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Inequalities of nutrition: The Namibian paradox

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Abstract

The paradoxical coexistence of obesity with undernutrition has been well documented worldwide. In many developing countries, 60 % of households contain both underweight and obese individuals, a situation referred to as the "dual burden household". The Namibian population is simultaneously made up of groups of overweight and obese individuals as well as a large group of underweight individuals. Based on data collected from 2003 to 2004, 28 % of Namibians were categorized as underweight, 11 % as overweight and 7 % as obese. Among adults, aged 30-46, 29 % were categorized as overweight or obese. In a middle-income country such as Namibia, food scarcity may no longer be the driving factor behind energy intake. Instead, the availability of cheap, energy dense foods may facilitate the consumption of more calories while an indoor, sedentary lifestyle would further reduce the average daily energy expenditure. Specific cultural perceptions may also encourage obesity. The 'double burden' of disease that has been created threatens to overwhelm the health services in Namibia. In this paper, we document reports on nutritional inequality internationally, and in Namibia specifically, and propose a research strategy to address the burden of the coexistence of under nutrition and obesity in Namibia. The paper documents a useful starting point for understanding the determinants of inequalities in nutritional status and provides some understanding of the causes of inequalities in nutritional status as well as the factors responsible for inequalities in health and nutritional status of individuals.

Introduction

While efforts are internationally being directed to the eradication of hunger, poverty and undernutrition, the World Health Organization (WHO) has declared obesity a global emergency (Prentice, 2005, p. 93). Obesity is a clearly defined medical condition whereby the body mass index (BMI), a simple ratio between weight and height, exceeds 30kgm-2 (Nour, 2010, p.180). Obesity and diet-related non-communicable diseases are reaching epidemic levels in countries that are still struggling to eliminate hunger and poverty, encumbering them with a double health burden (Burselm, 2004). There is an urgent need to deal with the emerging epidemic of obesity and its accompanying non-communicable diseases such as diabetes, cardiovascular disease, cancer and high-risk pregnancy. Chronic non-communicable diseases now cause close to 60% of all deaths worldwide and nearly 80% of these deaths occur in developing countries, demonstrating that developing countries are disproportionately affected. The nutrition transition, commonly defined as the changes in diet, food availability and lifestyle, results in the increasing prevalence of obesity and non-communicable diseases, coupled with the prevailing undernourishment in developing

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countries. This overweight-underweight nutrition paradox is reported as a disturbing trend worldwide (Fedunchak, 2009, p. 57).

Internationally, the nutrition paradox has been explored at the population level and the foundation of this duality is multifaceted. Obesity has been linked with industrialisation and higher economic status and it has been anticipated that, as developing countries improved their economic status and their gross national product (GNP), undernutrition will decrease and obesity will begin to appear among cohorts of higher socio-economic status. The relationship between GNP and overweight is, however, complex. According to Caballero (2005, p. 1514) and Monteiro, Conde, Lu & Popkin (2004, p. 1181), although being poor in the poorest countries indeed "protects against" obesity, being poor in a middle-income country is actually associated with a higher risk of obesity than being richer in the same country.

In the United Kingdom (UK), differentials in household or individual dietary patterns and nutrient intake by various socio-economic indicators have been observed in the annual national surveys of household intakes (Dowler, 2001, p. 701). Intakes of vitamins, minerals, and dietary fibre, and consumption of vegetables and fruit, are much lower and consumption of white bread, processed meats and sugar is higher, in households whose members are poorer than in those who are more affluent (Dowler, 2001, p.701). This most likely relates to the availability of cheap high energy food-stuffs in the UK. Lone parent households, and those with two or more adults and children, which in the UK are more likely to be poor, are also more likely to have lower micro-nutrient intakes (Dowler, 2001, p.701). Nutritional inequalities in the UK were more often found to be associated with poverty and deprivation than with social class defined by occupational group or educational status. There are also differentials by minority ethnic group status, but in the main these are more likely to be associated with material and social conditions than with cultural practice.

