Need to address all forms of childhood malnutrition with a common agenda

Camila Corvalan,[1,2] Alan D Dangour,[3] Ricardo Uauy[3,4]

Over the past 20 years, low- and middle-income countries have experienced progressive urbanisation and a shift from predominantly plant-based low-energy-density diets and high levels of physical activity to increased consumption of energy-dense processed food (high in fat and sugars) and animal-food products, with increased levels of inactivity during work and leisure.[1] The not-unexpected yet remarkable consequence of this process has been the unprecedented rise in the prevalence of obesity, which is now reaching epidemic proportions globally. Among countries undergoing such a transition, the epidemic first affected urban middle-aged women, later extending to adolescents and children of low socio-economic income groups.[2–4] Using International Obesity Taskforce (IOTF) criteria, it is estimated that by 2010 almost 50% of school-aged children in the Americas, 40% of children in the Eastern Mediterranean region (including Pakistan), 33% of children in the Western Pacific region and 20% of children in South East Asia will be overweight.[5]

The obesity epidemic in the developing world will probably have a direct bearing on the prevalence of related conditions such as diabetes, cardiovascular disease and some forms of cancer.[6] Indeed, the most recent WHO estimate of distribution of deaths from non-communicable chronic diseases (NCDs) indicates that 80% of all deaths from NCDs occur in low- and middle-income countries, whose health systems and economies may be unable to cope.[7] This is all the more troubling given the latest evidence on the associations between undernutrition in early life and susceptibility to obesity and related chronic diseases in later life. Low birthweight neonates and under-nourished infants who reach adulthood seem to be more likely to develop obesity and the corresponding co-morbidities if they adopt energy-dense diets and inactive lifestyles.[8–10] Southern Asians are particularly susceptible to this nutritional mismatch since they seem to present increased visceral adiposity and insulin resistance at, or shortly after, birth.[11]

This new challenge, however, finds sub-Saharan Africa and South Asia still struggling to secure an environment able to support child survival adequately through control of infectious diseases and provision of diets to prevent childhood macro- and micronutrient deficiencies.[12 13] The trends in underweight and obese school-aged children in urban Pakistan over the past decade published in this issue[14] serve to illustrate the dilemma presently facing low-income countries and Asian countries in particular. There has been only limited progress in controlling the root causes of undernutrition, and childhood and adult obesity is progressively penetrating vast sectors of the population, especially the urban poor. The evidence presented supports the notion that malnourished populations, as they emerge from extreme poverty, are highly susceptible to obesity.

In terms of undernutrition, Jafar and colleagues present information on weight-for-age (a measure of how over- or underweight a child is) and height-for-age (a measure of how tall or short a child is) but unfortunately do not present weight-for-height (a measure of weight relative to height) data. Weight-for-height data are particularly relevant among stunted children who may have a low weight for their age because of their short height. Indeed, stunted children tend to have normal or even high weight for height.[2] This point is further illustrated by Demographic and Health Survey data from Pakistan (1990–91), which found that 40% of children under 5 years of age were underweight (weight-for-age <-2SD), 50% stunted (height-for-age <-2SD), but only 9% were wasted (weight-for-height <-2SD).[15] An interesting negative association between physical activity and being overweight is also demonstrated in the paper, but no information on the numerous other forces that have driven the nutritional changes is presented. Detailed knowledge of the economic, demographic and environmental changes that take place within countries, and their distribution is of paramount importance in defining the type of intervention needed and in selecting the groups that might benefit from targeted interventions.

