Childhood Obesity in China and Beijing: Challenges and Way Forward

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Summary

Over the past 30 years, childhood obesity has been growing at an alarming rate and has become a serious public health concern in China. In the 1980s, childhood obesity was neither epidemic nor a public health problem. If no intervention is taken, it is predicted that the obesity rate for school-aged children (7-18 year) will reach 28% by 2030, equivalent to 49.48 million overweight and obese children. Obesity is a chronic metabolic disease caused by various factors, including transformations in the environment, behaviours and lifestyles, food supply and consumption, as well as physical activity. It is urgent to become aware of the rapid growth of childhood obesity in China. Beijing, the capital of China, also faces a serious problem of childhood obesity. In order to control this rising trend, Beijing has introduced a series of additional policies and actions on the basis of national policies. Policies to control childhood obesity should aim at improving the social environment and promoting targeted education. Health authorities should also work closely with families to promote healthy diets and lifestyles.

About this Background Paper

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This Background Paper is linked to one of the Hackathon challenges – Child Obesity in India – which was tackled by the young ASEFSU23 participants coming from 39 ASEM countries in Asia and Europe. It provides insights on the topic of Child Obesity by focusing on a different ASEM country & context: China.

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Disclaimer

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1. Overview of Childhood Obesity in China

1.1 Childhood Obesity Trend and Overweight Rate in China

In the 1980s, the overweight and obesity rates in China hovered at a low level. Both obesity rates for boys and girls in major cities were relatively low in 1986 and the prevalence of obesity was very limited. However, the obesity and overweight rates grew rapidly after 1990, presenting a higher prevalence in the urban settings as compared to rural areas, while being higher for boys than girls. Although the overweight and obesity rates in China are far lower than developed countries in Europe and North America, the large population of the country suggests that China is home to a staggering number of obese children (Ji, Sun & Chen, 2004).

An epidemiological survey for obesity among children below seven in nine cities in China found a 0.91% detection rate of obesity from 0 to 7-year-old children in 1986, with 0.93% for boys and 0.90% for girls. This suggests a low detection rate of childhood obesity in China. However, the decade between 1986 and 1996 saw an increase in obesity rate. A survey in 1996 found 2.12% boy obesity rate and 1.38% girl obesity rate among children aged 0-7 (Li, Zhang & Yan, 2002). The obesity detection rate continued to escalate in the decade between 1996 and 2006. The survey in 2006 showed 6.25% overweight detection rate for children aged 0-7, with 6.59% for boys and 5.88% for girls; 3.18% obesity rate detected with 3.82% for boys and 2.48% for girls (Li, 2005). By 2014, the obesity detection rate for children aged 0-6 years in 7 cities in China was 12.1%, 16.5% for boys and 7.3% for girls.

Regarding school-aged children, a National Nutrition Survey was conducted in 1982, 1992, 2002, and 2012. These surveys' findings can help map out how the obesity and overweight rates have evolved among school-aged children. In 1982, the overweight and obesity detection rate for children aged 7-17 was only 1.2% and 0.2% respectively. The overweight and obesity issue became increasingly manifest among the students in the following decades. The survey in 1992 and 2002 showed that the overweight rates of children aged 7 to 17 in China were 3.7% and 4.4%, and the obesity rates were 0.9% and 0.9% (Li et al., 2008). Subsequently, the overweight and obesity rates increased faster after the 21st century (Ma et al., 2012). The Report on the Status of Nutrition and Chronic Diseases of Chinese Residents (2015) pointed out that in 2012, the overweight and obesity rates of children aged 6 to 17 were 9.6% and 6.4%, respectively; the overweight and obesity rates of children under 6 were 8.4% and 6.4%, respectively. The latest Report on the Status of Nutrition and Chronic Diseases of Chinese Residents (2020) shows that the current overweight and obesity rates for children and adolescents aged 6 to 17 in China are 11.1% and 7.9% respectively, and the overweight and obesity rates for children under 6 are 6.8% and 3.6%.

The Report on Childhood Obesity in China (Ma, 2017) predicts that if no effective interventions are taken, the detected overweight and obesity rate for school-aged children (7-18 years) will reach 28.0% by 2030, which means an overweight and obese population of 49.48 million children. Based on the analysis from the Nutrition and NCD Status Report for Chinese Residents, it is extrapolated that the direct economic costs resulting from Non-Communicable Diseases (NCD) associated with adult obesity will increase to 49.05 billion
RMB/year by 2030\(^1\). Therefore, we must seize the opportunity to take effective prevention and control measures to curb the obesity epidemic.