In developing countries undergoing socio-economic, demographic and nutrition transition, increased population growth, urbanisation and the changes in diet, food availability and lifestyle have resulted in the nutrition paradox. Widespread access to television favours an indoor, sedentary lifestyle, reducing the average daily energy expenditure. According to Adams, Tyrell, Adamson & White (2011), the effect of wide access to television and other media may also be of concern in the advertising of poor nutritional foods. In the wealthier segments of a given population, these influences may be counterbalanced by access to better education about health and nutrition, sufficient income to purchase healthier foods, greater quantities of leisure time for physical activity, and better access to health care that would help to address problems of excess weight. While data on obesity in the developing world is limited, the highest rates appear to be in the South Pacific. In Nauru, 70 % of the population was classified as clinically obese in 1994, up from only 15 % in the mid-1960s (Prentice, 2005). The problem is a global phenomenon. Obesity affects 25 to 50 % of populations in countries as diverse as Kuwait, Colombia, the Philippines, and China. In many industrialised and developing countries, undernutrition and obesity can even be found in members of the same household (Fedunchak, 2009). The prevalence of households with both overweight and underweight members in Brazil, for example, stands at 8 to 11 %. In Asia it ranges between 3 and 15 %, with households typically containing an underweight child and an overweight, nonelderly adult (Caballero, 2005).

Because food costs consume a much larger proportion of family income in developing countries than in developed countries, prices have a strong effect on the selection of particular foods. The globalisation of food markets has resulted in the introduction of mass-produced, low-cost foods to the domestic food supply of many developing countries.

This change, along with advertising campaigns, may have a powerful effect on the food choices and dietary patterns of low-income families. Despite the fact that dimensions of well-being aside from income such as nutrition and health are now placed on the global development agenda, substantial gaps remain in knowledge about patterns and trends in nutritional inequalities in many developing countries. Without adequate nutrition, a person's potential to escape from poverty is weakened due to lost time, lost labour, lost income, and the burden of healthcare costs. This explains why any attempt to reduce poverty, advance health equity, and improve well-being of poor people must primarily involve improved nutritional status.

Inequalities of nutrition in Namibia

Namibia holds the infamous record of being the country with the highest levels of inequality in the world (Central Bureau of Statistics, 2008) and these levels of inequality can be traced back from the period of colonial dispossession to the market-driven economic policies pursued after independence (Jauch, Edwards & Cupido, 2009). The dimensions of inequality mostly reported point to income, gender, race, regional, ethnic, education and class while nutritional inequalities are less emphasized. The United Nations Human Development Report of 2009, calculated a Namibian 'gini'[1] co-efficient of 0.743, ahead of Comoros (0.643), Botswana (0.61), Haiti (0.595), Angola (0.586), Colombia (0.585), Bolivia (0.582) and South Africa (0.578) (Central Bureau of Statistics, 2008).

The Institute for Public Policy Research (IPPR) has conducted an investigation into the trends of poverty and inequality in post-Independence Namibia (Schmidt, 2009a). Based on two surveys called Namibia Household and Income Expenditure Surveys (NHIES) conducted by the government in 1993/94 and in 2003/04, poverty and inequality are still prominent features of the Namibian society. Although the number of people living in poverty in Namibia decreased from 58 % of individuals in 1993/94 to 38 % of individuals in 2003/04, overall inequality remained largely unchanged (Schmidt, 2009a, 2009b). Income levels of both the poorest and richest sections of Namibian society rose rapidly during the ten-year period while the middle class did not gain to the same extent.

Consistent with findings from other developing countries, the Namibian population is simultaneously made up of overweight and obese individuals as well as underweight individuals: Recent data on undernutrition and obesity in Namibia is available in a report compiled for the Central Bureau of statistics (CBS) in 2009, using data obtained in the NHIES in 2003/04. About 7 % of the population is considered severely thin, 6 % is moderately thin, and 15 % is mildly thin. Using the classification of underweight as representing individuals with a BMI of less than 18.5, a total of 28 % of Namibians fall into that category. The majority of the population, or 56 %, is in the normal BMI range of 18.5-25. At the upper end of the scale, 11 % of individuals are classified as overweight and 7 % as obese. People who fall into the overweight-obese categories are at risk of developing hypertension, high blood cholesterol or other lipid disorders, type 2 diabetes mellitus, heart disease, stroke, and certain types of cancer. Non-communicable diseases rank among the top 10 diseases and among the top 15 hospital in-patient causes of death (World Health Organization, 2011). Factors used to explain increasing numbers of overweight and obesity in this middle-income country include urbanisation, and changing lifestyles, such as the move from manual labour to sedentary types of activities and consumption of cheap, energy-dense foods (Araar, Levine & Duclos, 2009).

