

Obesity in Adolescents and Young Adults in Chinese Digital Media: Individual Causes, Social Implications, and Policy Perspectives

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Recommended citation:

Chen, Peng (2024). "Obesity in Adolescents and Young Adults in Chinese Digital Media: Individual Causes, Social Implications, and Policy Perspectives". *Profesional de la información*, v. 33, n. 3, e330320.

<https://doi.org/10.3145/epi.2024.ene.0320>

Manuscript received on 6th October 2023

Accepted on 14th February 2024



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Abstract

This study explores the impact of digital media on the increasing rates of obesity among adolescents and young adults in China. The increasing prevalence of obesity in this demographic has raised concerns about the role of digital media in promoting sedentary behaviors and unhealthy eating habits. Analyzing reasons at personal and social levels, this research aims to elucidate the link between obesity and consumption of digital media. The data was retrieved from national surveys like CHNS and the CNSSCH, which track obesity patterns over time and highlight new tendencies. Strong association between screen time and obesity rates indicates that bad eating habits and indolent behavior in digital media. As average body mass indices rise from 18.2 kg/m² in 1985 to 19.0 kg/m² in 2005, the prevalence of overweight and obesity among Chinese young has drastically raised over the past three decades. The prevalence of overweight and obesity in children aged 7-18 years increased from 1.1% in 1985 to 12.1% and 7.3%, respectively, in 2014. Regional disparities were also noted, with the highest obesity rates observed in urban areas and among males aged 8-13 years. This study is important since it could greatly affect public health policy and educational programs. If authorities intend to reduce the obesity incidence among young Chinese young people and create more successful programs to support good living choices, they must have a greater awareness of the link between digital media and obesity. Still, the study had certain limitations. It depends on already-existing survey data, for example, which might not be reflective of every local trend and behavior. Future research should consider geographical variances and longitudinal investigations.

Keywords: CHNS (China Health and Nutrition Survey), CNSSCH (China National Survey on Students' Constitution and Health), Digital Media, Obesity.

1. Introduction

China's fast urbanization and economic growth have been linked, according to **Song et al.** (2019), to an increase in childhood obesity and a drop in stunting and underweight children. Among Chinese children and teenagers, obesity has been on the rise rather lately. Using Chinese criteria specified by the Working Group on Obesity, obesity in children and teens (7–18 years old) rose from 0.1% in 1985 to 7.3% in 2014 and from 6.4% using World Health Organization standards (**Dong et al.**, 2019). Obesity is thus becoming more and more important as a result of the several health problems it causes to children, including diabetes, heart disease, and NAFLD (**Zou et al.**, 2022). Since obese children are more likely to keep obese phenotypes as adults (**Zhang et al.**, 2023), timely observation of the obesity condition in children and teenagers is absolutely vital. Many national studies have been conducted in an aim to dynamically monitor pediatric



obesity and overweight utilizing several approaches. Obesity had also been much affected by the 2019 coronavirus epidemic (COVID-19). **Yang et al.** (2022) claim that during the COVID-19 epidemic, obesity had become shockingly more common among young Chinese people.

Currently, the mass media, especially the several kinds of online communication, is among the most crucial foundations of modern information society. Most people's daily schedules nowadays center on television and other screen-based technologies. Given their increasing consumption, further study is needed on the possible detrimental effects of electronic media on human health (**Qiu et al.**, 2021; **Valeriani et al.**, 2021). Although the belief that consumption of digital media promotes inactive behaviors and unhealthy eating habits pushes, little is known about the precise impact of this consumption on the obesity trends. Designing focused treatments capable to significantly reduce health hazards depends on knowing the connection between digital media and obesity (**Zhang**, 2023). The main focus of this study, therefore, was the relationship between digital media and the childhood and teenage obesity in China. This study aimed to establish personal, and community causes of this predisposition as well as develop solutions. We methodically collated the data of national surveys and the most recent studies on the incidence of overweight and obesity among young people in China to bring the trend in weight, height, gender, and location up-to-current. It was found that the rising rate of childhood obesity in China gravely compromised public health even if the country was achieving great technological development.

