Assessment of nutritional status: effects of different methods to determine age on the classification of undernutrition

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The evaluation of nutritional status using anthropometry has been widely employed in field studies and nutritional surveillance programmes. Two of the primary indicators used, weight-for-age and height-for-age, require accurate age information for proper assessments to be made. Three data sets on nutritional status were evaluated using different methods to determine age: rounding to the most recently attained month, rounding to the nearest whole month, and ages computed from birth dates and visit dates. The impact of these different methods on the classification of nutritional status were found to be dramatic, especially in infants during the first year of life. In some cases, when ages are rounded to the most recently attained month, as few as 43% of the children classified as malnourished based on the indicator, height-for-age, and the cut-off point, < −2 Standard Deviations from the reference median, are identified relative to when ages are computed from birth and visit dates. Beyond the discrepancies in estimating prevalences below specific cut-off points to designate undernutrition, the use of the different methods also affects entire distributions. The problem of using different methods to estimate age, and the impact they have on the classification of undernutrition are of critical public health importance, especially when this information is used to identify individuals and groups as well as for planning and policy development.

Introduction

Anthropometry is now a widely accepted, simple field technique for evaluating physical growth and the nutritional status of individuals and population groups. Because a child's growth performance reflects past nutrition and health conditions, the measurement of attained height (or recumbent length) and body mass (weight) at specific ages provides useful information on the child's present and cumulative nutritional status. In turn, anthropometric indices reflecting growth over time, such as weight-for-age and height-for-age, have been incorporated into growth-monitoring programmes and cross-sectional surveys to express growth performance. Since these two indices (and others such as arm-circumference-for-age) are age-dependent, accurate determination and standardization of ages is imperative. However, many different techniques have been used to calculate and round off ages when analysing anthropometric data, and these have caused distorted results and created problems in the interpretation of information about nutritional status.

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To assess a child's growth at a given moment, the child's present growth (as indicated by weight or height) is compared with the growth of a "reference" child of the same age and sex. The median weight or height of a reference population is used as a point of comparison in calculating anthropometric status. References for weight-for-age and height-for-age have been constructed for specific ages, usually in monthly intervals, as in the international reference recommended for use by WHO ([1]). Thus, when making comparisons to a reference, under- or overstating a child's age will cause his or her nutritional status to be wrongly classified. For example, if a child's age is overstated, the nutritional status will be underestimated and recorded as being poorer than it really is. This problem has a direct impact on data interpretation and could have pronounced social, political and economic consequences to the extent that such information is utilized for planning an intervention strategy and overall health care policies.

This paper demonstrates how the nutritional status of individuals and population groups becomes classified differently depending on the technique used to define ages. Knowledge of these differences is critical for accurate interpretation and comparison of data sets. The interpretation and use of data will be

greatly facilitated if the methods used to calculate ages are correctly specified and documented by researchers. Of particular concern is the ability to compare data sets where ages were calculated using different methods. A parallel concern is that as more data sets are collected and made available to evaluate trends, it is imperative to clarify this issue to avert potential errors in interpretation and subsequent decision-making.

Primary indicators and age calculation

Weight-for-age and height-for-age

Since these two indices have been described in depth elsewhere (2, 3), they will only be elaborated on briefly. Weight-for-age has been for many years the most widely used anthropometric indicator of nutritional status. It is readily understood and its measurement is arguably the most accessible for field personnel. The sequential weighing of children over time allows for a direct observation of the pattern of growth and enables health and other workers to detect growth faltering before it becomes severe. However, as a composite index, it reflects growth in terms of both body mass (adiposity and musculature) and skeletal (or linear) development. As a consequence, it cannot distinguish between children who are short and fat from children who are tall and skinny, which is important in the classification of growth and nutritional status.

The measurement of height relative to age (height-for-age) has been promoted as a means of assessing overall, cumulative physical development. In the case of malnutrition, the term "stunting" has been proposed for a low height-for-age to indicate that a child has a long-term growth deficiency, caused either by chronic food deficiencies or repeated infections or a combination of the two. In fact, there seems to be a direct relationship between stunting and poor socioeconomic status which gives rise to inadequate living conditions not conducive to attaining optimal health.

