HK J Paediatr (new series) 2004;**9**:365-370

Eating: A Pleasure, Challenge or Disorder?

WWY ***TSE,*** PPY ***MAK***

Abstract In many cultures, eating is an important social and family occasion, a pleasurable experience and thus is an enjoyment in life. However, there are other facets of eating whereby it poses as a challenge to a wide sector of adolescents who exhibit weight-related concerns and behaviours. A significant proportion of them fall into the spectrum of disordered eating. At one extreme of the spectrum is morbid obesity and at the other, anorexia nervosa. Obesity has increased markedly in the past two decades in all developed countries and regions. The medical consequences of obesity are well studied. But obesity in adolescents is not mere overeating. Overeating in adolescents has been shown to be associated with a number of adverse behaviours and negative psychosocial experiences. In fact, it may be a clear sign alerting for intervention, intervention that crosses disciplines. This paper addresses the psychosocial risks of obese adolescents that youth workers and professionals need to be cognisant of. Intervention strategies with particular emphasis on prevention rationale and approaches that tap on intersectoral collaboration are discussed.

Key words Global epidemic; Intersectoral collaboration; Negative psychosocial experience; Obesity; Prevention strategies

In many cultures, eating is an important social and family occasion, a pleasurable experience and thus is an enjoyment in life. To society, eating has an extensive impact on the economy.

However, eating can be a challenge especially in adolescence. The onset of puberty has been recognised as a critical period for the development of disordered eating in girls. Killen[1] showed that independent of age, for each advance in Tanner's Sexual Maturity Rating, girls had twice the risk of disordered eating and they manifest fear of weight gain, sense of ineffectiveness/worthlessness and depression.

Attie and Brooks-Gunn[2] in their longitudinal sample of girls from early to mid-adolescence also showed a relationship between eating problems and pubertal changes, especially in girls who felt most negative about their bodies at puberty. In Gowers's study,[3] pubertal concerns were found to be the most frequent precipitant of anorexia nervosa in patients who developed the disorder before menarche.

While review of the literature did not substantiate a causal link between body image and weight conerns and the development of disordered eating in adolescents,[4] there is a plethora of studies on adult women suggesting such a link, mediated by low self-concept and self-esteem, leading to dysfunctional eating attitudes and unhealthy eating behaviours. This would suggest that the development of disordered eating might follow different psycho-bio-pathological paths in adolescents and adults.

Department of Paediatrics, Queen Elizabeth Hospital, 30 Gascoigne Road, Kowloon, Hong Kong, China

WWY **TSE** （謝詠儀） *MBBS, FRCP, FHKAM(Paed)*
PPY **MAK** （麥佩儀） *MBChB, MRCP, FHKAM(Paed)*

Correspondence to: Dr WWY **TSE**

Received July 30, 2004

Disordered Eating

But what is disordered eating? Terms such as weight-related disorders, weight-related concerns/behaviours and eating disturbances, and disordered eating are often used to encompass a broad range of conditions that have

relevance for the health of a wide sector of the population in Western societies, particularly adolescent girls.[5] Although the prevalence of disordered eating in Asian countries has been less well documented, its rising trend is recognised. This emphasises that disordered eating or the range of disordered eating is not conditions restricted to the Western populations anymore.

Neumark-Sztainer described one way to view weight-related disorders (Figure 1), which is a spectrum with obesity at one end, anorexia and bulimia nervosa at the other, and a range of other weight-related disorders in the middle, including anorexic or bulimic behaviours, unhealthy dieting, and binge eating disorder.[5] It may surprise some of us why obesity is included. This is because of its high prevalence and strong correlations with body dissatisfaction, unhealthful dieting, and disordered eating behaviour which will be alluded to below.

Obesity is not just overeating. In the Project EAT (Eating Among Teens), among 4746 school boys and girls in Minnesota, in the US, 17.3% girls and 7.8% boys had a range of disordered eating from objective overeating (that is without loss of control), subclinical binge eating (that is with loss of control but low binge frequency and no distress from binges) to binge eating syndrome (that is with high frequency binges, loss of control and with distress) (Figure 2).[6] They also found that overeating among adolescents was associated with adverse behaviours and negative psychological experiences. Those who overate were more likely to be overweight or obese, have dieted, were trying to lose weight and to their overall self-concept, weight and shape were very important. Those who binged had lower scores on body satisfaction and self-esteem, fared worse on the depression scale and more than a quarter of the girls (28.4%) and boys (27.8%) had attempted suicide.