1.2 Challenges related to Childhood Obesity in China

Multiple determinants such as genetics, environment and social norms can contribute to the prevalence of obesity, while childhood obesity and related NCDs are caused by the interplay of genetics, environment and dietary behaviours (Gluckman et al., 2008).

Since the economic reform and opening of China in 1978, China’s economy has experienced unprecedented development, residents’ income has increased and a modern food system has been gradually established. In the late 1990s, supermarkets, western fast-food restaurants, and convenience stores have appeared in several cities in China. Changes in income level and environment have largely affected the dietary behaviour and nutritional status of Chinese children. These Chinese children are undergoing a process of nutritional transition (Du et al., 2013; Huang et al., 2020), including increased consumption of high-fat & high-sugar foods and fast food, reduced physical activity, increased sedentary hours, and poor dietary behaviours such as skipping breakfast.

Dietary Determinants

The unhealthy dietary patterns, in particular the increased energy supply from fat sources, will result in over energy supply and a heightened risk of obesity for children. The dietary pattern for school-aged children in China is concerning. From 1991 to 2009, the fat intake of Chinese children has drastically increased, while the energy supply from fat source has increasingly gone up beyond the 30% ceiling recommended by the China Nutrition Society. In 2009, the proportion reached 57%. Besides, over consumption of food items with high energy density can result in excessive intake of calories if regularly consumed in a large amount.

Unhealthy Dietary Behaviours

Among children aged 4-17 years old from the 2011 China Health and Nutrition Survey, the snack food consumption rate was 65%-76%; snack typically provides disproportionally more carbohydrate and less proteins for children and have more impact on the diets of younger children than the older ones. In contrast to meals, processed foods were highly consumed as snack food in children and adolescents, providing 40.6% to 47.7% of the total daily energy consumed (Wang et al., 2016). Another survey among primary school students in six cities of China shows that snacks food consumption is highly popular among primary students as the proportion of pupils consuming snack food at home, school and elsewhere was 96.4%, 59.4% and 75.5% respectively. At the same time, the frequency of children's consumption of Western fast-food in China increased rapidly. In 1998, 2008 and 2015, the proportion of children who ate Western fast-food at least once a week was 1.9%, 16.2%, and 53.9% respectively (Zhang et al., 2019).

Lack of Physical Activities and Increased Sedentary Activities

The development of transport infrastructures and people’s increased ownership of cars have increased the use of cars instead of cycling and walking. In the past 20 years, car ownership has increased exponentially with an annual growth higher than 15%. The recent 10 years especially has seen a steep increase of car

\(^1\) It is equivalent to more than 7.6 billion USD/year (exchange rate of 2021).
ownership with an annual growth of over 15%. As walking and cycling have been replaced by private cars, parents increasingly pick up their children by cars, leading to decreased energy expenditure and higher risks of obesity. In addition, the excessive burden from school assignments have increasingly stripped the children from the outdoor activities they need, resulting in inadequate physical activity of the students. Meanwhile, the variety of TV programmes, electronic games, together with the appeal of the Internet and the fast update of online content have taken up most of children’s leisure time. Studies have indicated that sedentary activities remain an independent determinant to NCDs such as childhood obesity and metabolic syndrome.

**Low Levels of Nutrition and Health Literacy**

In 2019, the level of Chinese residents' health literacy on chronic disease prevention and control, including nutrition, was only 22.73%.

**1.3 Guidelines, Policies and Action Plans to Prevent Childhood Obesity in China**

In order to prevent and control childhood obesity, the Chinese government, together with some research institutions and social organisations, have adopted a series of measures, guidelines, policies, and action plans.

**Guidelines**

In 2007, the Disease Control Department of the former Ministry of Health released the *Guidelines on the Control and Prevention of Obesity and Overweight among China’s School-aged Children*. The Guidelines emphasise that healthy behaviours and lifestyle should be adopted by children from a young age, and physical activity should be promoted to control NCDs and improve the physical fitness and health of the population. The Guidelines have played an important role in the prevention and control of overweight and obesity in children. However, after more than 10 years since the launch of the Guidelines, the prevalence, influencing factors, health hazards and related childhood obesity policies have all changed in China. The Guidelines can therefore no longer meet current needs. In September 2018, the National Health Commission commissioned the School of Public Health of Peking University to revise the original Guidelines. Based on scientific evidence, the *Guidelines for the prevention and control of obesity in children (2021)* were published and officially released in May 2021.

