the process of assigning the z-scores, checks are made on their plausibility. Z-scores are assigned missing to children with incomplete date of birth (month or year missing or "don't know"). The reason is because z-scores are very sensitive to changes in age. Children with height for age z-scores below 6 SD or above +6 SD, with weight for age z-scores below 6 SD or above +6 SD, or with weight for height z-scores below 4 SD or above +6 SD are flagged as having invalid data. Also invalid are combinations of z-scores where height for age is less than 3.09 SD and

weight for age is more than +3.09 SD, or where height for age is more than +3.09 SD and weight for age is less than 3.09 SD.

B. The percentages of children stunted, wasted, and underweight are equal to the specific numerators divided by the denominators and multiplied by 100.

Handling of Missing Values

Children who were not weighed and measured and children whose values for weight and height were not recorded are excluded from both the denominator and the numerators. Children whose day of month of birth is missing or unknown are assigned day 15. Children who are flagged for out-of-range z-scores or invalid z-scores are excluded from both the denominator and the numerators. Children with missing data in the z-scores (date of birth incomplete or missing) are excluded from both the denominator and the numerators.

Notes and Considerations

Stunting, based on a child's height and age, is a measure of chronic nutritional deficiency.

Wasting, based

on a child's weight and height, is a measure of acute nutritional deficiency. Underweight, based on weight

and age, is a composite measure of both acute and chronic statuses. The NCHS/CDC/WHO standard is

based on well-nourished children in the United States. Due to natural variations in a well nourished

population, 2.2 percent of children will be between 2.0 and 2.99 SD below the mean, and 0.1 percent

will be 3.0 or more SD below the mean. The extent of malnutrition in a population should be taken by

the extent the proportions moderate and severe exceed these percentages that occur in a well-fed population of children.

The NCHS/CDC/WHO international reference standard is a combination of two reference standards: one

for children under 24 months and the other for children 24-60 months. The first standard, called the Fels

standard, is based on children whose height was taken while prone. The other standard, based on NHANES data, is derived from children 24 months and older whose height was measured while they

were standing. For children 24 months of age or over, whose height was measured while lying down, one

centimeter should be subtracted from their measured height before calculating the z-scores.

Changes over Time

In phases of the DHS survey before phase IV (DHS+), only children of interviewed women and who

were under five years old (or the cutoff for the health section of the individual questionnaire) were weighed and measured. In many surveys, only a subsample of these children were selected for

anthropometry. All comparisons between surveys, either over time or between countries, should take into account the possible differences in the defined population base.