This study intends to close a significant information gap and give health policy and education stakeholders practical insights by means of analysis of these interactions. This type of study shows how much young people's decisions about their personal life in China are shaped by digital media. The results can help the development of programs meant to support better practices, hence lowering obesity rates and improving public health.

2. Literature Review

High and rising prevalence of overweight and obesity among adolescents has become an important global public health issue. Adolescents who suffer from obesity are more likely than those who maintain a normal weight to experience poor health during their adolescence and into adulthood (**Flodgren et al.**, 2020). In 2020, the Centers for Disease Control and Prevention in the United States predict that over 50% of youths will suffer from obesity. Obesity is a recognized primary risk factor for adult cancer, diabetes, hypertension, cardiovascular deaths and morbidity, and other adverse cardiometabolic abnormalities (**Horesh et al.**, 2021). Overweight and obesity are defined by the WHO as an excessive or unusual accumulation of fat that poses a health concern. Screening methods for epidemiology and ordinary clinical practice typically consist of basic anthropometric parameters. In children and adolescents, body mass index is employed as an indirect indicator of body fatness. Population growth references that have been adjusted for gender and age should be compared with body mass index data (**Jebeile et al.**, 2022). Children of all ages are impacted by the complicated problem of obesity. One-third of children and teenagers are considered overweight or obese. Obesity is the result of complex interactions among biological, developmental, behavioral, inherited, and external variables; there is no one factor that is solely to blame for this epidemic (**Kansra et al.**, 2021).

News outlets are more inclined than scientific publications to overstate research findings about obesity and emphasize individual accountability for obesity. The manner in which the news media presents obesity can influence how the public views and reacts to this health issue. Further, China's obesity rate (6.2 percent) is comparatively lower than that of wealthy nations like the United States (36 percent) and the United Kingdom (27 percent). More research is needed on a description and phrasing of obesity in Chinese periodicals (**Sun et al.**, 2021; **Haugen**, 2022). According to reports from China, the EU, and the United States, children and adolescents gained more weight during the COVID-19 pandemic than they did prior to it. This increase in weight gain has been linked to a number of factors, including a reduction in physical activity, increased screen time, modifications to the diet, inadequate nutrition, and higher levels of stress in families and individuals (**Jebeile et al.**, 2022). According to **Wang and Zhang** (2024), there is evidence that youngsters in rural areas are becoming more obese. According to the 2015 China Nutrition and Chronic Diseases Report, there is a bigger difference between the rates of overweight and obesity in rural and urban children aged 6 to 17 than there was in 2002. In 2015, children in rural areas had a 24 % rate of moderate obesity or greater, while children in urban areas had a 13.58% rate. According to the 2020 China Children's Development Report, trends in overweight and obesity among youngsters in urban and the rural areas between 2010 and 2019 were more apparent in the latter (**Wang; Zhang**, 2024; **Brockman; Belmadi**, 2023).

2.1. Individual Causes of Obesity

Understanding the causes and determinants of obesity is essential to devising effective policies and feasible prevention strategies. Obesity is not a simple issue; rather, it is a complicated health problem with multiple contributing variables, including learned behaviors and genetics, as well as significant causes, such as poor sociocultural or cultural dietary habits and food insecurity (**Safaei et al.**, 2021; **Nical; Sikora**, 2022). Dietary patterns include the amounts, ratios, combinations, and variations of various meals, drinks, and nutrients in diets, as well as how frequently they are typically consumed (**English et al.**, 2021). Significant alterations in nutritional composition, such as variations in energy, protein, carbohydrates,

and fat consumption trends that may be linked to cardiometabolic problems, can result from dietary practices and related activities (Bu *et al.*, 2021). Obesity raises the risk of illness and death as well as lowers quality of life in relation to mental and physical fitness. The foundation of interdisciplinary obesity management is physical activity (Baillot *et al.*, 2021; Wang; Zhang, 2023). According to Elagizi *et al.* (2020), to achieve clinically meaningful weight pounds, 225–420 minutes of exercise per week are recommended by the American College of Sports Medicine. Individuals who engage in either a dietary intervention combined with a physical activity program or an isolated dietary intervention drop more body weight than those who exercise alone.