For a more descriptive assessment of nutritional stunting, the use of a third indicator, weight-for-height, has been incorporated to discriminate between children who are stunted and (at present) malnourished from those who are stunted but not (at present) at risk of undernutrition. For a child who has a low weight-for-height, the term "wasting" is used to indicate a current deficiency in fat and muscle. However, as weight-for-height is relatively age independent (in that it does not require age to be

calculated), this index will not be considered in the present discussion.[a]

Age determination and misstatement

The problem of gaining access to accurate age information in countries where birth records are not kept has been well documented. Several techniques have been proposed to compensate for this problem, such as using special-events calendars that indicate various religious, climatic, agricultural and social occurrences in order to facilitate the collection of age information. Important work has been done describing the impact of age misstatement on the classification of nutritional status (5–7). In this work, various factors were found to be responsible for errors in age, including the educational status of mothers and the extent to which the nutritional status of children influences the interviewer's perception of age. In addition, it was determined that in rural Bangladesh the ages were often overreported, which causes nutritional status to appear poorer than it really is. However, the degree to which age errors influenced the classification of nutritional status was not presented.

Beyond the issue of obtaining ages, once collected, it is critical to evaluate the methods used to define and round off ages and to assess the effect these methods have on the actual classification of nutritional status.

Calculation of absolute ages. When the date of birth is known for a child, it is possible to calculate the age of the child at the date of visit (measurement). Although such a process can be complicated in the field, the birth and visit dates can be recorded and the actual age calculated later. This procedure has

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[a] There is one critical aspect of age in the use of the weight-for-height index relating to the point at which weight is compared relative to recumbent length (lying down) as opposed to stature (or standing height). This is due to the fact that the growth reference for weight-for-height of the National Center for Health Statistics (USA) is in fact made up of two distinct cohorts in which heights were measured differently. For children up to 24 months of age, height was measured as recumbent length, while after this period children's heights were measured standing. Computer software has been developed for the analysis of anthropometric data in which weight-for-recumbent-length is calculated for children up to 24 months of age (not including 24.00), while weight-for-height is calculated from 24 months (including 24.00) *when ages are provided.* In contrast, when the ages are not given, the cut-off point between weight-for-recumbent-length and weight-for-stature is set at 85 cm for both sexes. Therefore when ages are not considered in the analysis of data, the weight-for-height status of a child less than 85 cm tall will be based on recumbent length and not stature, even if in fact the age is greater than 24 months. In turn, this would overestimate the nutritional status, since the reference values for weight are slightly lower for recumbent length than for stature.

been simplified by the development of anthropometric computer software which calculates age data to two decimal points from birth and visit dates. The software allows ages to be stated as fractions of whole months, for example 74 days would be 2.43 months. In the calculation of nutritional status from anthropometric data, the programme interpolates from the reference values between the two months in which the age falls (i.e., between 2 and 3 months for 2.43) and calculates the corresponding percentile, percent-of-median value and S.D. score for the three indices (weight-for-age, weight-for-height and height-for-age). However, when such software or computer facilities are not available, as is often the case, it is necessary to round off the absolute ages to a whole month in order to use published tables presenting reference values to determine nutritional status. These tables are usually presented for each index by sex and by age in months.

Rounding off to the nearest month. Ages are rounded to a whole month for all values between the midpoint of the previous month and the midpoint of the following month. Thus, a child's age is rounded off to 4 months if it is between 3 months and two weeks (3.50) and 4 months and two weeks (4.49). By rounding to the nearest month, the nutritional status of children whose actual ages are less than the month is underestimated, while the status of children who are older than the nearest month will be overestimated. For entire populations, this effect can be balanced if the ages are equally distributed throughout the period (between the middle of the two months). As elsewhere, it is imperative to standardize a system and to apply it consistently in all cases.

Rounding off to the most recently attained month. Ages are stated as the most recently completed month of life. That is, a child's age is defined as 4 months if 4 months of age has already been reached but 5 months has not, and the child is between 4.00 and 4.99 months. This method simplifies the problem of rounding, but has the disadvantage of over-estimating the nutritional status of all individuals. An extreme example would be that of an infant girl who is 30 days old and weighs 4.0 kg. If her age were rounded to 0 months (most recently attained), her weight-for-age status would be +2.10 S.D. of the reference median, whereas if her status had been calculated for 30 days, the value would have been +0.05 S.D. In presenting data for population groups, this effect will be pronounced.