In Strauss' study,[7] fifteen hundred children born to mothers in the US National Longitudinal Survey of Youth were assessed on a Self-Perception Profile for Children when they were 9-10 years old. The tool was administered at home by trained bilingual interviewers. Four years later, they were reassessed with the same tool plus filling out a self-administered questionnaire on emotional well-being, smoking and alcohol use. The data so obtained were stratified by race and gender and weighted to reflect a nationally representative sample.

The researchers found that at base line, the scholastic and global self-esteem was not significantly different among the obese and non-obese children when they were 9-10 years of age. At 4 years, when they were 13-14 years old, self-esteem was significantly lower in obese boys, obese Hispanic girls and obese white girls compared to non-obese children. When compared to obese children with increased or unchanged self-esteem, obese children with decreased self-esteem had increased sadness, loneliness and nervousness. They were more likely to smoke and drink alcohol.

It is well known that obesity puts a person at health risk. But regrettably, few health care providers have realised these health risks are not only physical. And since most of these physical health risks do not eventuate within an obese person's adolescent years, therefore they are not regarded as imminent concerns to deal with. But health professionals should now realise that the psycho-socio-behavioural health risks these youngsters are facing can potentially rock their boats over in the adolescent sea.

Obesity

Obesity can be measured in a variety of ways. But Body Mass Index (BMI) is the standard obesity assessment in adults. Generally, it correlates highly with adiposity and is easily available. It is calculated as weight (in kilograms) divided by the square of height (in square metres).

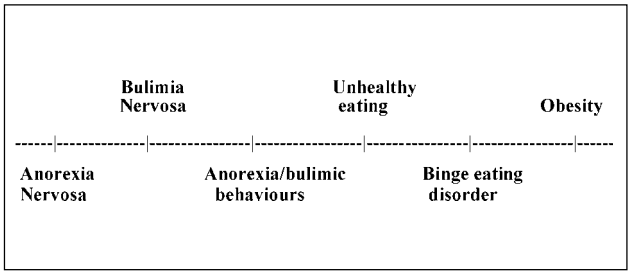

Figure 1 The spectrum of weight-related disorders.[5]

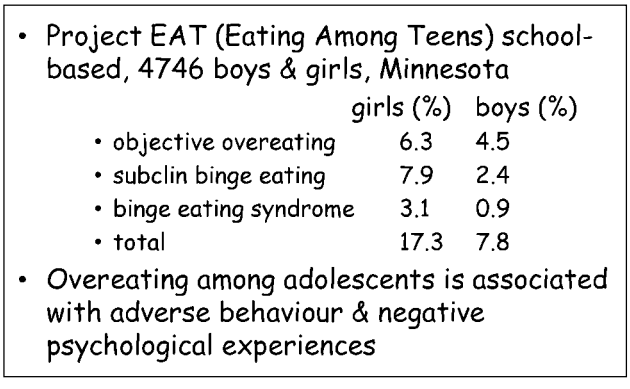

Figure 2 Overeating among adolescents.[6]

The BMI cut off in adults is an arbitrary point on the distribution of BMI where the health risk of obesity starts to rise steeply. The World Health Organization (WHO) defines a BMI of or above 25 kg per square metre as overweight and a BMI of or above 30 as obesity. The definitions are based on the associated risks of co-morbidities (Figure 3).

But there are ethnic variations in BMI and fat distribution. For instance, South Asians have more centralised distribution of body fat and higher mean waist-to-hip ratio for a given BMI.[8-11] It has been shown that morbidity and mortality occur in lower BMI's in Asians compared with their Caucasian counterparts.[12,13] Among Chinese in Hong Kong and Singapore, morbidity and mortality is occurring at lower BMIs and thus our BMI cut off for health alert would need to be lowered[10] (to 23 kg/m^2 for overweight and 26 kg/m^2 for obesity[14]) and not 25 kg/m^2 and 30 kg/m^2 respectively as in our Caucasian friends. Figure 4 represents the Asian equivalent BMI's to the various degrees of risk of co-morbidities. Asians are at the same risks at much lower BMI's. Despite that a recent WHO expert consultation agreed that the WHO BMI cut-off points should be retained as international classfication,[15] ethnic-specific risk levels should be considered in implementing regional/national public health measures with regard to overweight/obesity interventions.

