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Childhood obesity: who's to blame and who should pay?

'Among children, there has been a near-universal increase in obesity with rates doubling or tripling in many countries within the past 20 years.'

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In the 1990s, the WHO used the term 'globesity' to warn of an escalating global epidemic, commenting that millions of people were at risk of developing serious chronic, noninfectious diseases and other related health problems [101]. The International Obesity Task Force has subsequently termed obesity the 'Millennium Disease', highlighting the major international impact of this condition [102]. In fact, obesity is now a pandemic, affecting both adults and children in developed and developing countries.

Pediatric obesity: how big a problem is it?

Today, the WHO warning is even more pertinent as prevalence rates continue to increase globally. Among children, there has been a near-universal increase in obesity with rates doubling or tripling in many countries within the past 20 years [1,2]. The International Obesity Task Force estimates that at the start of the 21st century, the worldwide prevalence of overweight (including obesity) in children and young people aged 5–17 years was approximately 10%, with that of obesity alone being 2–3% [1]. Certain regions and countries have particularly high rates of pediatric obesity; for example, more than 30% of children and adolescents in the Americas, and at least 20% of those in Europe, are overweight or obese, with lower prevalence rates being seen in sub-Saharan Africa and Asia [1]. Of course, these data do not reflect the dramatic changes in prevalence of pediatric obesity occurring in the past few years in many of the rapidly westernizing countries of Asia and the Middle East [2].

Does this matter? Yes it does. Obesity has a significant adverse effect on a child's health, potentially affecting multiple body systems (including respiratory, endocrine, musculoskeletal and cardiovascular), as well as being a risk for significant psychosocial morbidity [1,3]. In addition, child and adolescent obesity influences risk factors for chronic diseases in adulthood [3,4]. Children do not necessarily outgrow their 'puppy fat'; obese children, but in particular obese adolescents, tend to become obese adults, bringing with them major health and economic burdens [5,6]. These are all good reasons to confront this 'Millennium Disease' now, yet obesity is one of the most neglected public health problems [101].

Why is there an obesity epidemic?

The root cause of the childhood obesity epidemic is multifaceted. Obesity results from the chronic excess of energy intake in relation to energy expenditure. Biological, environmental and behavioral factors play a part in the development of obesity at the individual and population level. Although single-gene mutations as a cause of obesity have been identified, predisposition to obesity in the vast majority of affected individuals results from more complex genetic interactions [7]. However, unless the 'correct' environmental conditions exist, an individual's genetic predisposition for obesity may not be expressed fully: a situation that presumably was the norm in most countries prior to the last decades of the 20th century. Hence, we must consider the environmental and behavioral influences that are potentially modifiable.

Westernized societies in the 21st century provide the most obesity-conducive environment in the history of humankind. It is an era of consumerism where more value is placed on

economic growth and wealth than on personal and community development and health [103]. Longer hours spent at work result in time-pressured lives and increasing reliance on convenience foods as part of the daily diet. These 'fast foods' are high in salt, fat and sugar and, in the USA at least, the portions have more than doubled in size over the past 20 years, with potential for a concomitant passive increase in calorie consumption [104]. Extra calories may also come in the form of sweetened soft drinks, the consumption of which, particularly in children and young people, has risen in recent years [8]. Reliance on motorized transport, for the sake of convenience and speed, leads to a reduction in active pursuits such as walking or cycling. Perceived 'stranger danger', road safety concerns, lack of walkways and lack of safe play areas have all led to a curtailment of children's outdoor freedom [106].

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Passive recreational pursuits are increasing. According to the Australian Bureau of Statistics, 80% of Australian homes with school-aged children have internet access and 90% have a computer [107]. In the USA, children spend on average 4 h a day in front of a screen [108], be it computer or television, often coincidentally snacking on energy-dense foods, further tipping the balance in favor of increasing adiposity. Whilst watching the screen, they are being influenced by powerful food marketing, directly via advertising or indirectly through interactive websites: 'adver-gaming'. Adver-gaming is a sophisticated form of marketing with online gaming involving consumer products, most often directed towards children (85% of the top food brands that target children through TV advertising also use such branded websites) [109]. In addition, the food and soft drinks industries generate myriad promotional material in the form of story books, educational materials, clothing, toys and games, and advertise through fundraisers, phone promotions, text messaging and schools [9]. Marketing to children and young people is pervasive ... and persuasive.

The school environment may also be obesity conducive. In most societies, school curricula concentrate mainly on academic subjects rather than physical education [105], and in many countries, the school cafeteria may provide a range of foods high in fat, sugar and salt, as well as soft drinks. Of course, schools are not the only institutions that emit mixed messages. For example, many hospitals accommodate confectionery and soft-drink dispensers and even have associations with 'fast-food' manufacturers (the Ronald MacDonald House Charities).

Separately, each of these factors has a small-to-moderate, and sometimes indirect, effect on a child's weight. However, working in concert, westernized 21st century environments direct individuals to make unhealthy choices around food and physical activity, these essentially being the easier options. It is not surprising then that children in these societies are becoming more sedentary, less physically active, are consuming larger amounts of non-nutritious, high-energy foods and beverages, and are ultimately becoming fatter and less fit [1].

