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The cost of paediatric obesity

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TITLE PAGE

The Costs of Paediatric Obesity

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Short introduction:

With increasing levels of childhood obesity, what is the true cost of this ‘epidemic’? Claire Farrow, Terry Dovey and Emma Haycraft review the medical, psychological and financial costs of paediatric obesity, and the need for research into the early life risk factors that may predict childhood obesity and inform the development of more effective intervention measures.

Introduction

There has been a great deal of media attention given to the rising levels of obesity and overweight in children and adolescents, but what is the real cost of paediatric obesity? This article reviews information about the recent rise in paediatric obesity and discusses the cost of this condition from medical, financial and psychological perspectives.

The Prevalence of Paediatric Obesity

Worldwide the prevalence of overweight and obesity in both adults and children has risen remarkably in recent years. Prevalence data from the UK suggest that in 2006 38% of adults were overweight and 24% were obese (The Information Centre, 2008). With the exception of the former Soviet Union and parts of Africa, obesity is now the single most common childhood disease worldwide (Reilly, 2006a). In the UK the prevalence of childhood obesity remains high and according to latest data from the Health Survey for England, conducted in 2006, 29.7% of children aged 2-15 years old were overweight, of whom 16% were obese (Health Survey for England, 2008). These data have been reported by defining childhood obesity through using Body Mass Index

(BMI) or identifying children who are in the top 5% of the population for weight when the analysis is corrected for gender, height and age. Although BMI is the single most widely used method for assessing overweight, it is also notoriously problematic and it is quite likely that these BMI-based prevalence rates are actually very conservative (see Reilly, 2006b for a review). Increases in children's body fat content and central adiposity are not adequately reflected in BMI scores and measuring actual fat mass through procedures such as bioelectrical impedance analysis are more appropriate, although unfortunately they are also far more costly.

Health Consequences of Paediatric Obesity

The medical costs of obesity

These high prevalence rates are of great concern due to the health consequences associated with obesity. Even during childhood, obesity is associated with morbidity and psychological ill health. Paediatric obesity has been linked with liver disease, asthma, cardiovascular disease, respiratory dysfunction and Type 2 diabetes (Reilly, 2005). Moreover, obese children are more likely to become obese adults. As such, they may continue to suffer the morbidity and premature mortality associated with the persistence of this condition into adulthood, which includes being at elevated risk for stroke, angina and various cancers (Serdula et al., 1993; Freedman et al., 2005).

Obesity presents a major financial strain on the NHS. This is not only due to the costs of treating obesity and addressing excess weight gain, but the majority of financial expenses stem from the treatment of the non-communicable diseases associated with high levels of adiposity. The estimated medical cost of obesity depends upon the

classifications used to describe it and the criteria used to define 'cost'. Recent evidence suggests that overweight and obesity cost the NHS £3.2 billion per year in direct costs (Allender & Reyner, 2007), whilst data from the House of Commons Select Committee (2004) estimated the total direct and indirect cost of overweight and obesity in England in 2002 to be £6.7–£7.4 billion per year. These figures include the expenses related to treating obesity and its consequences, administering and prescribing drugs, consultations with practitioners, admissions for in-patients, day care patients and out care patients, as well as the indirect costs of mortality and morbidity (e.g. incapacity benefits). Of course, the cost of obesity cannot be quantified by financial and economic means alone, and the psychological costs to individuals can also be profound.

The psychological costs of obesity

Obese individuals are subject to prejudice and discrimination in various areas of life, including school, college, employment, and even the health care system (for an excellent review of this literature see Puhl & Brownell, 2001). People generally associate obesity with a host of negative stereotypes, rating obese people as more lazy, out of control, unattractive, weak, and self-indulgent. There is also evidence that these stereotypes exist early in life with children reporting that their lowest preference would be for an obese peer when asked to rank their preference from pictures of children who are overweight, healthy, or have various disabilities. Worryingly, despite increases in levels of obesity and increased exposure to obese children, these negative attitudes towards obesity in childhood appear to have increased rather than decreased in recent years (Latner & Stunkard, 2003).

Given the high levels of prejudice surrounding obesity, it is perhaps not surprising that obese people appear to have internalised these stereotypes. Recollections of personal experiences of discrimination directly predict the prevalence of emotional over-eating and feelings of body dissatisfaction (Farrow & Tarrant, in press). Whether a result of these stereotypes or of other factors linked to obesity, obese individuals are more likely to report higher levels of psychological distress, depression and low self-esteem. Obese people report less reliable and intimate personal relationships (Horchner et al., 2002) and higher levels of social isolation or loneliness (Strauss & Pollack, 2003). These negative psychological consequences appear to be evident early in life as children begin to internalize the attitudes of their peers and become aware of their developing body shape and weight. Indeed, obesity has been associated with lower feelings of self worth and behavioural problems in children (Braet et al., 1997), and overweight and obese children are more likely to be bullied, discriminated against, and to report lower self-esteem and higher levels of body dissatisfaction (Deckelbaum & Williams, 2001; Fox & Farrow, 2007).

