



Editorial

China's epidemic of child obesity: An ounce of prevention is better than a pound of treatment



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1. Introduction

China used to be known for its people being slender [1,2]. Now the Chinese are becoming obese [2–11]. According to People's Daily, China's official newspaper, the number of obese people in China will go beyond 200 million, one sixth of China's total population, by 2015 [12]. Obesity in China is not only an adult problem [13]. The children in China are also getting fatter [11,13–19]. Child obesity developed in China only a quarter of a century ago [20] and has now reached an epidemic proportion [17–21]. The fastest increase took place in just the last decade [22,23] (Fig. 1). The increased rates of the epidemic of child obesity in China were greatest in large coastal cities, but similar increases were found in all other regions including the once poverty-stricken rural west [24]. Furthermore, the changing pace was much faster in boys than in girls [25] (Fig. 2); the gender disparity suggests that the prevalence of obesity in boys will continue to be a large and growing proportion of obese children in China [20]. The situation is particularly alarming, because fat children grow up to be fat adults [26–30].

2. Causes of child obesity in China

2.1. Fast food

Of all the exports from the United States to China, the fast food restaurants are the most successful [31]. Child obesity in China is the result

of the predatory tactics used by American fast food corporations to capitalize on the Chinese market; those corporations have driven consumption in China by advertising heavily to children – the cute, chubby Chinese children with baby fat. The Chinese children are devouring the American fast food faster than ever [4,9,11,13,19,32–36].

China is the fastest-growing market for McDonald. This phenomenon has been euphemistically called McDonaldization [32]. According to Reuters [37], McDonald, which opened the first outlet in China 23 years ago, plans to increase the number of its restaurants in China to 2000 in 2013 [37]. In addition, half of all new McDonald's restaurants will feature Drive-Thrus to appeal to China's increasing automobile-driving population [37]. So, instead of walking to a McDonald, all the children in China will just let their parents drive them to a McDonald.

There is a big difference between the social status of obese children in China and the United States [19]. In the United States, only the poor kids eat junk food and become fat. In China, it is just the opposite; the richer the parents, the fatter their kids are. It is almost as if showing off their wealth by demonstrating how well fed their kids are. The old saying that a fat child is a healthy child is still prevalent in modern China [1]. As China gets richer, its children are certainly getting fatter. Unfortunately, the Chinese seemed to have forgotten the old Chinese saying that “disease goes in by the mouth” [38].

2.2. Television viewing

Studies conducted at Harvard over a quarter of a century ago first linked television viewing to obesity [39]. Since then, extensive research has confirmed the link between television viewing and child obesity worldwide [40–45], including China [36,46–51].

Nowadays, television is a cheaper babysitter than a live person; however, babysitters may take the children out for a walk whereas televisions will not. As Alfred Hitchcock once said, “The invention of television can be compared to the introduction of indoor plumbing. Fundamentally it brought no change in the public's habits. It simply eliminated the necessity of leaving the house” [52]. In addition, television induces child obesity not only for its ‘sit-time’ effect but also for its junk food related advertisements that influence what and how much the kids eat [41–43,45,53].

2.3. Computer and internet usage

Prolonged computer use has been shown to be associated with child obesity in the European Youth Heart Study [44]. The Chinese 2005 National Youth Risk Behavior Surveillance reported that nationally 29.1%

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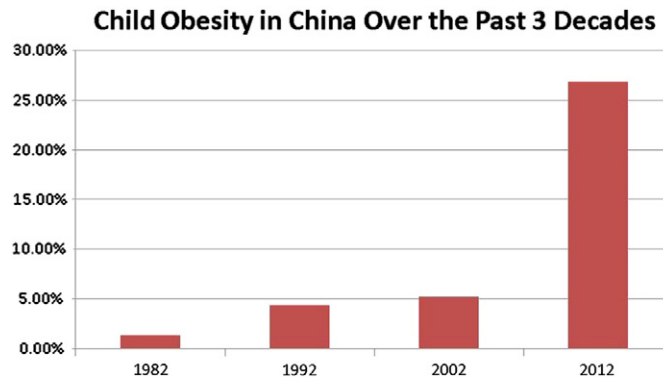


Fig. 1. Prevalence of child obesity in China over the past three decades with the fastest increase during the past decade (according to Refs. [22,23]).

of boys spent ≥ 2 h per day playing computer games, which were two times higher than girls [20,54]. In a more recently reported study of 6740 children in Xi'an, China, watching television, playing computer games and using computers had been found to confirm their close association with a higher risk of obesity [55].

Prolonged Internet use has been shown to be linked to child obesity [56,57]. China's Internet users have reached 564 million, or 42% of its total population, by the end of 2012 [58]; a significant proportion of China's Internet users are teenagers.

2.4. Automobiles replacing bicycles

China used to be a land of bicycles [35]. With continued economic growth and increased motorization, more and more Chinese are buying cars. In 2004, it was predicted that China would surpass the United States as the world's biggest auto market [59]. But in 2009, China had already excelled U.S. in sales of automobiles [60]. Beijing has a population of 20 million and 5 million cars, a number that keeps rising [61]. The Chinese nowadays rely more on automobiles and less on bicycles. As a matter fact, Shanghai bans bicycles from all major roads to ease congestion brought on by a wave of private car ownership [36]. Children no longer walk to schools; instead, they either ride on a school bus (Fig. 3) or are driven in their parents' cars to school. As the Chinese, young and old, rely more on automobiles and less on bicycles, they no longer derive the health benefits from bicycling [36].

2.5. China's one child policy

China allows only one child per family. There is a saying in China: "2-4-8 (pronounced as 'er', 'si' and 'ba', respectively), you get fat". With only one child in the family, the doting parents (2 in number), grandparents (4 in number) and great grandparents (8 in number) pamper their only child by overfeeding the 'little emperor' [11]. Furthermore, food that used to be distributed among his siblings is now devoured by just one person.

This phenomenon has been also euphemistically called the "six-pocket syndrome" by the Westerners [33, pp 143-146].

2.6. Prenatal & maternal influences

2.6.1. Maternal obesity

- Chinese women, like Chinese men, are getting fatter; the overall prevalence of abdominal obesity is even higher in women than in men (43.9% for women and 31.1% for men, $p < 0.01$) [62]. Pre-conception maternal factors have been shown to have a greater influence on child obesity than prenatal factors, and there is a significant association between net gestational weight gain and the offspring's body mass index [63].

2.6.2. Cesarean section

- The number of cesarean-section births in China has increased sharply in recent years [64], especially in the eastern region,



Fig. 2. More obese boys than girls in China (courtesy of the Chinese Embassy in Washington, D.C., U.S.A.).

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