

Gathering data on early-life nutritional exposures in communities undergoing transition — a platform on which to formulate or evaluate nutrition policy decisions



South Africa and many of its neighbours on the African continent may be characterised as countries undergoing rapid epidemiological and nutritional transition. An important aspect of this transition is the coexistence of communicable and non-communicable diseases, many of which may be prevented, or the adverse sequelae of which may be attenuated, through the implementation of various nutritional and lifestyle interventions.^{1,2} In this context, issues concerning measurement of both nutritional status and various environmental, demographic and even inter-generational exposures become increasingly significant.³⁻⁷

Indirect markers of nutritional status, such as body composition, or age-standardised Z-scores for various anthropometric measurements, and measures of nutritional practice, such as food choice or food frequencies, may provide direction for public health and nutrition policy, at a national and multi-sectoral level.⁸ Moreover, these measurements add to our current understanding of individual energy and nutrient requirements, which may vary by differences in lifestyle, life stage and demography.^{6,9}

However, as the demands on the health care system are considerable, accurate and rapid field assessment of these parameters is necessary in order to formulate timely and appropriate intervention.^{10,11} Further, attributes such as ease of administration, accuracy and validity of various measures of nutritional status and lifestyle risk behaviours, create a platform supporting ongoing surveillance by the health care sector. As a consequence of existing and rapidly changing cultural diversity in a country such as South Africa, and with the likely coexistence of both apparent under- and over-nutrition within the same households, the suitability and interpretation of measures of nutritional status becomes even more important.¹²

Measurements of the adequacy of nutritional status are of particular relevance in so-called 'vulnerable' groups, such as pregnant and lactating women, children and older adults, as well as those at risk for both communicable and non-communicable disease. For

example, in the current issue of the *South African Journal of Clinical Nutrition*, Ettyang *et al.* (p. 10) have demonstrated that anthropometric measures of body composition in lactating women from a rural African community, using conventional equations, may overestimate body fatness, and yield an unacceptable level of inaccuracy and imprecision, when compared with the deuterium oxide (DO) method in the same group. Variability in the estimation of body composition in this study was related to the skinfold-derived equations, suggesting the need for caution in the broad application of such indices, originally formulated for populations in which food supply was plentiful, and for whom under-nutrition was not a major public health issue.

As the authors suggest, certain technological advancements, such as the application of Fourier transformed infrared spectrophotometry (FTIR) for the analysis of DO isotope enrichment of urine samples, may make the application of stable isotope methodology more widely available. This may be an important step in developing population-specific equations for developing communities or 'vulnerable' groups, and may prevent misclassification or a misinterpretation of nutritional status.

In the same light, the onus is on researchers to ensure the cultural adaptability and suitability of all measures of nutritional and lifestyle practice in these communities undergoing transition. For example, there are few data describing the 'circumstantial' (socio-economic, environmental, and cultural) factors¹³ surrounding so-called ethnic experiences concerning eating attitudes, eating behaviours and body size acceptance in South Africans. However, there is evidence in some communities that overweight or a high body mass index (BMI) may have many positive connotations for women, including the perception of affluence, happiness or health, and an indirect indication that someone is not HIV-positive.¹⁴ An understanding of the 'social context' around certain nutritional and lifestyle practices, and possible determinants of such practices, may provide for more effective models of intervention.

There is therefore an ongoing need for research, focused on characterising the specific nutrition knowledge, attitudes and practices of various communities within South Africa. A systematic approach should be adopted in validating questionnaires and instruments developed in other parts of the world, in which the social context may be very different, for use in evaluating the current nutritional practices of South African populations. This highlights the important contribution of articles such as that by Peltzer in this current issue of the journal (p. 24), in which nutrition knowledge and food choices are described and compared in black and white South Africans.

Finally, there is a compelling argument for ongoing measurement of nutrition-related health problems that are both prevalent and preventable, such as dietary deficiencies in nutrients such as iodine, folate or iron and the associated clinical manifestations of such deficiencies. By identifying specific risk factors and determinants of these nutrition-related disorders, appropriate interventions can be initiated, the outcomes of which must be measured for effectiveness. Examples of this key research in the current volume of the journal are the papers by Jooste *et al.* (p. 32) concerning iodine and goitre status of schoolchildren in the Western Cape, and Mamabolo *et al.* (p. 15) concerning the effectiveness of iron and folate supplementation in pregnant women in Limpopo province. Through research of this type we foster evidence-based practice, focus on multiple solutions to nutritional problems, based on different environmental

and demographic determinants, and subscribe to continual evaluation of the effectiveness of our public health nutrition policy initiatives.

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