In addition, there are several other guidelines related to the prevention of childhood obesity in China, such as the *Dietary Guidelines for School-age Children in China*, the *Snacks Guideline for Chinese children and adolescents (2018)*, the *Physical Activity Guideline for Chinese Children and Adolescents* and the *Guideline for sleep hygiene among children aged 0~5 years*.

**Policies and Action Plans**

In 2020, the *Implementation Plan for Obesity Prevention and Control in Children and Adolescents* was issued by the National Health Commission, Ministry of Education, and seven other departments. The plan puts forward some goals for the prevention and control of overweight and obesity, while strengthening the responsibilities of families, schools, medical and health institutions, and the government.

In 2014, the State Council released the *Program for Food and Nutrition Development in China (2014-2020)*, which specifies 21 specific indicators in five areas including food production, development of food processing industry, food consumption, intake of nutrients, and nutritional diseases control. One of the vital objectives of this Program was to
drastically bring down the steep increase in residents’ overweight, obesity and dyslipidaemia (abnormal amount of lipids).

In 2016, the Healthy China 2030 Blueprint was issued by the government to improve the health of people through sectoral reforms and innovation, universalise healthy lifestyles, improve health services and health protection, build up a healthy environment and develop the healthcare industry. The Blueprint aims to improve public health by giving priority to the community and preventive care, while giving equal emphasis on traditional and western medicine. The Blueprint highlights the importance to address health determinants such as lifestyles, the living and working environment, and healthcare services. Early diagnosis, treatment and rehabilitation should be reinforced to bring a healthy population.

In 2007, the Disease Control Department (DCD) of the former National Health and Family Planning Commission and the National Patriotic Health Campaign Commission Office (NHFPC) launched a Healthy Lifestyle Campaign for All in China. The Happy 10 Minute component of the campaign has increased the level of physical activities for the primary and secondary school students who have become fitter and healthier.

In order to improve health awareness and public health, the Disease Control Department and the Communication Department of NHFPC, the Media Development Centre of All-China Journalists Association launched the National Health Message Dissemination Plan in 2005, which communicates health messages for one major disease set aside every year. The year 2009 featured healthy weight, which advocated weight control among the primary and secondary school students.

Monitoring of Childhood Obesity

The 1st Physical Fitness and Health Survey for Chinese Students was conducted in 1985, with the following surveys conducted every five years (1995, 2000, 2005, 2010, 2014 and 2019). The findings of these surveys have helped to map out how the obesity and overweight rates have evolved among the school-aged children.

China has also carried out several national nutrition surveys. In 2002, the China National Nutrition and Health Survey started to include hypertension, diabetes and nutrition. Previous survey results and data have played an active role in understanding the dietary structure and nutritional level of Chinese residents and the epidemiological characteristics and changes of related chronic diseases, evaluating the nutritional and health level of residents, and formulating relevant policies and disease prevention measures.
2. Overview of Childhood Obesity in Beijing

Beijing is the capital of China and one of the most populous cities in the world with a population of 21,542,000 as of 2018. The metropolis, located in northern China, is the country’s political, cultural, and educational center. In the last few decades, Beijing has experienced rapid and dramatic urbanisation and environmental changes. At the beginning of reform and opening up, the per capita income of urban and rural residents in Beijing was only about 300 yuan. In 2017, the per capita disposable income of urban and rural residents reached 62,406 yuan and 24,240 yuan respectively. After deducting price factors, it was 170.8 times and 107.8 times that in 1978, with an average annual growth of 8.1% and 6.8% respectively. In 1987, after many consultations and negotiations with the government, KFC opened in Qianmen, one of the most prosperous areas in Beijing, becoming the first Western fast food restaurant to settle in China. With the continuous improvement of income level and changing of food environment, the dietary structure and dietary behaviours have changed in Beijing. The intake of grains, potatoes and beans in Beijing has decreased significantly, and animal food, oil and sugar have increased significantly. The higher intake of high salt, high fat and low fiber is contributing to the unhealthy diet and increase of obesity in Beijing.