It is now well accepted that reducing malnutrition in all its forms is one of the key components in reducing poverty and achieving the Millennium Development Goals. Investing in nutrition reduces health-care costs and promotes education, intellectual capacity and social development for present and future generations.[16] In the future, however, enhanced food security should not only imply ensuring food quantity, but also food quality in terms of micronutrients and the type of carbohydrates and fats consumed.[17] Moreover, it is increasingly being recognised that under- and overnutrition are intertwined problems, often rooted in poverty, that must be tackled in an integrated way with a single agenda and a life-course perspective.[18]

Perspective on the paper by Jafar *et al* (see p 373)

Women should start pregnancy with a healthy weight and avoid low or excessive weight gain during pregnancy to prevent altered foetal growth that can lead to increased infant mortality and increased susceptibility to weight gain later in life. Intervention strategies to address malnutrition in children should focus on improving linear growth in the first 2–3 years of age and avoiding subsequent excessive weight gain relative to height. Energy needs and growth monitoring should be based on normative standards such as the FAO/WHO/UNU energy requirements and the new WHO growth standards based on representative samples of healthy breastfed infants from six countries.[19–21] Exclusive breast feeding should be promoted as the norm for infants up to 6 months of age, and the micronutrient content of complementary foods should be improved. Multiple micronutrients should be incorporated into the foods provided by governmental programmes for infants and young children, whereas preschool and school feeding programmes should ensure and

[1] Nutrition and Health Sciences Program, Emory University, Atlanta, USA; [2] School of Public Health, University of Chile, Santiago, Chile; [3] London School of Hygiene and Tropical Medicine, London, UK; [4] Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile

Correspondence to: Ricardo Uauy, London School of Hygiene and Tropical Medicine London UK and Institute of Nutrition (INTA) University of Chile Santiago Chile, Keppel Street, London

encourage fruit and vegetable consumption and adequate physical activity.[21]

The causes of malnutrition are complex and their resolution necessitates the active and coordinated involvement of health and non-health governmental sectors such as education, agriculture, commerce, transport and civil society. Low- and middle-income countries facing the initial stages of the nutrition transition have the unique opportunity to prevent NCD epidemics before they escalate to the levels observed in high-income countries. Stakeholders, policy-makers, politicians and communities must acknowledge the changing nutritional situation and take appropriate action. Malnutrition in all its forms should be tackled with a single agenda and a life-course perspective; failing to do so in a timely manner would be an irreversible and costly mistake.

REFERENCES

1. **Popkin BM.** Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases. *Am J Clin Nutr* 2006;**84**:289–98.
2. **de Onis M,** Blossner M. Prevalence and trends of overweight among preschool children in developing countries. *Am J Clin Nutr* 2000;**72**:1032–9.
3. **Monteiro CA,** Conde WL, Popkin BM. Income-specific shifts in obesity in Brazil: 1975–2003. *Am J Public Health* 2007;**97**:1808–12.
4. **Popkin BM,** Conde W, Hou N, *et al*. Is there a lag globally in overweight trends for children compared with adults? *Obesity* 2006;**14**:1846–53.
5. **Wang Y,** Lobstein T. Worldwide trends in childhood overweight and obesity. *Int J Pediatr Obes* 2006;**1**:11–25.
6. **Lobstein T,** Jackson-Leach R. Estimated burden of paediatric obesity and co-morbidities in Europe. Part 2. Numbers of children with indicators of obesity-related disease. *Int J Pediatr Obes* 2006;**1**:33–41.
7. **World Health Organization**. *Preventing chronic disease: A vital investment*. Geneva: WHO; 2005.
8. **Barker DJ.** In utero programming of chronic disease. *Clin Sci (Lond)* 1998;**95**:115–28.
9. **Barker DJ.** Adult consequences of fetal growth restriction. *Clin Obstet Gynecol* 2006;**49**:270–83.
10. **Hales CN,** Barker DJ. The thrifty phenotype hypothesis. *Br Med Bull* 2001;**60**:5–20.
11. **Yajnik CS,** Lubree HG, Rege SS, *et al*. Adiposity and hyperinsulinemia in Indians are present at birth. *J Clin Endocrinol Metab* 2002;**87**:5575–80.
12. **de Onis M,** Blossner M, Borghi E, *et al*. Estimates of global prevalence of childhood underweight in 1990 and 2015. *JAMA* 2004;**291**:2600–6.
13. **World Health organization**. *The world health report 2002: reducing risks, promoting healthy life*. Geneva: World Health organization, 2002.
14. **Jafar TH,** Qadri Z, Islam M, *et al*. Rise in childhood obesity with persistently high rates of undernutrition among urban school-aged Indo-Asian children. *Arch Dis Child* 2008;**93**:373–8.
15. **USAID**. *Demographic and health survey (DHS): Pakistan 1990–1991*. http://www.measuredhs.com/pubs/pdf/FR29/11%20Chapter%2011.pdf (accessed 3 Jan 2008).
16. **World Bank**. *Repositioning nutrition as central for development*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2006.
17. **Uauy R,** Kain J. The epidemiological transition: need to incorporate obesity prevention into nutrition programmes. *Public Health Nutr* 2002;**5**:223–9.
18. **United Nations**. Thirty third session of the Standing Committee of Nutrition: Participant's statement. Geneva: United Nations, 2006.
19. **World Health Organization (WHO)**. *Diet, nutrition and the prevention of chronic diseases*. Geneva: WHO, 2003.
20. **de Onis M,** Garza C, Victora CG, *et al*. The WHO Multicentre Growth Reference Study: planning, study design, and methodology. *Food Nutr Bull* 2004;**25**:S15–26.
21. **Uauy R,** Rojas J, Corvalan C, *et al*. Prevention and control of obesity in preschool children: importance of normative standards. *J Pediatr Gastroenterol Nutr* 2006;**43**(Suppl 3):S26–37.