Current practices and recommendations

Much of the documentation on the methods of taking anthropometric measurements is confusing

and contradictory, leaving field workers without a standardized system for collecting age data. Many manuals published to assist in the application of nutritional assessment practices have recommended that ages be rounded off to the "nearest month" (8). In other publications, it is recommended that ages be rounded to the most recently completed full month of life (9, 10). In 1983, WHO guidelines for field workers (10) stated that the recording of ages was "a straightforward procedure" when birth dates are known, and recommended that ages be rounded to the "nearest month or year as the case may be" (however, in the example provided, rounding is to the most recently attained month and not to the nearest whole month). Specifically, the example is of a child born on 13 July 1981 who should be recorded as 5 months if examined or visited between 13 December 1981 (when he/she had just turned 5 months of age) and 12 January 1982 (when he/she was 5 months and 31 days old, both dates inclusive). Thus, it was recommended that a child should be considered as 5 months until he/she had reached 6 months of age (5.00–5.99 months).

When exact birth dates are not known, the same WHO guidelines (10) provided two alternatives. The first rounded the age to the most recently attained month, and the second recommended that the age should be estimated by the investigator and recorded with the caveat that it is a clinical estimate.

These conflicting recommendations demonstrate that there is no single standardized method for age determination. The purpose here is not to formulate a definitive recommendation, but merely to highlight the potential problems faced in classifying nutritional status data when using various methods to calculate age. It is essential for investigators to specify which method they used to determine and round off ages when analysing anthropometric data.

Comparison of the three methods

In order to evaluate the differences in the classification of nutritional status using the three methods, three data sets were analysed where both the date of birth and the date of visit were known (11, 12; R. Adrianasolo, personal communication, 1983–84). The age of each child was calculated to two decimal points, and then rounded to the most recently attained month and also to the nearest whole month, and finally the anthropometric information was analysed using these three ages.

The distribution of children in each data set for each age group and type of method used to determine ages is presented in Table 1. These sample sizes refer to weight-for-age, but the same pattern exists for height-for-age. It is important to note that the

Table 1: Sample sizes in each data set by age group and by type of method used for determination of ages (for weight-for-age)

Data set	Age: 0–5 months			Age: 6–11 months			Age: 12–23 months		
	Computed	Nearest	Attained	Computed	Nearest	Attained	Computed	Nearest	Attained
Trinidad	178	159	178	151	154	151	315	316	315
Gabon	120	106	120	166	165	166	220	221	220
Madagascar	552	516	552	505	497	505	750	761	750

sizes of the two groups, in which the ages were rounded to the most recently attained month or were computed using birth dates and survey dates, are identical. This is because the age intervals defined in the cross tabulations are for whole months. For example, all records with computed ages between 1.0 and 1.99 months are included in the same tabulation interval as records in which ages were rounded to 1 as the most recently attained month, and thus are included in the 0–5.99 age group. It can be expected that dramatic differences in anthropometric status will occur between these two groups because all the records with attained ages have their nutritional status overestimated. However, this is not the case between computed ages and ages rounded to the nearest month.

The anthropometric data were calculated three times, using identical information for sex, weight and height, and the distinct ages using the Anthropometry Software Package developed by the Centers for Disease Control (13). The standard deviation scores (Z-scores), percentiles and percent-of-median values for each record were calculated from the reference median of the NCHS reference population.

To determine the effect of each method and the extent to which they classified children falling below specified cut-off points below the median, cross-tabulations of the data were performed. The cut-off points below −2 S.D. and below −1 S.D. were selected because they provide statistically valid descriptions of the distribution of S.D. values below the median. In addition, three age groups were selected for cross-tabulations, 0–5.99 months, 6–11.99 months and 12–23.99 months. It is especially important to evaluate the differences in classification in the first year of life, since this is when weight and height growth velocity is greatest, and therefore weight-for-age and height-for-age are most vulnerable to misclassification when the ages are incorrect. The age group corresponding to the second year of life is provided to assess the impact of age-rounding on children when the growth velocities have slowed.