At present, the prevalence of overweight and obesity of adults and children in Beijing has become an important problem. According to data from the six investigations of Physical Fitness and Health Surveillance of Chinese School Students (1985, 1991, 1995, 2000, 2005, 2010) and four studies on school-age children led by the Department of Epidemiology, Capital Institute of Pediatrics in Beijing (2004, 2007, 2010, 2013) since 1985 to 2012, the prevalence of obesity among male and female school-age children in Beijing has increased from 0.7% and 0.6% to 17.1% and 11.9%, an increase of 24.4 times and 19.8 times, the average annual growth rate is 13.2% and 12.2%. The obesity rate of girls remained basically unchanged from 2010 to 2013, while the rate of obesity for boys increased from 17.1% to 21.5% (Liu et al., 2014). A survey among 3-6 years-old children in 2012 showed that the prevalence of overweight was 10.74% in boys and 10.86% in girls, and the prevalence of obesity was 9.26% in boys and 3.48% in girls (Wang et al., 2017). Another survey in 2013 suggested that among preschool children aged 2-7, the overweight rate was 16.5% and the obesity rate was 28.0%, which was significantly higher than the 2006 national survey results (Wu et al., 2015).

In order to control the rising trend of childhood obesity, Beijing has taken a series of measures. In 2013, the Notice on Further Regulating the Dietary Calendars for Primary and Secondary Schools introduced a new measure: primary and secondary schools should not open commodity departments (convenience stores) inside schools, nor sell food or beverages harmful to health such as carbonated beverages, while strictly controlling and managing food such as hamburgers and instant noodles. It is reported that by 2021, more than 100 medical institutions in Beijing have carried out maternal nutrition screening interventions to prevent and control abnormal weight gain of pregnant women. Beijing took the lead in building baby friendly hospitals, baby friendly communities and children's specialised hospitals in China. In 2021, there are 111 baby friendly hospitals and 327 baby friendly communities, forming a continuous management and comprehensive promotion model of baby friendly services in hospitals, communities and families. Relevant hospital
departments conduct physical examination of children aged 0-6, promote health education focusing on healthy diet and supplementary food addition, and carry out key monitoring and personalised guidance for obese children. During the 13th Five Year Plan period, the prevalence of obesity among children aged 0-6 in Beijing decreased by more than 10%.

In 2020, the Beijing Municipal Health Commission issued the *Beijing Children and Adolescent Obesity Prevention and Control Implementation Plan*, aiming at reducing by 80% the annual increase in overweight and obesity rates of children and adolescents in Beijing by 2030. The Plan puts forward suggestions for families, schools and other institutions related to children. Parents are encouraged to help children and adolescents develop healthy eating behaviours and cultivate positive and healthy physical activity habits. At the same time, parents are encouraged to monitor the weight and growth of children and adolescents. The Plan also requires schools to integrate teaching on dietary nutrition and physical activities into kindergarten, primary and secondary schools’ education, as well as to build a healthy supporting environment suitable for children and adolescents. The Plan requires schools to offer nutritious meals and sufficient time for students to exercise. Kindergarten should ensure that children have a minimum of 2 hours of daily outdoor activity under normal weather conditions, including at least 1 hour of sports. Every day, primary and secondary school students should have at least 1 hour of moderate physical activity in schools and at least 3 hours of high-intensity exercise every week. The Plan also proposes to strengthen the responsibility of medical and health institutions, improve weight management services, strengthen government responsibility and promote the development of a supportive environment. The Plan encourages medical and health institutions to provide individualised nutrition and exercise prescriptions for overweight and obese children, as well as to introduce meal guidelines for kindergarten and primary and secondary school students.

In the future, it is hoped that the different policies and measures introduced by the government will help tackle the problem of childhood obesity in Beijing. Beijing's experience in preventing and controlling childhood obesity can also provide useful guidance to other cities in China.
3. The Way Forward

Childhood obesity control and prevention requires the engagement of government, schools, families, community and corporations, so as to create a social environment enabling effective obesity control policies. Policies to tackle childhood obesity should aim at improving the broader social environment. Education, sports and health institutions should work with families, to promote healthy diets and lifestyles.

