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The important role of food composition in policies and programmes for better public health: A South African case study

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ABSTRACT

Most governments have committed to the set of Sustainable Development Goals established by the United Nations (UN) to be achieved by 2030. Subsequently the governments have drafted, or are in process of drafting, policies and programmes which aim to answer to these global requests. South Africa provides a unique case study: despite economic growth, undernutrition has not improved when compared to other industrialised nations, while at the same time, diet-related non-communicable diseases and obesity have exponentially increased. Access to healthy food is a constitutional right of all South Africans, and towards increasing food security and improving population health, various policies, programmes and regulations have been developed and implemented by the government to rectify the situation. The paper presents an overview of food composition within these public health policies, programmes and regulations and unpacks the important role of accurate food composition data.

1. Introduction

Malnutrition no longer represents the single image of a hungry, undernourished child. The modern norm is that nearly half of governments throughout the world are dealing with populations who are both overweight and undernourished. The quantity of people affected by the different types of malnutrition cannot simply be summed, because a single person can suffer from more than one type of malnutrition. Yet, the scale of malnutrition is confounding. According to the recent Global Nutrition Report, 2 billion people were experiencing micronutrient malnutrition by 2015, while 1.9 billion adults were overweight or obese. At the same time, 161 million children under the age of 5 are stunted (too short for their age), and 42 million are overweight (International Food Policy Research Institute, 2015). Besides the devastating nature of the statistics, and the fact that nutrition is considered an essential driver for sustainable development, national accountability on nutrition targets vary significantly between countries. As an example, in South Africa, the development of policies, programmes and legislation is largely influenced by international commitments (Hendriks et al., 2016). Such international commitments are translated into national priorities, which are allocated to the relevant governmental departments who set targets and develop policies, programmes and regulations accordingly.

Public health practitioners and policy makers are critical end-users of food composition data (Harrison, 2004). Assessing nutrient availability and intakes in populations, developing programmes to improve nutritional status, research on diet and disease interrelationships, food system legislation, health education and guidance, preserving indigenous knowledge on traditional and novel foods, and predicting or evaluating the effects of policy decisions that affect the food supply all rely on quality food composition data (Harrison, 2004). Policies have an influence on food product composition and are aimed to ultimately change dietary composition, but the role which food composition plays is often not recognised to its full potential.

There is a danger that the availability of food composition data readily available over the Internet or from open-access databases could lead to access and misuse of inappropriate or poor quality data that may be irrelevant to the country or food in question. It is important to acknowledge that sound compositional data and an accessible database that is both comprehensive and representative of available foods is an essential basic tool for virtually all quantitative nutrition research, dietary evaluations and the development of food and nutrition policies. There is also a lingering need for a fundamental change in attitudes towards the place of food composition within the nutritional sciences. Food composition

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data present the primary scientific resource from which all other studies flow (Greenfield & Southgate, 2003).

It is vital for the efficacy and success of public health policies and programmes that food composition data be maintained and developed. Although difficult to quantify, it also makes financial sense. Own, national and accurate data can lower the costs of estimating the exposure of specific population groups to food components that are associated with chronic disease, lessen the frequency of chemical analysis needed in the enforcement of food inspection and food labelling regulations, and it can lower the cost of estimating nutrient and food component intakes from food (Sevenhuysen, 1994). The availability of food composition data is also essential for the food industry and food manufacturers, who play an important role in providing healthy foods to consumers. The positive cost-to-benefit ratio of improving public health (International Food Policy Research Institute, 2015) is also substantial enough to motivate the importance of own, quality data to develop successful interventions. Unfortunately, it is difficult to determine the extent to which poor food composition data contribute to uncertainty in research results (Sevenhuysen, 1994)

This paper presents a review of the nutrition-sensitive policies, programmes and regulations in South Africa, and unpacks the important role which accurate and unique food composition data plays therein. It also presents an example of the difference in estimations if this is neglected. An overview of the unique South African nutrient situation over time, where obesity has increased while many micronutrient deficiencies have persisted, provides evidence to question the accuracy of the nutrient content data used to inform policy development and reform. It provides a good motivation to further promote the need for policy makers to pay more attention on the preparation, extension and maintenance of food composition data and accessible databases. The purpose of this study was to assess the role of food composition in government policies and actions as it impacts the food environment in South Africa. The findings are discussed against achievable, well defined standards of good practices or benchmarks.