Digital devices, when utilized in an accountable, secure, and healthy manner, can also help this demographic achieve positive evidence-based results. For instance, both conventional and new media can advance fresh concepts and information, boost social networking and support, provide access to health-related messaging and data, and encourage participatory athletic engagement. Oh *et al.* (2022) owing to the exponential rise in social media use over the past ten years, health and nutrition experts, as well as government and non-government health organizations, attempt to use social media to encourage young adults to create nutritious meals and engage in dietary-related practices (Rounsefell *et al.*, 2020; Wei, 2022; Alhassan; Al Doghan, 2022).

2.2. Social Implications

The initial approach of people towards health and well-being is indicated in lifestyle counseling, which may be an effective means of treating obesity and minimizing health costs associated with obesity by encouraging healthy behaviors like exercise and a balanced diet. In order to follow their treatment plans and achieve permanent lifestyle changes, patients must acquire certain self-management skills. Though they have not been fully investigated, internet-based interventions are a promising approach to encouraging healthy lifestyle choices. They hold great promise for providing electronic health therapies in scalable and affordable ways (Lisón *et al.*, 2020). According to Chung *et al.* (2021), adolescent social circles have been shown to affect people's eating habits and other health-related activities. Social influences on eating behaviors may be supported by cultural standards as well as actual and perceived social support. One's relationship with food may be shaped by their peer groups and the kindness and intensity of their peer influence. Social pressure on dietary habits can come from social media as well as in-person interactions. Applications for nutrition intervention, such as Food Hero and social media platforms, have shown promise in helping young adults become more knowledgeable, conscious, and motivated.

The prevalence of childhood obesity is higher in many ethnic and cultural minority groups, and their early life behavioral risk factors differ. Disparities in the prevalence of childhood obesity can be attributed to cultural beliefs, practices, and acculturation following migration. Environmental and structural elements are also relevant. Customary diets and feeding customs could avert the development of obesity. An intervention's "cultural adaptation" describes changes taken to make it more appropriate for a new target group while taking context, language, and culture into account. Culturally sensitive health promotion programs that encourage physical exercise and a healthy diet tend to target adults more than children under five (Marshall *et al.*, 2021; Jiang *et al.*, 2023). According to Swierad *et al.* (2020), reassessing a one-size-fits-all approach to obesity is necessary in view of the growing differences in pediatric obesity trends. Additionally, current methods of obesity prevention and treatment should take sociocultural nuances into account. The ideal child weight, the way children perceive their bodies, the ways in which children are fed, the extent and types of encounters with food marketing, the possibilities and choices for physical activity, the use of health services, and many other factors are just a few of the ways that culture affects obesity.

2.4. Policy Perspectives

Government policies are declarations of the status, purpose, and program of action of the government, as well as an overall strategy of conduct to be implemented by the government, party or individual. One specific kind of health policy that seeks to improve population health is obesity policy. The goal of obesity policy is to improve population health through a specific kind of health policy. Public health and health care are the two primary focuses of health policy. While the latter is focused on the public's health promotion, life extension, and illness prevention through coordinated societal activities, the former is focused on medical services systems and personalized therapy. Public health policy encourages the incorporation of health across all sectors and policy areas, acknowledging that factors other than an individual's actions, such as social and economic circumstances, influence health outcomes (Theis; White, 2021; Hoa *et al.*, 2024).

Certain types of policies, such as those that alter obesogenic surroundings, have the potential to prevent and reduce obesity. By using attribution theory and disseminating information on how the environment affects obesity, strategies aimed at reducing obesity can gain more support. For instance, they conveyed a message that included claims about how the low cost and wide availability of bad foods lead to obesity (Reynolds *et al.*, 2020; Hussein, 2022). China has been implementing governmental policies and programs linked to obesity since 1949. The programs fall into various distinct groups: Educational institutions nutrition initiatives like Chinese Student Nutrition Day; school-based nutrition support initiatives like National Nutrition Campus Program, Student Nutrition Improvement Action, and Well-being Children Implementation Strategy; extensive programs like National Healthy Habits Action and the three deductions and three health-promoting measures (i.e., the sugar, oil, and salt diminution, maintaining a balanced weight, healthy oral cavity, and healthy bones) encouraging physical activity (Wang *et al.*, 2021; Khan *et al.*, 2023).

