

Editorial

Prevalence and geographic distribution of childhood obesity in
China in 2005Cheng Ye Ji^{a,1}, Tsung O. Cheng^{b,*}^a Institute of Child and Adolescent Health, Peking University Health Science Center, 38 Xueyuan Road, Haidian District, Beijing 100083, China^b Department of Medicine, The George Washington University, 2150 Pennsylvania Avenue, N.W. Washington, DC 20037, USA

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Abstract

China now joins the world epidemic of childhood obesity. Because of the large disparity of environmental conditions across various sub-populations, accurate prevalence of obesity/overweight cannot be estimated by population-based approaches. Using a resident-based targeted approach, we determined the geographical distribution of childhood obesity in China and analyzed the specific factors related to the increasing prevalence of obesity in each of its ten regions. An alarming increase in the prevalence of obesity has spread all over China, except for the poverty western rural areas. In 2005, the prevalence of combined childhood overweight and obesity in China reached 32.5% for males and 17.6% for females in the northern coastal big cities, suggesting that the obesity prevalence in some urban Chinese populations has approached that of the developed countries. The prevalence of obesity in the affluent rural sub-populations first exceeded that in some urban populations; then, as they learned their lessons and revised their lifestyles, the prevalence declined to a lower level approaching that of the transitional societies of other countries. The geographical distribution of obesity prevalence in China is mainly caused by the large disparity in the socioeconomic status related to dietary and lifestyle changes in modern China. Multiple and integrated interventions are urgently needed to halt the epidemic of childhood obesity by tackling its basic causes such as fast food, automobiles, television and lack of exercise. The differing prevalences in different regions of China offer an opportunity to reverse this alarming, growing epidemic of childhood obesity in the world's most populous country.

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1. Introduction

China, used to be known for her slender people, has now joined the world epidemic of obesity [1]. Not only adults but also children are getting fatter [1,2]. Between 1985 and 2000, the combined prevalence of overweight and obesity for the 7–18-year-old Chinese youth increased from 1.6% and 1.8% to 23.6% and 13.6%, for males and females, respectively, among the coastal big city populations [3]. The prevalence of child-

hood obesity continues its upward trend in China as the rest of the world. By the end of 2000, the obesity rate of male students in Beijing reached 15%, doubling that of 1990 and approaching that of developed countries [4,5]. Fat children grow up to be fat adults [1], and excess body weight, even in children, is one of the most blatantly visible yet most neglected, risk factors contributing to the overall burden of disease, leading to decreased life expectancy resulting from cardiovascular diseases, type 2 diabetes and cancer [6]. Obesity, especially childhood obesity, is becoming an important public health problem of high priority that modern China has to face and deal with [7].

Effective strategy and preventive interventions should be based on an accurate estimate of the prevalence of the disease [8]. However, both medical professions and policy-makers in China are often confused by conflicting reports from either

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underestimation or overestimation of the prevalence. The former is usually caused by the application of an international definition, such as that of the World Health Organization (WHO) [9], or the Center for Disease Control/National Center for Health Statistics (CDC/NCHS) [10], or the International Obesity Task Force (IOTF) [11]. These definitions, though widely used in the western countries with their rather high body mass index (BMI) cut-offs, are characterized by high specificity but low sensitivity in the Chinese population. Consequently, many of the probable overweight and obesity cases have gone unrecognized and thus untreated [12].

On the other hand, overestimation may result from the large disparity of socioeconomic and livelihood status among the Chinese sub-populations. China, with its rapid economic increase in recent three decades, has undergone epidemiological and demographic transitions affecting its population's nutritional status and created environments that contribute to an increase in obesity. However, these changes mainly occurred in the urban areas, especially in the affluent coastal cities. In China, more than 70% of the total population live in the rural areas, with a large part of it living in the less affluent or even poverty western rural areas. Thus, the validity of such statements that overweight is present in

more than 50% of northern Chinese and that the number of obese people in China will exceed 200 million by 2015 [13], could be questioned.

The present study, using China's own national criteria, which include the previous Chinese National Survey on Students' Constitution and Health (CNSSCH) since 1985 [14] and the more recent Working Group on Obesity in China (WGOC) reference [12], examines the prevalences of overweight and obesity in various school-age sub-populations in various regions of China in 2005. A targeted approach, rather than the broad population-based approach, is applied, to address the specific factors related to the increasing prevalence of obesity in each group, in order to allocate health promotion resources in the context of specific conditions of different regions and thus to adopt the most appropriate measures of intervention.

2. Methods

2.1. Samples and data collection

Raw data came from the 2005 cycle of the CNSSCH survey, which has been conducted every five years since 1985,



Fig. 1. (a) Location of the 31 cities/provinces in China. (b) Locations of the 10 regions in China.

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