The distribution of Z-scores from the reference median for weight-for-age and height-for-age for children 0–12 months of age were plotted using one-standard-deviation intervals. This was done to gain a

graphic impression of the nutritional status of the three data sets as classified using the different methods of age-rounding. The use of Z-scores is especially important in this type of analysis since they are consistent across ages (this is not the case with percent-of-median values). For reference purposes, normal curves are plotted on each of the graphs to amplify the direction and widths of the other distribution curves.

Results

Tables 2–4 present data on the prevalence of children in different age groups falling below −1 and −2

Table 2: Comparison of prevalence figures below different cut-off points using the various methods to calculate and round off ages, Gabon

Age group and cut-off point	Computed ages (months)	Nearest month		Recently attained month	
Weight-for-age					
0–5 months:					
< −2 S.D.	5.8	5.7	(98.3)*	3.3	(56.9)*
< −1 S.D.	16.6	16.1	(97.0)	10.8	(65.1)
Mean Z	−0.05	−0.07		−0.46	
6–11 months:					
< −2 S.D.	12.7	9.7	(76.4)	9.6	(75.6)
< −1 S.D.	41.0	37.6	(91.7)	23.7	(57.8)
Mean Z	−0.71	−0.60		−0.53	
12–23 months:					
< −2 S.D.	25.8	26.1	(102.0)	23.5	(91.1)
< −1 S.D.	61.5	63.0	(102.4)	58.3	(94.8)
Mean Z	−1.24	−1.25		−1.16	
Height-for-age					
0–5 months:					
< −2 S.D.	10.0	11.3	(113.0)	6.7	(67.0)
< −1 S.D.	33.3	37.7	(113.2)	22.7	(68.2)
Mean Z	−0.58	−0.58		−0.06	
6–11 months:					
< −2 S.D.	15.1	13.9	(92.1)	12.0	(79.5)
< −1 S.D.	48.1	47.2	(96.7)	36.1	(74.0)
Mean Z	−0.84	−0.82		−0.59	
12–23 months:					
< −2 S.D.	30.0	29.0	(96.7)	26.4	(88.0)
< −1 S.D.	65.0	60.7	(93.4)	57.8	(88.9)
Mean Z	−1.37	−1.31		−1.21	

* Figures in parentheses are the percentage of the corresponding computed age.

Table 3: **Comparison of prevalence figures below different cut-off points using the various methods to calculate and round off ages, Trinidad**

Age group and cut-off point	Computed ages (months)	Nearest month	Recently attained month
Weight-for-age			
0–5 months:			
< −2 S.D.	10.7	10.7 (100.0)*	7.3 (73.0)*
< −1 S.D.	20.3	21.4 (105.4)	16.3 (80.3)
Mean Z	−0.15	−0.15	0.32
6–11 months:			
< −2 S.D.	15.9	13.0 (81.8)	12.6 (79.2)
< −1 S.D.	47.7	43.5 (91.2)	40.4 (84.7)
Mean Z	−0.73	−0.64	−0.54
12–23 months:			
< −2 S.D.	18.4	19.3 (104.9)	17.1 (92.9)
< −1 S.D.	47.6	48.1 (101.1)	44.1 (92.6)
Mean Z	−0.78	−0.81	−0.69
Height-for-age			
0–5 months:			
< −2 S.D.	13.0	13.8 (106.1)	5.6 (43.0)
< −1 S.D.	34.5	35.2 (102.0)	23.1 (67.0)
Mean Z	−0.61	−0.63	−0.08
6–11 months:			
< −2 S.D.	13.9	12.3 (88.5)	7.3 (52.5)
< −1 S.D.	44.4	42.6 (95.9)	36.4 (82.0)
Mean Z	−0.61	−0.58	−0.36
12–23 months:			
< −2 S.D.	17.3	16.5 (95.4)	14.6 (84.4)
< −1 S.D.	45.0	43.2 (96.0)	38.1 (84.7)
Mean Z	−0.75	−0.78	−0.58

* Figures in parentheses are the percentage of the corresponding computed age.