Personal or societal responsibility for change?

Affected patients are more likely to attribute obesity to an underlying medical condition or external influences [10]. Public opinion, however, will lay blame on the obese individual or the parent of an obese child [11]. Most parents of overweight children fail to recognize that their child has a weight problem, which presents a major barrier to effective management [12]. In situations where parents seem unwilling or unable to adhere to management programs aimed at weight loss, they instead allow their child to consume more and more whilst doing less and less and so develop severe life-threatening obesity. Is this a form of medical neglect? Should these parents pay for their 'neglect'? Should the State intervene and if so, at what point? Indeed, in the USA, criminal prosecutions have ensued [13].

The concept of complementary approaches to prevention of chronic diseases, such as obesity, has been highlighted by Finland's Professor Pekka Puska [14] and is shown graphically in FIGURE 1. This shows a steep hill (representing the environmental gradient working against healthy lifestyles) and at the bottom of the hill is a person pushing a boulder (representing healthy eating, activity and weight, or alternatively, the health burden of chronic disease). The effort required to move the boulder reflects

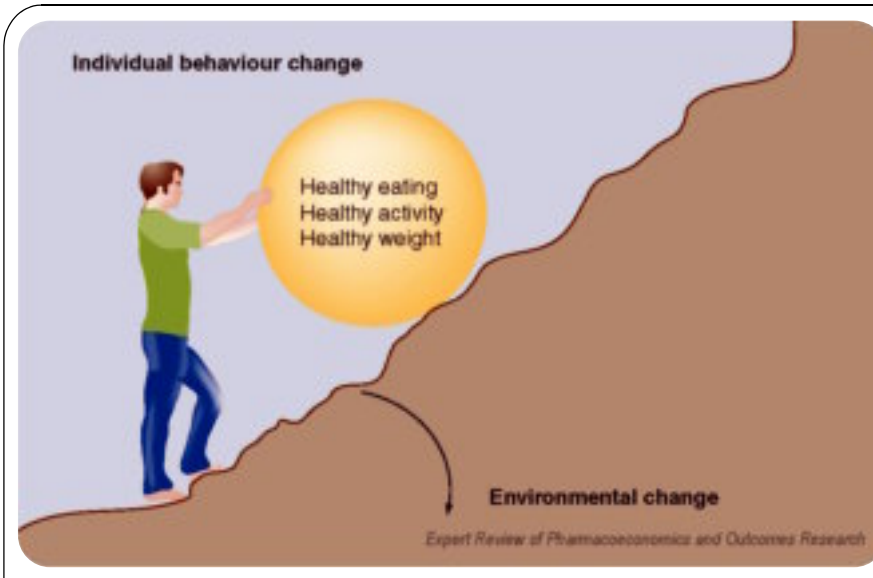

Figure 1. Complementary approaches to prevention.
Adapted from [14].

individual behavior change, which for most would require a huge effort to make only relatively few gains. In order to help the person make more healthy choices, a reduction in the gradient of the hill, by providing a less obesogenic environment, is required. If we accept this concept, then it follows that although there must be an element of parental or personal responsibility in making healthy choices around eating and physical activity, there is also a much broader societal responsibility to help bring about those changes. Recent litigation cases such as those against the giant McDonalds Corporation [15] have raised questions as to the accountability for the economic and health consequences of child and adolescent obesity. The food industry plays a pivotal role in providing healthy food choices and has many opportunities to change the dietary intake of much of the population through providing smaller portion sizes, healthier food choices and more nutritional information via food labeling. Marketing and media issues are complex and controversial, but consideration of limitations and regulations needs to be taken within the apparent confines of a 'free market' [16]. Planning at local, State and national levels should encourage the development of pedestrian walkways and precincts, cycle pathways, improved public transport links, and the creation and protection of open play and recreation areas. Schools and childcare facilities should have health and nutrition education as part of their curriculum, healthy food choices should be the norm and appropriate funding should be secured for physical education programs. Parenting programs, support networks and public health campaigns to promote healthy lifestyle strategies need to be established. Additionally, the healthcare system must provide training of healthcare professionals and coordinate healthcare services to treat obesity appropriately. Several state and local governments have produced action plans and policies to address the obesity crisis [110–112]. Is this enough? Is it too little too late?

It is estimated that the economic cost of overweight and obesity can be as much as 8% of total national health budgets [113]. This significant economic burden will continue to worsen even if there is no further increase in the prevalence of obesity: a considerable cost for the taxpayer. The varied and numerous elements contributing to obesity need to be tackled on many levels, since measures targeting one component of the obesity epidemic are unlikely to succeed. However, in order to achieve this, concerted and coordinated endeavors must come from local, national and international leaders and organizations, in conjunction with individual/parental efforts to encourage and implement healthier lifestyles. If such endeavors are not made, the ultimate price is paid by the child affected, and by future generations.

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