Namibia is currently in a phase of demographic and nutritional transition with urbanisation increasing rapidly as young people from the rural areas seek education and work in urban areas. Urbanisation is a key factor in the development of obesity and persistence of

1 Gini co-efficient is a commonly used indicator of inequality based on population income – the values range from 0 (absolute equality) to 1 (absolute inequality)

undernutrition and food shifts due to urbanisation are observable. There are also clear spatial differences when it comes to BMI classification of the population. In rural areas, 34

% of individuals are underweight and 9 % suffer from severe thinness. In urban areas the prevalence of underweight is 18 %. The proportion of overweight and obese individuals more than doubles in urban areas where 11 % are classified as obese and 17 % as overweight. In rural areas, the corresponding shares are 4 % and 8 %, respectively.

Typically, people who move from rural to urban areas discontinue growing their own food and become reliant on the cash market for their calories (Fedunchak, 2009). When the cash is limited, the people either starve or rely on cheap, energy dense nutrient-lacking foods. Urbanisation also impacts on the job market, making available more sedentary style jobs that require less physical activity than rural labour intensive jobs. An increasing number of women pursue careers outside the home and families rely on convenience foods at home or 'fast food' and snacks for outside meals (Schmidhuber & Shetty, 2005, p. 150).

Large variation exists in the classification of BMI according to different age groups. Among the youngest children, 30 % are underweight, including 12 % who sufferfrom severe thinness (BMI < 16). Large groups of children are also observed to be overweight or obese, including 17 % in the 3-5 year age group and 8 % in the 6-12 year age group. The largest group of underweight individuals are among those aged 12-18, where 45 % are underweight. Among those aged 30-46 years, 29 % are overweight or obese while among those aged 46-66 years, the percentage is 32 % (Araar et al., 2009). There are clear indications of life-cycle effects when it comes to malnutrition and poverty as the older and younger age groups are facing much greater deprivations compared to the middle group of those aged 30-50 years. Widespread under-nutrition among children less than five years of age exists throughout Namibia. In the 1992 National Demographic and Health Survey, 28 % of children were found to be stunted in growth. Almost 9 % of the children in the survey were physically wasted and 26 % of the children nation-wide were underweight. The Health Information System, 1993, reported the prevalence of xerophthalmia, caused by a severe vitamin A deficiency, to be the highest in the north-west regions of Namibia, both among children under 5 (73 %) and among adults (65 %). Most cases of anaemia have also been reported in the north-western regions, where 55 % of children under five years and 59 % among five years and older appeared to suffer from anaemia. Around one third of the Namibian population between 6 and 21 years old suffered from iodine deficiency in 1990, while 22 % of 1,831 school-aged children were found to be iodine deficient in 1992. The prevalence ranged from 1.8 % in Gobabis in the South Central region to 61.4 % in Choi, which is situated in Caprivi. Children below 5 years of age were most at risk. In the north-western and north-eastern areas, the prevalence of goitre in children below 5 years reached 65 % and 27 %, respectively.

According to Araar and co-workers (2009), relatively fewer women than men are underweight. A total of 25 % of females are classified as underweight compared to 32 % amongst males. On the other hand, overweight and obesity is greater among women. Twenty per cent of women are either overweight or obese compared to 14 % of men.

The educational levels of heads of households have also been found to influence the nutritional status of the Namibian population. Individuals who live in households where the head of the household has no formal education have a BMI that is lower by 1.3 % than those that live in a household whose head has Primary education as the highest level of education. The difference is even greaterwith respect to those households where the head has Secondary or Tertiary education levels.

In terms of the administrative regions of Namibia, Ohangwena and Omusati have the largest shares of people who are undernourished. In these regions, close to 40 % of individuals are underweight according to the BMI classification. Erongo and Khomas have the lowest proportions of people who are underweight, with 13 % and 14 %, respectively. Conversely, Erongo and Khomas are the regions with the greatest proportion of people overweight or obese. In these regions, 32 % and 31 % of individuals are either overweight or obese. In Ohangwena and Omusati, the regions with the lowest shares of individuals, overweight or obesity is around 8 %. Figure 1 shows the incidence of undernutrition and poverty by region.