Table 4: **Comparison of prevalence figures below different cut-off points using the various methods to calculate and round off ages, Madagascar**

Age group and cut-off point	Computed ages (months)	Nearest month	Recently attained month
Weight-for-age			
0–5 months:			
< −2 S.D.	4.9	3.9 (79.6)*	2.5 (51.0)*
< −1 S.D.	25.0	23.5 (94.0)	15.9 (63.6)
Mean Z	−0.31	−0.23	0.18
6–11 months:			
< −2 S.D.	34.1	31.6 (92.7)	28.3 (83.0)
< −1 S.D.	63.8	62.2 (97.5)	57.8 (90.6)
Mean Z	−1.43	−1.38	−1.25
12–23 months:			
< −2 S.D.	58.0	56.5 (97.4)	55.3 (95.3)
< −1 S.D.	86.9	85.5 (98.4)	85.4 (98.2)
Mean Z	−2.15	−2.12	−2.09
Height-for-age			
0–5 months:			
< −2 S.D.	10.0	7.6 (76.0)	4.9 (49.0)
< −1 S.D.	31.0	29.1 (93.9)	18.5 (60.0)
Mean Z	−0.38	−0.31	0.16
6–11 months:			
< −2 S.D.	27.3	26.8 (98.1)	22.4 (82.1)
< −1 S.D.	55.6	54.8 (98.6)	47.5 (85.4)
Mean Z	−1.12	−1.11	−0.87
12–23 months:			
< −2 S.D.	58.5	55.7 (95.2)	54.9 (93.8)
< −1 S.D.	83.0	81.2 (97.8)	79.7 (96.0)
Mean Z	−2.23	−2.15	−2.10

* Figures in parentheses are the percentage of the corresponding computed age.

S.D., as well as the mean Z-score value for the two indices, weight-for-age and height-for-age based on the three age-classification methods. There is a close relationship between the different figures as calculated by computed ages and those rounded to the nearest month. For the most part, the prevalence figures are slightly lower when ages are rounded to the nearest month, although there are some values which are higher. One of the reasons for the discrepancy is that the children's ages were not equally distributed within each month, that is, between .01 and .99 (the beginning and end of each month around the middle), and therefore the miscalculation of nutritional status in both directions was not corrected or compensated.

The prevalence figures of the data calculated with ages rounded to the most recently attained month are consistently lower than those calculated from both ages rounded to the nearest month and those that were computed. The differences are better expressed as percentages from values calculated with computed ages than in terms of absolute numbers. The differences are greatest in all three data sets, and for the two indices at the cut-off point below −2

S.D., for the 0–5.99-month age group where prevalence estimates for stunting (low height-for-age) when the ages are rounded to the most recently attained month range from 43.0% to 67.0% of those computed when the ages have been calculated from birth and survey dates. These differences are a little less, ranging from 51.0% to 73.0%, for prevalences of underweight (low weight-for-age) with the same age group and cut-off point. These are substantial differences since they show that, for the three data sets, as few as 43% of all children classified as being at risk of undernutrition (< −2 S.D. height-for-age) when the ages are computed are classified as such when the ages are rounded to the most recently attained month. This leaves a false positive rate of 57% which would considerably prevent the effective identification of individuals at risk.

It is interesting to note the pattern of decreasing differences between computed and recently attained ages in the older age groups in each data set and for each of the two indices. The one exception is the data from Gabon in which the difference between prevalences of children 6–11.99 months below −1 S.D. is greater than in the younger age group. This is

explained by the fact that velocity rates are highest in the first months of life, both for weight and for height, and inaccurate age information affects the classification of growth. On the other hand, even when the ages are rounded to the most recently attained month, differences in the prevalences are not much greater than 10% for the age group 12–23 months.

A useful way of examining the nutritional data of populations is to present the relative proportion of children with specific S.D. scores by plotting the distribution curves. This information is further supplemented by the mean S.D. (or Z) score of all the values (in Tables 2–4). In Fig. 1–3, the distribution curves for the three data sets and each index are drawn. The differences between the prevalence figures are clearly demonstrated in the relative shifts of the distributions. In each of the graphs it is clear that the lines corresponding to the values calculated from ages rounded to the most recently attained age are higher than those calculated from the other methods. The shapes and widths of the three distributions in each graph are not considerably different, but there are obvious shifts of the "attained" lines towards the median.