Children affected by domestic abuse while abroad on holiday

Fiona Day,[1] Jacqueline Mok[2]

Most children have positive experiences while abroad on holiday or visiting friends and relatives, which is important for their social and emotional development. For an unknown minority of children, however, visits abroad may be a time of increased vulnerability caused by violence within the family unit.

WHY ARE CHILDREN ABROAD MORE VULNERABLE?

Children on holiday away from home are highly vulnerable, and particularly so if they are abroad. They may be disorientated by jet lag, new surroundings, a different culture and a strange language, as well as a sudden absence of routine and existing support networks. Holidays and travel may increase parental stress and substance use (both alcohol and drugs). Parents may act in a less inhibited manner due to perceived anonymity while away from their usual domestic surroundings. Institutions that exist within the country of origin to support vulnerable children, such as local child protection systems, may not be accessible in countries the children are visiting. Other holidaymakers or local people who observe incidents where a child might be harmed may not know who to turn to in order to support the victim. These factors should make domestic abuse in families abroad an issue of concern for those interested in child protection.

WHERE DO FAMILIES TRAVEL ABROAD?

International travel exceeded 8 million arrivals worldwide in 2005.[1] The travel sector is growing at a rapid rate and the number of international arrivals is forecast to be twice the current figure by 2020. Half of current visits are for leisure, recreation and holidays. Three-quarters of international travel is within the same region and one-quarter is long haul. However, the current growth areas are in Africa, Asia and the Pacific regions. This is important as child protection systems may be less developed in these areas.

In 2005, an estimated 66.4 million visits abroad were made by UK residents, of which over 5.1 million were made by UK children aged 0–15 years.[2] The majority of visits were to European countries (86%), the most popular being Spain (over a quarter of all children's visits abroad). UK residents (adults and children) spent a total of 669 million nights abroad, over 2.5 times that of 20 years ago. About a third of all UK residents' visits overseas were part of a tour operator ("package") holiday (19.0 million visits).

CHILDREN VISITING THE UK FROM ABROAD

Almost 2 million children under the age of 16 visit the UK from abroad every year.[3] Most of these are children from Europe (79%), with 11% of visits from North America, and 10% from other countries. Almost half of the children under the age of 16 from overseas who visit the UK travel in a family group, and a further 38% travel in a tour group which may include family members.[4] Most family groups visit London (66%), with some going to Scotland (8%), Wales (5%) and the rest of England (34%).[3]

HOW MANY CHILDREN ARE AFFECTED BY DOMESTIC ABUSE WHILE ABROAD?

While definitions of domestic abuse may differ, it is known that such abuse is both common and significantly under-reported.

[1] Leeds PCT, Leeds, UK; [2] Royal Hospital for Sick Children, Edinburgh, UK

Correspondence to: Fiona Day, Leeds PCT, Leeds, UK; fiona.day@leedspct.nhs.uk