2. Overview of the South African nutrition situation

The Republic of South Africa, with an estimated population of 55 million (StatsSA, 2015), is a middle income country occupying the southernmost point of the African continent. The country is divided in nine provinces ranging in prosperity and nutritional status of the diversity of cultures residing in each province. Nearly two thirds (62%) of the population lives in urban areas, with the number consistently increasing due to urbanisation. At the same time many people living in rural areas are commuting daily or weekly to the urban metropoles for their daily jobs (Kirsten, 2012).

South Africa has an abundant supply of natural resources, well developed financial and service sectors and modern infrastructure. The country is considered nationally food secure as agricultural production is high, and at national level there is enough food available for the whole population estimated at more than 3000 kcal/-capita/day (FAOSTAT, 2013; Schönfeldt, Pretorius, & Hall, 2013). Yet, malnutrition remains a persistent problem. South Africa is in a nutrition transition in which undernutrition (including stunting and micronutrient deficiencies) continue to co-exist with a rising incidence of overweight and obesity and the associated consequences such as hypertension, cardiovascular disease and diabetes (Joubert et al., 2007). Within the context of the acquired immune deficiency syndrome (AIDS)/human immunodeficiency virus (HIV) pandemic and food insecurity, the high prevalence of undernutrition, micronutrient deficiencies and emergent overnutrition presents a complex series of challenges. It needs to be acknowledged that nutrition and health status of individuals are directly linked to their socioeconomic status and culture. Due to the lack of comprehensive data for the each of the diverse population groups, ethnicities and cultures within South Africa, this paper will only present a broad overview at national level.

The average household income of the poor in South Africa equips many households to procure mainly low cost staple foods such as maize meal porridge, with limited added variety. The poorest consumers (25% of the population) spend 35% of their available budget on food (Income and Expenditure Survey, 2010). Although this ability to procure enough food to maintain satiety of all family members may categorise them as being food secure, the nutritional limitations of such monotonous diets might have severe implications in terms of health, development and quality of life. Diet high in energy but low in other essential nutrients such as vitamins and minerals, essential amino acids.

Furthermore, as populations modernize as a result of socio-economic development, urbanization and acculturation such as is observed in South Africa, is characterized by changes in dietary patterns and nutrient intakes that increase the risk of the diet-related non-communicable diseases (Vorster, Kruger, & Margetts, 2011). Non-communicable diseases have emerged in Sub-Saharan Africa at a faster rate and at a lower economic level than in industrialized countries, before the battle against undernutrition has been won.

Stunting in children still remains a concern, and is a risk for mortality, poor cognitive and motor development amongst others. More concerning is that stunting usually persists into adulthood, resulting in an adult population with a reduced workforce and higher probability to have a higher BMI (Iversen, Marais, du Plessis, & Herselman, 2012). Stunting incidence has decreased slightly over time from 22.9% in 1994 (South African Vitamin A Consultative Group, 1996), to 21.6% in 1999 (Labadarios et al., 1999) and 18% by 2005 (Labadarios et al., 2008).

Vitamin A deficiency is also prevalent. 33% of children under 6 years were marginally deficient in vitamin A (serum retinol <20mg/dL) in 1994, with the highest rates among 3–4 year old children (South African Vitamin A Consultative Group (SAVACG), 1996). By 1999 one out of two children under the age of 9 years consumed less than 50% of their recommended amount of energy, vitamin A, vitamin C, riboflavin, niacin, vitamin B6, folate, iron, zinc and calcium. In this national study, diets of children were found to be confined to a narrow range of foods of low micronutrient density (Labadarios et al., 1999). Dietary intakes were particularly inadequate in rural areas (Labadarios et al., 2011).

After the mandatory fortification of staple food with a fortification mix (vitamin A, B-vitamins, zinc and iron) was legislated in October 2003, the follow-up national food consumption survey in 2005 still found significant nutritional deficiencies in children and women. Nearly a third of children and women had anaemia, 64% of children and 28% of women had a vitamin A deficiency and 45.3% of children had a zinc deficiency (Labadarios et al., 2008). In terms of successes, South Africa has essentially achieved the virtual elimination of Iodine Deficiency Disorder (IDD) due to the compulsory iodisation of table salt. Table 1 presents an overview of the data on malnutrition reported for the South African population over time.In addition to undernutrition, the prevalence of overweight South Africans is a reality, and increasingly so in children. In 1999 nearly 10% of South African children under 9 years were recorded as overweight or obese, with 4% of these being obese (Labadarios et al., 1999). In 2005, nearly 5% of children under 5 years of age were recorded as overweight or obese (Labadarios et al., 2008). Of the adult population, 29% of men and 55% of women were overweight, and 9% of men and 29% of women