Summary

Obesity is a major public health concern and with levels in children and adults as high as 16% and 24% respectively, the economic and psychological consequences of its prevalence are profound and are likely to rise as the intergenerational transmission of obesity continues. The true cost of obesity is impossible to quantify and the meaning and consequences of being obese are likely to differ massively from one individual to the next. Thus far, most of the financial investment into obesity has focussed on treating the

consequences of this condition rather than on preventative measures. A complex network of multiple individual and micro-level variables influence the balance of energy regulation, and it is likely that many of these influences are being established early on in life (Foresight Report, 2007). Research is desperately needed to develop our understanding of the early life risk factors for the later development of childhood obesity in order to be able to develop effective public health interventions to prevent the development of obesity in future generations.

Key points

- Obesity has massive economic, social and psychological implications
- Longitudinal multi-disciplinary research is needed about the development of obesity
- More support is needed for children and parents in making changes to their diets and physical activity

Conflict of interest: none

References

- Allender S, Rayner M. (2007) The burden of overweight and obesity-related ill health in the UK, *Obesity Reviews* **8**(5):467-473.
- Braet C, Mervielde, I, Vandereycken W (1997) Psychological Aspects of Childhood Obesity: A Controlled Study in a Clinical and Nonclinical Sample: *Journal of Pediatric Psychology*, **22**(1) 59-81.
- Deckelbaum R, Williams C (2001) Childhood obesity: the health issue. *Obesity Research*, **9** (4) 239-243.
- Farrow C, Tarrant M (in press). Weight-based discrimination, body dissatisfaction and emotional eating: the role of social group norms, *Psychology and Health*.
- Foresight Report (2007).
<http://www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/Obesity.asp> (accessed 19.09.2008)
- Fox C, Farrow C (2007). Obesity and Bullying: Self-esteem as a Mediator of the Relationship between Weight Status and Peer Victimization, *British Psychological Society Developmental Section*.
- Freedman DS, Khan LK, Serdula MK, Dietz WH, Srinivasan SR, Berenson GS (2005). The relation of childhood BMI to adult adiposity: the Bogalusa Heart Study. *Pediatrics*, **115**(1):22-7.
- Health Survey for England (2008) Health Survey for England 2006 Latest Trends, <http://www.ic.nhs.uk/statistics-and-data-collections/healthand-lifestyles-related->

[surveys/health-survey-for-england/health-survey-for-england-2006-latest-trends](#)

(accessed 17 September 2008).

Horchner R, Tuinebreijer WE, Kelder H, Van UE (2002). Coping behavior and loneliness among obese patients. *Obesity Surgery*, **12**, 864-868.

House of Commons Health Select Committee. *Obesity: Third Report of Session 2003/04*. The Stationery Office: London, 2004.

Latner JD, Stunkard AJ (2003). Getting worse: the stigmatization of obese children. *Obesity Research*, **11**, 452-456.

Puhl R, Brownell KD, (2001) Bias, discrimination, and obesity. *Obesity Research*, **9**, 788-805.

Reilly J, (2005). Descriptive epidemiology and health consequences of childhood obesity, *Best Practices and Research Clinical Endocrinology and Medicine*, **19**(3): 327-341.

Reilly JJ,(2006a). Obesity in childhood and adolescence: evidence based clinical and public health perspectives, *Postgraduate Medical Journal*, **82**(969):429-37.

Reilly JJ, (2006b). Tackling the obesity epidemic: new approaches, *Archives of Disease in Childhood*, **91**(9):724-6.

Serdula MK, Ivery D, Coates RJ, Freedman DS, Williamson DF, Byers T (1993) Do obese children become obese adults? A review of the literature. *Preventative Medicine*, **22**(2):167-77.

Strauss RS. Pollack HA (2003). Social marginalization of overweight children. *Archives of Pediatric and Adolescent Medicine*, **157**, 746-752.

The Information Centre (2008). Statistics on Obesity, Physical Activity and Diet:
England, January 2008
<http://www.ic.nhs.uk/webfiles/publications/opan08/OPAD%20Jan%202008%20final%20v6%20with%20links%20and%20buttons.pdf> (accessed 17 September 2008)