For children and adolescents, the International Obesity Task Force (IOTF) recommended that BMI offered a reasonable measure to assess fatness in children and adolescents.[16] The increase in mean BMI with age suggests that a percentile cut-off point should be used to identify children and adolescents who are overweight.[17] In the United States, the 85th and 95th centiles of BMI for age and sex based on nationally representative survey data have been recommended as cut-off points to identify overweight and obesity.[18] Cole et al analysed international data and provided cut-off points for BMI in childhood (age 2-18) that were linked to the widely accepted adult cut-off points of BMI 25 and 30 kg/m^2. They recommended these cut-off points for use in international comparisons of prevalence of overweight and obesity.[19]

Classification	BMI (kg/m^2)	Risk of co-morbidities
Underweight	< 18.5	Low (but ↑ risk of other clinical problems)
Normal range	18.5-24.9	Average
Overweight	≥ 25	
Pre-obese	25-29.9	Increased
Obese I	30-34.9	Moderate
Obese II	35-39.9	Severe
Obese III	≥ 40	Very severe

Figure 3 WHO 1998 classification of weight by BMI in adult Europids.

Global Epidemic

Childhood overweight and obesity has risen by about 50% in both urban and rural China. In Japan, obesity rose by 2-3 folds from 1970 to 1997.[20] In countries like Malaysia where adolescent obesity was distinctly as low in prevalence as 1% in 1990, it has jumped by five times in 7 years.[20]

In Hong Kong, 20.3% of the boys and 10.1% of the girls are overweight at 10 years of age. That prevalence is about halved among the 15-year-old (10.3% boys, 6.3% girls).[20] In Taiwan, 30.5% boys and 21.1% girls are overweight at 15 years of age.[20] Though we seemingly have a lesser magnitude of the problem than our neighbours in Asia-Pacific, we have no cause for complacency.

The health consequences of childhood obesity are many and far-reaching (Figure 5).[21] Suffice to say, our society is going to pay monumental health care costs if we do not make ourselves sit up and face this global epidemic of obesity.

Indeed, the US Council on Scientific Affairs has regarded obesity in children and adults as a major public health problem. The US Surgeon General predicts that the preventable mortality and morbidity associated with obesity may exceed those associated with cigarette smoking.[22] And WHO has placed obesity prevention & treatment as a top priority.[23]

Should we go about for obesity treatment or obesity prevention? There is strong evidence for obesity being

Classification	BMI (kg/m^2)	Risk of co-morbidities	
		Waist circumference	
		< 90 cm (men)	≥ 90 cm (men)
		< 80 cm (women)	≥ 80 cm (women)
Underweight	< 18.5	Low (but risk of other clinical problems)	Average
Normal range	18.5-22.9	Average	Increased
Overweight	≥ 23		
At risk	23-24.9	Increased	Moderate
Obese I	25-29.9	Moderate	Severe
Obese II	≥ 30	Severe	Very severe

IDF-WPR and IOTF 2002

Figure 4 Co-morbidities risk associated with different levels of BMI and suggested waist circumference in adult Asians.

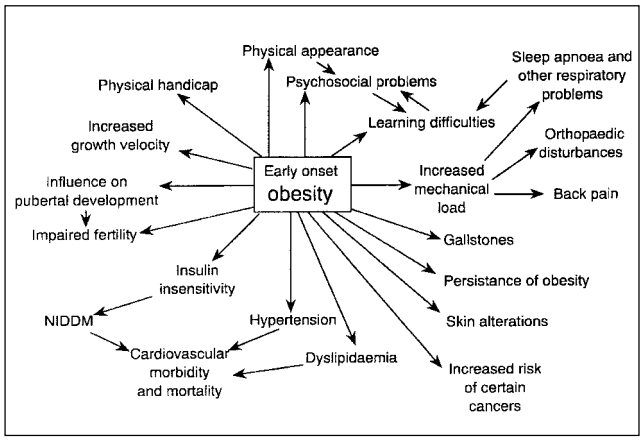

Figure 5 Health consequences of childhood obesity.[21]

