

Obesity and chronic disease in younger people: an unfolding crisis



The radical alterations in the factors determining energy intake and expenditure that we have witnessed over recent times have fundamentally changed the way we view the interplay between the environment and our physical selves. It was only at the advent of the 20th century that technological advancement finally began to squeeze out the manual labour associated with the production and transport of goods. Later in the century, this trend started to infiltrate the home where new technologies, such as electric and gas cookers, central heating, washing machines, vacuum cleaners, and dish washers all made significant inroads into the amount of physical labour associated with everyday life.

Our modern environments are now completely divorced from those in which we evolved; indeed, all the necessities of modern life, such as shopping, banking, working, socialisation, and entertainment can be fulfilled while sitting in front of a screen. As a result, we are surrounded by a landscape of energy dense foods designed to appeal to our innate desire to maximise energy intake and storage, while the need for vigorous activity has evaporated. The trade-off has been an epidemic of obesity and metabolic dysfunction.

THE DEMOGRAPHIC SHIFT

Within the UK, over 50% of the population now falls outside healthy levels of body fat, and rates of chronic disease, such as type 2 diabetes, affect an ever increasing proportion of the population.¹ This has already placed a substantial strain on the NHS that is projected to increase in the future; one estimate recently projected that rising obesity rates would add an additional £2 billion to current levels of annual healthcare spending by 2030.² In a period of economic austerity, we will be ill prepared

to meet this additional healthcare burden.

Unsurprisingly, the trend of rising obesity rates has also been observed across younger populations where rates of overweight and obesity have risen sharply over the last 20 years and now affect one in three children;¹ however, less well known is that this trend has started to produce devastating consequences. This is highlighted clearly by the shifting demographic of type 2 diabetes.

Type 2 diabetes was traditionally associated with older age, with type 1 diabetes being the dominant form in younger populations. However, prevalence rates of type 2 diabetes in younger people has increased by up to 10-fold in recent decades, and now commonly represents 20% of all registered diabetes cases in this group.^{3,4} The onset of type 2 diabetes in younger adults and children represents an extreme phenotype that magnifies the disease profile observed in older adults. For example, incidence of myocardial infarction in younger people with type 2 diabetes has been shown to be 14-fold higher than in people without diabetes, whereas those with late-onset type 2 diabetes had rates that were four-fold higher⁵

Preliminary data from adolescents with type 2 diabetes in Canada, followed-up for 9 years, found that the mortality during this period was almost 10%.⁶ Others have shown that childhood obesity significantly increases the risk of chronic disease in adulthood.⁷ The increasing rates of obesity, type 2 diabetes, and other chronic diseases seen in children and younger people therefore represent a serious clinical and financial challenge that will have a detrimental legacy lasting many decades, the scale of which is only just starting to emerge.

BRIDGING THE RESEARCH GAP

The focus of healthcare policy and research has lagged behind this substantive shift in demographic profile of obesity and chronic disease. For example, the NHS Health Check programme is specifically targeted at

those over 40 years of age, and the majority of self-management, lifestyle, and pharmaceutical interventions in the prevention and treatment of chronic disease have been conducted in adults. Therefore, there is an urgent need for high quality research into the optimal methods of detecting, preventing, and treating obesity and related chronic diseases in younger populations with an accompanying re-focusing of healthcare priorities to accommodate this new clinical reality.

In this issue of the *BJGP*, colleagues from the University of Bristol present findings aimed at helping to bridge this research gap.⁸ They report a proof of concept pilot study investigating whether a pragmatic evidence-based nurse-led childhood obesity clinic can be implemented in a primary care setting and achieve results that are consistent with those achieved in an established consultant-led pathway in secondary care.⁸

Their study demonstrates that primary care can be used to engage effectively with, and manage, childhood obesity, which is important given that specialist secondary care centres are an unsustainable and inappropriate method of dealing with a mass disease. However, as highlighted by Philips *et al* in this issue of *BJGP*, we also need to be aware that there is currently a lack of consistency, clarity, and message specificity when conducting dietary counselling in primary care;⁹ a trend that is likely to be more pronounced in younger age groups given the increased complexity of the issues involved. Therefore, it is important to emphasise that primary care initiatives need to be accompanied by rigorous training and quality assurance programmes. It is also important that such initiatives are not conducted in isolation, but are integrated into existing approaches and frameworks for preventing and treating chronic disease, thereby allowing for a joined up pathway of initiatives throughout the life course. There is also great potential for harnessing widely used technologies, such as smart phones or home-based video game consoles, for

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implementing interventions in this age group.

THE PREVENTION PARADOX

While it is important that healthcare initiatives aimed at detecting, treating, and preventing childhood obesity and chronic disease in high risk groups continue to be developed, by their very nature such approaches only treat the end-points of a deleterious system, they do not seek to identify and address the underlying fault itself. This was recognised by Geoffrey Rose 30 years ago with his widely publicised ‘prevention paradox’: the only way of tackling a mass disease is with strategies designed to shift the population distribution of known risk factors.¹⁰

This concept was highlighted in a recent article that estimated that a 1% decrease in body mass index across the whole UK population (roughly equal to weight loss of 1kg per person) would avoid 179 000–202 000 incident cases of diabetes, 122 000 cardiovascular diseases, and 32 000–33 000 incident cases of cancer over the next 20 years.² Therefore, along with high risk and disease management strategies that remain important for widely prevalent conditions, action is also needed to target population-level behaviour and attitudes. Government policy, prioritisation of physical education, and healthy diets within schools and community groups, taxation incentivisation, and tighter advertisement regulation are therefore all needed to alter the default patterns of behaviour associated with our everyday environments and to affect a downwards shift in the distribution of adiposity at the population level.

THE COST OF HEALTHY EATING

Another article from the Bristol group in this issue of the *BJGP* attempts to explain a commonly-assumed population-level driver of unhealthy high-calorie diets: price. This study concluded that providing children with obesity with a healthy diet adds minimal costs over and above their current diets when matched for calorie content;¹¹ this finding is consistent with previous research. However, the conclusion from this study should not be that food price is not important in affecting change, merely that it should be

viewed in the totality of trade-offs determining behaviour.

To change the common default that has settled on the convenience and palatability of highly processed fast food diets, research suggests healthy diets need to be substantially cheaper, be presented attractively, have greater choice, and be more appropriately labelled¹² than their unhealthy counterparts. There is an urgent need for public health initiatives aimed at addressing gaps in knowledge around food preparation and health. However, therein lays the ‘paradox’ as interventions applied to the population can lead to little individual benefit and can even cause some individual dissatisfaction. For example, a healthy individual may reasonably wonder why their ‘right’ to eat what they like is being infringed by a differential taxation system that targets certain food types. For this reason, employing such population-wide initiatives carry greater controversy and political risk and are therefore generally less likely to be enacted to the extent needed.

Regardless of the level of intervention considered, it is clear that more research is urgently needed if we are to reduce childhood overweight and obesity rates and try and forestall the looming healthcare and societal crises that are the inevitable consequence if current rates remain unchanged or continue to increase. The studies in this issue of *BJGP* highlight the range and complexity of interventions required.

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