

Confronting the Obesity Epidemic: Call to Arms

Yung Seng Lee,¹*MMed (Paed Med), MRCP (UK), MRCPCH*, Jimmy BY So,²*MBChB, FRCSEd, FRCS (Glas)*,
Mabel Deurenberg-Yap,³*MBBS, MSc (Public Health), PhD*

The prevalence of obesity has increased exponentially all over the world in recent decades, fuelled by rapid global industrialisation which led to widespread affluence. A review by Low et al¹ in this obesity themed issue reported a high prevalence of overweight and obesity in many countries, ranging from 23.2% in Japan to 66.3% in the USA (developed countries), and from 13.4% in Indonesia to 72.5% in Saudi Arabia (developing countries).

In Singapore, the National Health Surveys showed that the prevalence of overweight among adults (18-69 years) rose from 26.2% in 1992 to 32.5% in 2004, while that for obesity rose from 5.1% to 6.9% in the same period.² Similarly, the proportion of obese children in primary school to junior college years rose from 2.8% in 1994 to 3.6% in 2007.³

Obesity is defined as excessive fat accumulation that presents a risk to health. Overweight and obesity are major risk factors for many chronic diseases, including Type 2 diabetes mellitus, hypertension, ischaemic heart disease and cancer. Thus, the obesity epidemic is a global problem which must be tackled head on because, if left unchecked, it will create an unprecedented disease burden with disastrous repercussions.

A crude but clinically useful measure of obesity is the body mass index (BMI), i.e. a person's weight (in kilograms) divided by the square of his/her height (in metres). A person with a BMI of 30 kg/m² or more is considered "obese", whereas a BMI equal to or more than 25 kg/m² is labelled "overweight". These definitions are based on studies in non-Asian persons which showed an increased risk for cardiovascular events above these cut-off values. However, there is on-going debate over using the same BMI cut-off points for Asian populations, as a high prevalence of Type 2 diabetes mellitus and cardiovascular risk factors persists in Asian populations at BMI values below 25 kg/m². The International Association for the Study of Obesity, the International Obesity Task Force and the WHO have even proposed the BMI cut-points 23.0 to 24.9 kg/m² for overweight and ≥ 25.0 kg/m² for obesity in

adult Asians.^{4,5} In this issue, a review article by Low et al⁶ addresses the rationale and presents the argument for this proposed redefinition.

The lack of a globally accepted standard definition and anthropometric measure of obesity has produced different epidemiological reports of childhood obesity rates between countries. Consequently, comparisons between countries are difficult, as 2 articles in this issue emphasise.^{7,8} Both body composition and BMI change with age during childhood and adolescence, and therefore the BMI cut-offs used for defining overweight and obesity in adults cannot be applied directly to children and adolescents.

Whereas other surrogate measures of childhood adiposity are used, such as skinfold thickness, the percentage of ideal weight for height, or BMI standard deviation scores specific to the population, the cut-offs set for these measures are arbitrary; they are not based on biological data related to the risk of morbidity later in life. Deurenberg-Yap et al⁷ compared the various surrogate measures recommended by international bodies, using a large set of data obtained from a local study of nearly 7000 adolescents. The authors concluded that while the different weight-and-height-based classification systems in Asian adolescents are of comparable validity, with high specificity values, their overall diagnostic accuracy is poorer than expected. Deurenberg-Yap et al⁷ further suggest that sensitivity and positive predictive value, could both be improved by refining the existing cut-offs using data on percentage body fat and health risks.

The global escalation of childhood obesity is a major concern, as ongoing metabolic derangement from an early age may produce many young adults with metabolic and cardiovascular diseases in the near future. This effect in turn racks up the urgency to maintain or increase our efforts to curb this rising trend. Increasingly more obese children are afflicted with obesity-related morbidities, such as glucose intolerance, hypertension, dyslipidaemia, non-alcoholic fatty liver disease, obstructive sleep apnoea and psychosocial problems, which are described in 3 articles in this issue.⁸⁻¹⁰

¹ Department of Paediatrics, National University of Singapore, and the University Children's Medical Institute, National University Hospital, Singapore

² Department of Surgery, National University of Singapore, Singapore

³ Health Services Research and Evaluation Division, Ministry of Health, Singapore

Address for Correspondence: A/Prof Lee Yung Seng, Department of Paediatrics, National University Hospital, 5, Lower Kent Ridge Road, Singapore 119074

Email: paeleey@nus.edu.sg

Now paediatricians have to vigilantly screen their young obese patients at risk for these chronic diseases, which were once exclusively adult conditions.

The last decade has seen significant advances in obesity research, which improved our understanding of the biological mechanism controlling appetite and weight regulation. Obesity was once thought simply to be a multifactorial trait arising from a complex interaction between the environment, behaviour and genetic susceptibility; and multiple genetic variants contributed to this genetic predisposition. Recently, some studies suggested that in-utero or early life programming may also contribute to the obese phenotype.¹¹ Recent research has systematically uncovered genetic mutations and variants, illuminating the weight and appetite regulation mechanism; this work is discussed in 2 review articles.^{12,13}

The management of obesity in the clinic requires considerable time and effort, not only from the physician but also other allied health professionals, such as the dietitian and exercise therapist. Intensive lifestyle modification forms the cornerstone of therapy, as covered in the review article by Caterson.¹⁴ The motivation level and receptiveness of the patient is pivotal to a successful outcome.

Managing obese children can be very difficult because of poor motivation and a reluctance to change eating habits and physical inactivity. Treatment is more likely to succeed through targeting the family instead of the child alone. The family-based approach requires other family members to adopt healthy lifestyle changes too, thus creating a better environment and a role model for the child.

In adults, medications can be considered if lifestyle modifications fail to achieve satisfactory weight loss. Bariatric surgery is increasingly accepted as a viable treatment in morbidly obese patients, especially those with obesity-related co-morbidities. Bariatric surgery has become more common in the East. In this issue, Wong et al¹⁵ review the results of bariatric surgery from one Asian centre. The article emphasises the importance of a multi-disciplinary approach to achieve a satisfactory outcome. Bariatric procedures may soon play a larger role in the treatment of other obesity-related metabolic diseases such as Type 2 diabetes mellitus.

Obesity is a complex problem, and even with the advances in our knowledge, there is still much to learn about the pathogenesis, clinical consequences and treatment. Therefore, we should endeavour to understand this disorder

better, aiming to design better prevention and treatment strategies. We need to remain vigilant and recognise adults and children coming through our clinic doors, who are obese or at risk for becoming obese, and offer opportunistic advice, screening for complications and intervention where appropriate.

Importantly, we need to further our efforts in primary prevention, by advocating a healthy lifestyle and eating habits through various channels such as the media, schools and the workplace. We hope that this obesity theme issue will provide clinicians and clinical researchers useful insights into the obesity problem, some research advances, and remind us of our role in the fight against this epidemic.

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