3. Method

This study relied on assessment reports of national surveys to determine young people's obesity rates in China and what elements affect them. This study aimed to find the relationship between the rising obesity rates of this demographic and their consumption of digital media by means of data from large-scale surveys. Among the research materials were the China Health and Nutrition Survey (CHNS) and the Chinese National Survey on Students' Constitution and Health (CNSSCH) (Zhen *et al.*, 2018; Chinese National SSCH Association, 2000). These surveys expose demographic trends, lifestyle choices, and health consequences that aid to clarify the rising frequency of overweight and obesity among China's young population all around (Yang *et al.*, 2020).

Beyond demographic information about age, gender, and location, lifestyle factors included food choices, degrees of physical activity, and use of digital media. This study aimed to evaluate, using average daily screen time and kinds of digital content consumed, the correlation between digital media exposure and obesity prevalence. Examining how often and what sorts of food commercials people view online, the study also looked at how digital media impacts people's eating habits. The study also took into account information on the participants' awareness of the health hazards related to obesity and their involvement in activities supporting preventive medicine. The data was investigated using statistical instruments in an attempt to spot trends and correlations between obesity incidence and digital media use. The demographic distribution of obesity rates was examined using descriptive statistics, to probe the links between digital media consumption, lifestyle choices, and obesity outcomes. The study included additional relevant factors, variations in obesity rates depending on geography and gender, and socioeconomic level on lifestyle choices. The study examined changes over time and found new trends, comparatively to CNSSCH and CHNS historical data. This strategy provides a full picture of the numerous factors generating this public health problem, thereby defining the impact of digital media on health behaviors and policy recommendations to battle teenage obesity in China.

4. Results

For the past thirty years, overweight and obesity have been on an increase among Chinese young adults based on various national survey-based studies. Between 1985 and 1995, 18.2 kg/m² was the average BMI for children and teenagers (7–18 years old) based on CNSSCH statistics. In 2005, the average BMI came at 19.0 kg/m². Consistent with CNSSCH data spanning many years, the rates of overweight and obesity were 1.1% in 1985 and 12.1% and 7.3% in 2014 correspondingly. Both the CNNS and the CHNS show that for decades overweight and obese children and teenagers have been on an increase (Hong *et al.*, 2023). A study has been done to make these data current in younger generations so improving preventive and management.

4.1. Fluctuations with Age, Gender and Region

According to national research, rates of overweight and obesity have been rising among those between the ages of 6 and 18 years. From 6.5% to 16.1%, the percentage of overweight children increased in one CHNS study spanning 1991 to 2004. Likewise, throughout the same period, the percentage of overweight children aged 12 to 18 years changed from 3.3% to 6.2%. In 2010, 17.14% of elementary school students (those in grades 7–12), 13.11% of middle school students (those in grades 13–15), and 10.88% of high school students (those in grades 16–18) were overweight or obese according to CHSSCH surveys (Zhang *et al.*, 2018; Hong *et al.*, 2023). It shows that for these three groups growing to 22.5%, 17.3%, and 15.4%, respectively.

Children aged 8 to 13 years had the highest prevalence of obesity based on the most current Prevalence and Risk Factors for Obesity and Diabetes in Youth (PRODY) study. From four different cities or provinces spread over three different sections of China, a total of 14,597 pairs of young people ranging in age from 6 to 15 years were explored. The PRODY study revealed a steady rise in overweight among boys between the ages of 13 and 19; the spike between 8 and 11 years old was also especially high. However, different areas have different patterns that is shown in Table 1.

Table1: Fluctuations in the Overweight, Obesity and BMI, in Chinese Children from 2009 to 2019 (Yuan *et al.*, 2021).