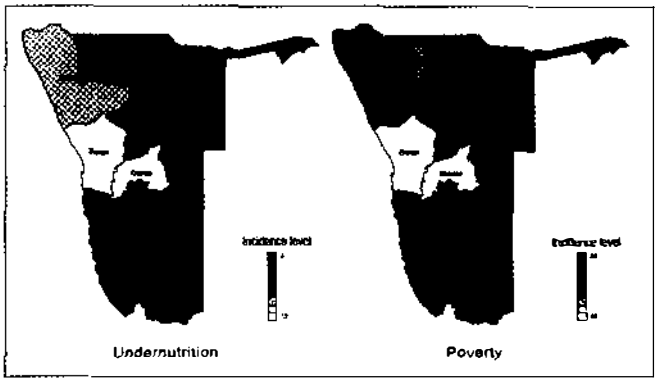

Figure 1: The incidence of undernutrition and poverty by region (Araar et al., 2009)

A link exists between the poverty status of the household and the BMI classification. In households that are classified as poor, when using the expenditure-based poverty line developed by the Central Bureau of Statistics, 35 % of individuals are classified as underweight, compared to 24 % of individuals in non-poor households. In non-poor households, 21 % of individuals are overweight or obese, compared to 11 % in poor households. These results suggest a link between the income and poverty status of households on one hand, and the nutritional status of individuals on the other hand. Results also show that it is possible to be malnourished in a non-poor household (19 % of individuals living in non-poor households are underweight) and to be obese in a poor one (4 % of individuals in poor households are obese) (Araar et al., 2009). In both poor and non-poor households, slightly more than half of individuals have a BMI within the normal range (55 % for non-poor households and 54 % for poor ones).

Intra-household inequality is much larger than inequality between households. Inequality within households actually represents 57 % of total inequality in the country. This is a critical finding as it suggests that previous estimates of inequality in Namibia, in spite of showing that the level of inequality is among the highest in the world, may in fact be even higher once the inequality within households is taken into account. The implication is that national efforts at combating overall levels of inequality needs to focus as much, if not more, on the inequality within households as the level of inequality between them. Another implication is that social development programmes that target poor households may miss a large group of poor individuals who live in non-poor households. Conversely, some members of the poor targeted household may be non-poor in presence of intra household inequality. Higher levels of inequality among individuals living in households at the upper end of the welfare distribution may be expected simply because the availability of resources in these households are such that differences in nutritional intake may be based on choice, without necessarily leaving any members in a state of absolute deprivation. The higher degree

of inequality found in the study of Namibian households at the lower end of the welfare distribution, however, is worrying as it points to a much greater gap in deprivation among the poor than previously thought. It is particularly disturbing that higher intra-household inequality at both low and high levels of welfare seems to be particularly biased against children. A central implication of the results presented in this report is that a large segment of the Namibian population, including a large share of children and youth, is outside of a normal range of height-for-weight and are thus susceptible to a number of health related complications. The findings provide further evidence of the depth of deprivation in Namibia, a middle-income country, where the main source of income in rural areas is still subsistence agriculture.

The way forward

The global literature and situation in Namibia demand a number of questions pertinent to research in undernutrition and obesity. Global trends of middle-income countries are anecdotally observed in Namibia and reports of the prevalence of obesity and undernutrition exist. However, what is currently lacking is a systematic approach to researching the prevalence, for example, in different cultural or geographical groups linking this to the causes and antecedents of this disease, the impact on comorbidities such as diabetes and heart disease, and how interventions to prevent and treat obesity and malnutrition may be informed by the research and implemented to improve the health of Namibians. In short, there is a need for a Namibian research agenda in this area to inform interventions. We suggest a number of stages in an approach to ultimately reduce morbidity and mortality as a result of undernutrition and obesity.