3.1 Inclusion of Obesity Control in All Policies

It is necessary to include childhood obesity control in all policies, prioritise health and pay close attention to childhood obesity when developing socioeconomic policies. Attention to the issue should be reflected throughout policy development, delivery, analysis, as well as monitoring and evaluation. A society-wide childhood obesity strategy should be implemented and a multi-sectoral coordination mechanism be established with the involvement of all stakeholders.

Clear chains of responsibility and accountability mechanisms should be put in place for relevant organisations to play their due role and work with each other towards childhood obesity control.

3.2 Government Leadership, Multisectoral Cooperation and Public Engagement

The government should be held fundamentally responsible for childhood obesity related policy development, implementation and supervision. A working mechanism involving government leadership, multisectoral cooperation and public engagement should be established. Sound urban planning should be promoted, with well-designed transport system and safe space for people to practice physical activity. Government at all levels should coordinate with relevant stakeholders and provide contextually appropriate measures. It should also provide enough sports facilities and venues in schools, develop and manage standardised food labels, and control the advertisement of unhealthy food and beverages.

Schools should be the main avenue to control childhood obesity. Healthy lifestyle such as adequate nutrition and regular physical activity should be incorporated into schools’ curricula; health education should be developed systematically in schools; students at school should be motivated to partake in physical activity; a sound inter-personal communication environment should be created, and discrimination against obese students should be tackled to prevent psychological pressure on obese students.

Parents should become role-models who guide, support, supervise and encourage their children to take up a healthy lifestyle. Parents should promote the consumption of nutritious food and adopt healthy cooking methods to provide a balanced diet. Pregnant women should be trained on pregnancy management to gain appropriate weight during pregnancy, while seeking timely diagnosis and management of high blood glucose and hypertension.

Communities should create an enabling environment for childhood obesity control. Safe venues for games and exercise should be provided and health education should be promoted in the community. Public awareness on childhood obesity control should be improved, healthy lifestyles should be advocated, and health counselling and services should be provided. Community-based primary health care facilities should offer family-based and diversified weight management services.
Corporations, media and academic institutions should provide appropriate guidance. Aligned with relevant policies, food companies should ensure that their product lines protect and promote peoples’ health: the food industry should strengthen its corporate social responsibility and avoid misleading children’s food advertising. The government, the scientific community, and relevant social protection & welfare stakeholders can work jointly with food companies; media should tap on their influence and provide positive guidance; academic institutions can increase childhood obesity research on the biological, behavioural and environmental risk factors and determinants and can work effectively with media to disseminate relevant messages in a more intelligible manner.

3.3 Improvement of National Childhood Obesity Surveillance System

Childhood obesity surveillance system should be improved by incorporating childhood obesity into existing national surveillance systems. Specific population groups, surveillance sites, duration and indicators should be determined, and standard approaches employed to understand the evolving prevalence, trends and determinants of childhood obesity.

3.4 Three-tiered Prevention for Childhood Obesity

A three-tiered prevention and control strategy should be adopted based on the prevalence and determinants of childhood obesity in China, namely 1) general prevention, 2) targeted prevention for at-risk groups and 3) interventions for overweight and obese groups.

General prevention: health promotion theories and practices should be targeted at the entire population and help children to adopt healthy behaviours and lifestyles in order to prevent childhood obesity. Measures include policy development, building a supportive physical and social environment, promoting community engagement, raising awareness, conducting capacity building and delivering health services.

Targeted prevention: children facing higher risks of obesity in an obesogenic environment should be targeted with specific preventive measures to prevent overweight and obesity. Interventions in families and schools’ settings should be incorporated into the daily life of children prone to overweight and obesity.

Integrated prevention and control for overweight and obese individuals: schools and families should both be involved in implementing sustainable & integrated prevention and control measures. Such measures include promotion of healthy diet, physical activity and behavioural therapy. Medicines and surgeries are not recommended for such individuals and those who develop complications should seek diagnosis and treatment from clinicians.

3.5 Investment in Research on Childhood Obesity

Key research projects on childhood obesity should be initiated to strengthen applied research. In particular, research should seek guidance from a wide range of disciplines, including information technologies, biology, medical technologies and aetiology. A focus should be placed on exploring innovative techniques for childhood obesity prevention and control.
Further Readings and E-learning Materials


References


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