related to increased mortality and morbidity and that weight loss in obese subjects decreases important disease risk factors.[24] But treatment in children and adolescents is hazardous because of the potential adverse psychological and emotional consequences, precipitation of eating disorders and stigmatisation. Ambitious treatment goals may impair normal growth and development and maintaining weight loss is so difficult in a growing child or developing adolescent. **Prevention therefore remains the most viable option for controlling overweight.**

Prevention approaches should be adopted based on our intervention rationale from what we have known about obesity – its aetiology, critical periods of excessive weight gain in a child or adolescent, family & parental dynamics, physical activity levels of our youngsters, the importance of early recognition, the role of advocacy, the importance of funds and last but not least, intersectoral collaboration.

Aetiology. *There are strong and complex interactions between biology and the environment.*[18] Multiple genes, the biological construct, the psychological, sociocultural milieu of the environment, etc. are important. Prevention approaches have to be multi-staged over the course of time as well as over the course of a child's growth and an adolescent's development. Intervention approaches have to be multi-levelled too, at the individual, organisational and peer/family/community levels. Therefore they have to cross sectors and all partners have to be committed.

Early childhood is a known *critical period of excessive weight gain*. Evidence has shown that breast feeding is inversely associated with risk of obesity in early childhood.[25] Therefore we should promote breast-feeding at all levels and of course we know that breast feeding has tens of other advantages to an infant and the mother. Adolescence is another critical period of obesity.[26] Anticipatory guidance to adolescents and family will be a valuable tool. Evidence also shows that adolescents with high-risk behavours (such as smoking, alcohol use, early sex) are at higher risk of poor dietary and exercise habits.[27] So when we design programs for risk reduction, there are good grounds to include screening for adiposity, diet and exercise. An evidence base is crucial to successful and cost-effective intervention approaches.

Studies have shown that *adversities in the home and parental dynamics* such as food insecurity,[28] lack of safe places for physical activity, inconsistent access to healthy food choices (which are usually much much more expensive), low cognitive stimulation at home, low socioeconomic status, maternal obesity,[29] over controlling parental behaviours that detrimentally affect a child's ability to self-regulate energy intake, unwise parental choices[30] influencing the child's food and fat preferences and absence of family meals all have a negative impact on the child or adolescent's degree of adiposity. Changes to reverse or moderate such adversities can best be made at the community level.[31]

Children nowadays are less active. Leisure activities are increasingly sedentary. All home audiovisual entertainment can now be controlled with simple pressing on the remote control panel. Children and adolescents do not need to leave their seat to switch the channels which their parents needed to when young.

Many youngsters are spending too much time on TV. Those who spent more than 4 hours a day on TV had higher BMIs than those watching TV for less than two hours a day.[32] Studies have also showed that decreased media use even without specifically promoting more active behaviour resulted in a lesser increase in BMI at 1-year follow up.[33] And obese children reinforced for reducing sedentary activity and following an energy-restricted diet had greater weight loss than those reinforced for increasing physical activity.[34] Based on this evidence, the American Academy of Pediatrics reinterated the recommended limitation of TV watching to no more than 2 hours per day in its Policy Statement in 2003.[31]

Early recognition and thus timely addressing significant changes in growth patterns (that is, upward crossing of weight for age or BMI centiles) are crucial. Appropriate growth charts should be made available and be liberally made use of by all professionals working with children and adolescents e.g. school teachers when they measure school kids once or twice per year, student preventive health services, institutional caregivers and alike. Once recognised, the significant BMI changes need be discussed with parents

to raise their awareness. It is vital to consciously be nonjudgemental and blame-free as well as to avoid unintended negative impact on the child's self-concept.[35]

Figure 6 is an illustration of the BMI centile chart available in Hong Kong. This is the girls' chart for age.[36] Though the 85th and 95th centile lines which are the cut off for childhood overweight and obesity respectively are not drawn, if we can plot the serial BMIs accurately of a child on this chart, we can easily spot any upward and significant BMI change that is present and be alerted.