The data for the graphs correspond only to the age group 0–12 months, since it was clear that this is

Fig. 2. **Distribution of Z-scores for weight-for-age and height-for-age data (ages calculated using three distinct methods) in Trinidad, ages 0–12 months.**
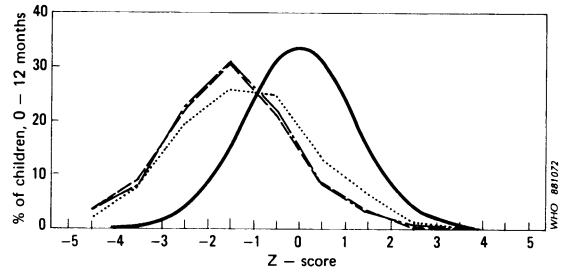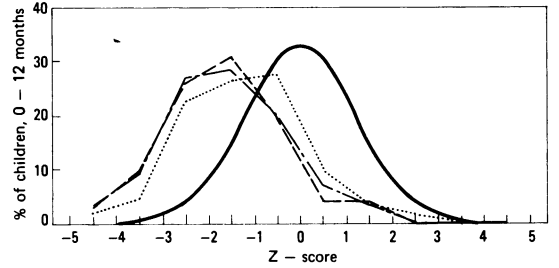
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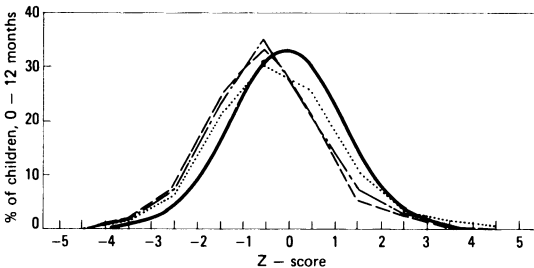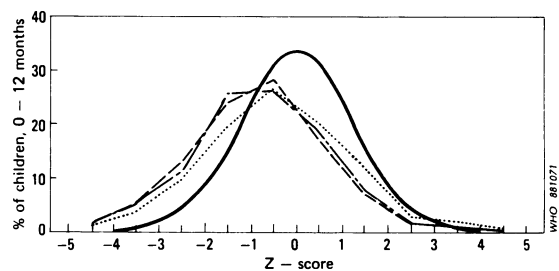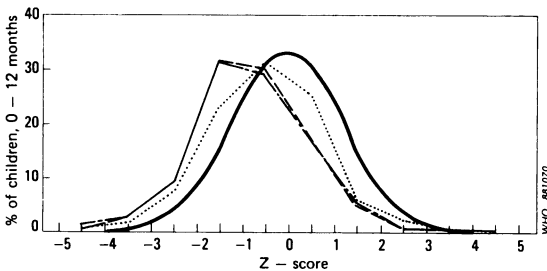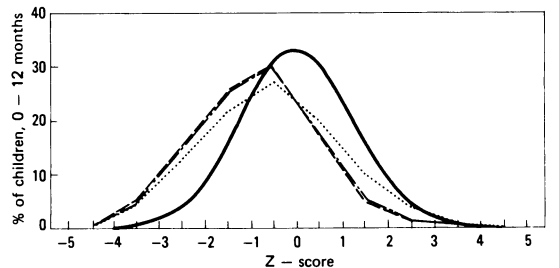

Fig. 3. **Distribution of Z-scores for weight-for-age and height-for-age data (ages calculated using three distinct methods) in Madagascar, ages 0–12 months.**

where the largest discrepancy between prevalences was observed. An important gauge to test the contrast between distributions is to apply simple statistical tests to determine the mean, skewness and kurtosis. The latter two confirm that the distribution characteristics are, in fact, quite similar, whereas the former variable, the mean Z-score, indicates substantial differences in the position of the distributions relative to one another. The means for each age group and index are presented in Tables 2–4. In a way similar to that of the prevalence figures, the disparity between mean Z-scores is largest in the youngest age group, and decreases for the two older groups, implying that nutritional status classification is affected throughout the distribution, at all levels, not only the extremes.

Conclusions

Nutritional status data are used for purposes of targeting populations considered at risk of distinct types of undernutrition and for health and nutrition planning. When a population group is assessed as having a positive nutritional status, because of age-rounding, it is conceivable that attention will be averted and necessary action will not be taken.

Anthropometric data have been used to provide important information on the nutritional status of individuals and communities. Calculation of two of the most widely used indices, weight-for-age and height-for-age, depend on the accurate estimation of ages. However, different techniques are employed to estimate ages, and even when information on birth dates are available, rounding off to whole months occurs. When ages are rounded to the most recently attained month, the nutritional status of individuals is overestimated and this influences the presentation of nutritional status data on population groups.

