The importance of access to food intake data

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In its different forms, malnutrition is said to be one of the greatest, and at the same time, one of the most preventable obstacles in terms of fulfillment of human potential and health status. It also places a significant burden on individuals, households and the national health system, as well as the entire cultural, social and economic make-up of a nation. Compared to the cost of treating and dealing with the different effects of malnutrition, its prevention is much more economical and also has a positive impact on productivity and economic growth, education, intellectual capacity and social development.[1]

A complete nutritional assessment is one of the first steps in the identification, prevention and treatment of malnutrition. Together with clinical, anthropometric and biochemical evaluation, assessment of food and dietary intake is central to the overall nutritional assessment and planning of nutrition interventions. Various retrospective (24-hour recall, dietary history and food frequency) and prospective methods (observation, food records and duplicate portions) can be used at individual, group, household and population level for the assessment of food intake. However, none of these methods can provide sufficiently accurate dietary information for all purposes. They are all subject to considerable limitations, including problems of validity and reliability due to inaccurate recalling or reporting; incorrect estimation of portion sizes; day-to-day variation in food intake; incorrect choice of food items from food composition databases; coding errors; and differences between database values and true values. There are also many missing values for nutrients in databases which hinder accurate interpretation.[2,3]

All the methods available provide, at best, an estimate of food intake. When evaluating the overall quality of the diet, food intake data may be reported in terms of food groups without conversion of foods into nutrients, but most frequently, food intake is converted to nutrient intake for comparison with reference data such as the Dietary Reference Intakes. Although this nutrient-based approach has, and continues to play an important role in advancing science, unfortunately it has limitations in establishing guidelines for consumer and other interest groups. The development of food-based dietary guidelines (FBDG), which consider the effects of a total dietary pattern, rather than focusing on single nutrients, has contributed to a better understanding of the role of nutrients and foods in achieving optimal health.[4,5] Complementing the FBDG approach is a tool developed from key dietary recommendations, namely a dietary behaviour score (DBS). An increasing DBS has been associated with a reduction in risk of all-cause mortality.[6]

Nutrient and food intake data are used to track changes and trends in dietary patterns in the population and within population subgroups; assess relationships between food or nutrient intake and disease; plan nutrition intervention programmes; identify the most appropriate foods suitable for fortification; compare food availability among different communities, geographic areas and socioeconomic groups; and develop national food and nutrition policies, as well as agricultural policies.[7]

The classic approach[8] to nutritional epidemiology consists of determining the exposure of people to essential nutrients. During the 1960s and up to the 1980s, most research focused on the effect of the different macronutrients on health status. This was followed, in the late 80s and beginning of the 1990s, by an interest in micronutrients, particularly vitamins and antioxidants. During the second half of the 1990s, the focus started to shift towards analysis of dietary patterns, recognising that people do not consume only one type of nutrient or food at a time, but rather a combination of foods. This approach is based on individual nutrients grouped into complex structures and is known as "research from the bottom up". It has now been complemented with new approaches, such as analysing food combinations (dietary patterns) to identify which components of the pattern are responsible for the observed relationship with a given outcome, i.e. "research from the top down". An example of this approach is the Mediterranean diet which has been analysed in terms of its individual components (olive oil, fruits, vegetables, cereals and wine),[8] and which is also seen as an holistic way of life, since the ancient Greek word *diaita* means "equilibrium and lifestyle."[9]

Much of the effort to control the three micronutrient deficiencies that have given rise to the greatest public health concern (vitamin A, iron and iodine), has focused on supplementation. While supplementation is necessary for high-risk groups as a short-term measure, it fails to recognise the root causes of micronutrient malnutrition, and does not assist communities and/or households to feed themselves adequately.[1] It is now evident that many lower-income countries, international agencies, non-governmental organisations and donors are realising that food-based strategies that promote the diversity of food systems and supplies are a more viable, cost-effective and sustainable solution for controlling and preventing micronutrient malnutrition.[10] There are also signs of "donor fatigue," with the danger that funding for supplementation programmes may fade.[11]

When using dietary intake data for consumer education, nutrient intake needs to be translated into practical guidelines regarding the contribution of different foods that will promote health or prevent disease. The increasing emphasis on food intake, as opposed to nutrient intake, arises from the fact that foods are more than just collections of nutrients.[12] They also have cultural, ethnic, social and family sentiments that individual nutrients themselves do not have. The nutritional value of foods is also affected by different methods of food processing, preparation and cooking, and nutrient actions and interactions may differ from one food to another depending on the food matrix.

Furthermore, some food components may have beneficial biological functions that cannot be explained fully, as the protective effect may be due to single nutrients, a combination of foods or non-nutrients, or the replacement of other foods in the diet. A food-based approach also recognises the importance of the food and the agriculture sector in supporting rural livelihoods, and it supports the right-to-food approach in preventing hunger.[1]

Some of the critical steps involved in the development of FBDG include identification of nutrients that are important to public health and identification of the proportion of the population consuming specific foods (as sources of nutrients), and foods eaten most frequently in a population, while taking into account the needs of specific population groups.[12] However, as so rightly pointed out in the paper in this issue of the SAJCN on *The lack of food intake data and the consequences thereof*, the majority of South African nutritional studies express their results in terms of nutrient intake, whereas food intake data is rarely included, or presented in different formats.[13] The authors' conclusion after studying the South African literature is that there is a paucity of studies conducted and published on nutrient/food intake in the different population and age groups in South Africa in the period 2000-2010. In addition, food intake data from such available studies is seldom accessible to other researchers or interest groups. The authors' plea for the creation of a working committee to make South African food intake data more accessible to all interested parties is timely and needs to be considered urgently by all relevant stakeholders, including researchers, academics, food growers, manufacturers, and trade and health organisations.

We also need more information on the consumption of fortified foods and intake of foods high in certain toxic substances in susceptible groups. Furthermore, there is insufficient data on the consumption of specific food items, or preparation and storage methods that may pose a risk of food-borne illnesses, an issue that may require more attention in the future.

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