In all, there is need for *societal changes, or even legislative changes* in some circumstances to reverse or at least improve the societal adversities that are associated with the growing prevalence of obesity. For example, we need to provide more opportunity for physical activity in all child and adolescent settings; we may need to look at the school curriculum again to provide space and time for such. Foods that are nutrient-rich and palatable yet low in excess energy from added sugars or fat need to be available and affordable. Conversely, the promotion of energy-dense, nutrient-poor food products to children need be regulated. Sale of carbonated beverages should not be promoted in schools. There are certainly alteratives, healthier alternatives, to ease the thirst and hunger of our students.

Funds. It is not easy to exchange every dollar to be spent in obesity intervention for the number of extra kilograms or grams in a child's weight it can prevent. Money seems easier, or slightly easier, to get for new initiatives or pilot projects to test prevention strategies. When outcomes, especially in terms of health care cost savings and qualities of life, are not apparent, long term capital to sustain programs will become so difficult. This will particularly apply to the case of preventing childhood and adolescent obesity when results will only be seen in the long term and for which multi-variate results are to be gathered. Child and adolescent health professionals therefore have to advocate for adequate health care coverage not only for treatment services, but more importantly, prevention services.

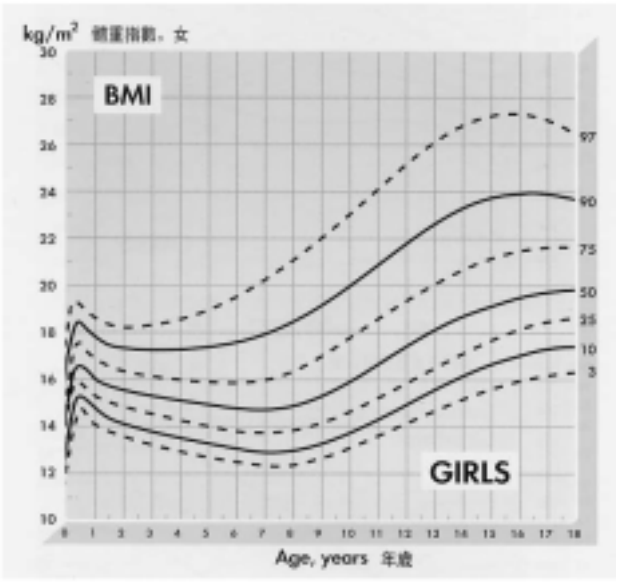

Figure 6 BMI curves for age for Hong Kong girls.[36]

The importance of *intersectoral collaboration* cannot be overemphasised. It is frustrating to see children and adolescents of increasing obesity with its associated morbidities despite medical, dietetic and physiotherapy care. The need to involve different professionals, work across sectors and provide different levels of expertise cannot be more apparent. Collaboration and coalitions with nutrition, behavioural health, physical therapy, and exercise physiology professionals will be needed. Working with communities and schools to develop needed counseling services, physical activity opportunities and strategies to reinforce the gains made in clinical management is also important.[34]

But the best program cannot succeed if we do not involve the adolescent AND the family. A successful adolescent program must be accessible and adolescent-focused. While all the professionals and sectors are pulled together, let the adolescent be ***the*** focus and be the ***key player***.

Conclusion

Childhood and adolescent obesity is a growing problem, even in this part of the world. Evidence has shown that there are determinants that can alter its course. Prevention strategies should be based on evidence. We have to plan wisely and work collaboratively across sectors to curb this potential epidemic of the century. But how?

Dr Gisela Konopka (1910-2003) was Professor Emerita of Social Work in Minnesota, USA. She was renowned for her work dedicated for youth and her remarkable address on "Requirements for the Healthy Development of Youth".[37] This was a visionary policy statement she developed for the Office of Child Development of the US Department of Health Education and Welfare in 1973. She deliberated the importance of putting adolescent programs in the perspective of adolescent development, and, that the vast body of scientific research will mean nothing if the evidence so obtained is not put into implementation. Scientific knowledge has to be put into scientific practice.

Acknowledgement

Special thanks go to Dr Elaine Kwan (Department of Paediatrics, Queen Mary Hospital) for contributing to the information on obesity.

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