Stage 1: Quantification

Two separate approaches should seek to better understand (1) the prevalence of obesity and undernutrition in Namibia, and (2) the quality and quantity of available foodstuffs. Existing research in this area needs to be updated and validated – is the situation getting better, worse or staying much the same? This will necessarily demand attention to different regions and cultural groups within Namibia and will stimulate a number of further research questions. What are the similarities and differences between different regional and cultural groups – including rural versus urban – in terms of obesity and undernutrition? Are foodstuffs readily available to all regions or cultural groups and is the quality similar? What is the impact of socioeconomic status, culture and access to foodstuffs on obesity and undernutrition? How do perceptions and preferences govern choice of foodstuffs?

Examples of Stage 1 research

Prevalence: Quantitative survey of the Namibian population using a clear definition of obesity and under nutrition and a purposive sampling technique to represent all defined cultural and geographical groups.

Quality of foodstuffs: Sampling of common and available foodstuffs from around Namibia to compare the quality through analysis of micronutrients using, for example, High Performance Liquid Chromatography (HPLC) techniques.

Bio-availability of food constituents: Dietary intervention studies in healthy human volunteers in order to analyse the bio-availability of food constituents and their potential preventive effects on parameters associated with obesity and other non-communicable diseases.

Stage 2: Qualification

When valid baseline data is available to inform the subsequent research questions the second stage will seek to explore these. Certainly, if basic, nutritious foodstuffs are

generally available then other factors, such as cost and preference, will impact on diet and a fuller understanding of these motivations will better inform any future intervention. The broader aspects of public policy and existing public health and medical interventions can be explored, policy and decision-makers can be engaged with in order to understand strategic organisational and legislative barriers. If public policy and/or political will does not support 'grass-roots' interventions, for example, in terms of funding or cooperation, then little can be achieved unless either the policy or intervention is changed. As healthcare academics it is vital to be involved in influencing decisions that impact on the health of Namibians and to share research that may better inform public policy.

Examples of Stage 2 research

Paper-based analysis of policy and strategy: Using existing published policy, research and interventions.

Stakeholder engagement: Qualitative interviews with policy and decision makers in Governmental and healthcare settings; exploratory follow-up Interviews with members of the public based on findings of prevalence survey – what motivates food choice?; preference questionnaire using conjoint analysis technique to clarify food choice motivations based on exploratory interviews.

Food advertising in Namibia: Cross-sectional survey of advertised foods, availability of healthy foods and cost analysis. What is advertised and why?

Stage 3: Intervention

A series of planned and informed interventions, based on the previous two stages, will seek to positively impact on the health status of Namibians. Whilst such interventions cannot be predicted, this may involve a combination of approaches including public policy, use of media and marketing strategies, and specific healthcare interventions. These interventions should be innovative in involving both the public and private sectors – whether in the healthcare sector or besides – and the growing resource of Namibia's new School of Medicine and the Faculty of Health Sciences. In addition, lessons learned from other settings that are relevant to Namibia will inform interventions.

Examples of Stage 3 interventions

Advising and informing public policy through research: Forum event to communicate research.

Marketing: Tailored public information through media streams such as newspaper and television advertisements, social online marketing, and materials such as leaflets distributed to population cohorts; post-marketing evaluation to assess the impact of pilot marketing techniques.

Public incentives: Healthy eating incentives, for example, through supermarket chains and exercise gyms.

Healthcare interventions: For example, training of healthcare workers to deliver systematic and specific messages on healthy eating and evaluation of the impact of this approach.

Conclusions

The documentation of the patterns of inequalities in nutritional status in Namibia between and within demographic and socio-economic groups in the country provides some understanding of the causes of inequalities in nutritional status. This paper highlights research strategies of importance in exploring the prevalence of undernutrition and obesity in Namibia by different demographic and socio-economic characteristics to identify the most vulnerable groups. There is a need to determine whether there is any relationship between levels of nutritional inequalities and the prevalence of malnutrition in Namibia.

National and community-based programmes for improving the nutritional and health status of families, and strengthening their food security and access to medical care more generally, should thus remain very much at the centre of national development efforts. Particular emphasis must be on children were the prevalence of under-nutrition is particularly severe, and where the longer-term negative implications on a range of social development outcomes are well-known. Required initiatives should include targeted interventions aimed at population groups most at risk, public information campaigns and community-based activities that promote healthy eating and physical activity.

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