The present analysis discusses some of the limitations of using age data that have been rounded off, especially with regard to their interpretation. It is important to emphasize that any of these methods may be utilized as long as they are properly documented and taken into account when interpreting and presenting the data. There are certainly practical considerations which support the rounding off of ages to the most recently attained age, but in view of the dramatic differences that occur in the classification of nutritional status when this is done, appropriate caveats must be indicated. Further, for the evaluation of trends between two or more data sets over time, one in which the ages are calculated one way and the others in which the ages are calculated using other methods, care in interpretation will be required. The improvement or degradation in nutritional status of populations might in fact not have a biological basis, but may be the result of the use of different statistical methodologies.

Résumé

Evaluation de l'état nutritionnel: effets des différentes méthodes utilisées pour déterminer l'âge des sujets sur la classification de la malnutrition

L'anthropométrie est une technique simple, largement utilisée sur le terrain pour évaluer l'état nutritionnel des individus et des groupes de population. A partir des mesures de base (poids, taille, circonférence des membres, épaisseur du pli cutané, etc.), on a établi divers indicateurs pour estimer la croissance, et par voie de conséquence l'état nutritionnel. Deux de ces indicateurs, les rapports poids/âge et taille/âge sont dépendants de l'âge et ne peuvent par conséquent être utiles que si l'âge est déterminé avec précision. De nombreuses techniques ont été employées pour présenter les données relatives à l'âge dans différentes conditions de terrain, compte tenu des ressources disponibles (micro-ordinateurs, etc.). Les trois principales méthodes utilisées à cette fin consistent à calculer l'âge à partir de la date de naissance et de la date de la visite, à compter le nombre de mois complets écoulés depuis la naissance, et à arrondir l'âge au nombre entier de mois le plus proche.

Pour évaluer l'effet de ces trois méthodes sur la classification de l'état nutritionnel, on a analysé trois ensembles de données recueillies dans différentes régions du monde. On a constaté qu'en comptant le nombre de mois complets écoulés depuis la naissance, on surestimait l'état nutritionnel car les données anthropométriques recueillies sont comparées à des valeurs de référence concernant des enfants qui sont en réalité plus jeunes. L'effet est particulièrement prononcé chez les enfants de moins de six mois, car c'est à cette période que la croissance est la plus rapide et qu'une sous-estimation de l'âge fera considérer l'état nutritionnel comme meilleur qu'il n'est en réalité. Pour ce qui est du rapport taille/âge, on a constaté que, dans certains cas, 43% seulement des retards de croissance (rapport taille/âge inférieur de plus de deux écarts-types à la valeur médiane) détectés entre 0 et 6 mois lorsque l'âge est calculé à partir de la date de naissance et de la date de la visite, sont reconnus comme tels lorsque l'âge est arrondi au nombre de mois complets écoulés depuis la naissance. En ce qui concerne le rapport poids/âge, l'effet est également

notable, mais il n'est pas aussi important que dans le cas précédent. D'autre part, pour les enfants âgés de 6 à 12 mois et de 12 à 24 mois, l'impact sur les deux indices n'est pas aussi prononcé. De même, il n'y a pas une grande différence entre les résultats obtenus lorsque l'âge est arrondi au nombre entier de mois le plus proche ou lorsqu'il est calculé à partir de la date de naissance et de la date de la visite.

Ce problème est préoccupant car les informations relatives à l'état nutritionnel sont souvent utilisées pour identifier les individus et les groupes présentant un risque plus élevé de morbidité et de mortalité. Une classification erronée, surtout si elle est due à une surestimation de l'état nutritionnel des jeunes enfants, risque d'avoir de graves conséquences sur la définition des objectifs des programmes et de compromettre l'efficacité des mesures d'intervention ultérieures. En outre, à mesure que l'on accumule des données, il est indispensable, pour analyser les tendances en fonction du temps, de noter quelles sont les méthodes qui ont été utilisées pour déterminer l'âge, car les différences observées dans l'état nutritionnel au cours du temps peuvent en fait être dues à l'emploi de méthodes différentes plutôt qu'à une évolution biologique réelle.

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