Areas	Total	North (Beijing & Tianjin)	East (Zhejiang)	South (Guangxi)
BMI SDS	No differences (P=0.16)	No differences (P<0.01)	Increase (P<0.05)	Decrease (P<0.05)
Overweight	Increase 2 % (P<0.05)	Increase 2.3%	Increase 3.8% (P<0.01)	Decrease 1.9% (P<0.05)
Obesity	No differences (P=0.06)	No differences (P<0.01)	Increase 3.1% (P<0.01)	No differences (P=0.01)

Men are more often than women either overweight or obese. National surveys done numerous times confirmed significant gender differences that persisted across age groups, geographical areas, and socioeconomic levels. Still, the PRODY study conducted in eastern and northern China particularly noted that between 2017 and 2019, the obesity prevalence was higher in boys than in girls (Jia *et al.*, 2019). Based on the PRODY study, which tracked data between 2009 and 2019, the frequency of overweight and obesity in boys increased by 2.5% and 1.8%, respectively. Still, compared, there were reduced average yearly. The obesity prevalence among girls declined 0.9% in the same decade and raised 1.5% in the overweight prevalence while annual growth was less.

According to national surveys conducted in China, young people living in urban rather than rural environments have more overweight and obesity. CNNS claims that 12.9% and 8.9% in large cities; 10.4% and 7.8% in medium-sized and small cities; 8.9% and 5.6% in common villages; and 7.6% and 4.2% in poor villages, respectively, of children and

adolescents aged 7–18 years, as shown in Table 2. Rural and urban areas both displayed increasing trends. From 0.2% in 1985 to 8.1% the prevalence of obesity among Chinese urban youngsters rise (**Guo et al.**, 2019).

Table 2: Urban vs Rural Prevalence.

Location	Overweight (%)	Obesity (%)
Large Cities	12.9%	8.9%
Medium & Small Cities	10.4%	7.8%
Common Villages	8.9%	5.6%
Poor Villages	7.6%	4.2%

About the consequences of digital media, the findings highlight the growing obesity and overweight problem among young Chinese people. The abundance of digital platforms in daily life is producing behavioral changes that result in overweight proportions of young people. Important personal factors causing the rise in obesity are inactive activities connected to prolonged use of digital media, such gaming and screen time. To make matters worse, the ubiquitous presence of digital media impacts eating behaviors by means of tailored advertising and the acceptance of unhealthy food selections. The general acceptance of sedentary lifestyles and poor eating habits on digital platforms has broad social consequences. This normalization's impact on peer interactions and viewpoints could cause rising rates of obesity among young adults. Legislators should try to increase digital literacy, promote physical exercise using digital means, and control advertising targeted at children and young people in view of these issues. Working together, legislators, teachers, and technology corporations will enable us to carry out these concepts and minimize the negative impact of digital media on obesity among young adults, ultimately fostering healthier lifestyles and environments in a digitally driven society.

5. Discussion

Examining such explanations is vital since a new picture of the obesity and overweight among Chinese adults and teenagers will direct the creation of suitable policies. Using a bio-socio-ecological framework including national policy, social environment, personal lifestyle, and genetic characteristics, **Wang et al.** (2021) assert that the changing frequency may be illustrated. One can likewise implement a comparable network among the Chinese people. The incidence of obesity and overweight has numerous causes; some of them are more direct than others. By themselves, trade liberalization and globalization help to provide the enormous diversity of food options. According to the CNSSCH study (**Dong et al.**, 2019), child obesity appears to be lower when Chinese economy is growing together with improved diet. Western tastes failing in China and fast-food expose overnutrition and bad cuisine easily available. Population health and government policy have numerous kinds of correlation. Evidence suggests that children without siblings are more prone to develop overweight or obesity; hence, the one-child limit proved successful from 1979 to 2015 (**Min et al.**, 2020). Moreover, even after the epidemic began, the government did not provide recommendations on how to bring down the increasing rates of childhood obesity until 2007. Adults looked at weight-related issues and various points of view on social media; then, they produced and distributed tools to start community dialogues. These projects helped students to better use digital technologies to generate opinions on social media, thereby improving their digital literacy and sense of agency in their own learning (**Papaioannou**, 2021).

The findings of this study support those of previous ones showing that in China childhood obesity and overweight have lately leveled off (**Moliterno et al.**, 2024; **Wei et al.**, 2024). Though the worldwide age-standardized prevalence of obesity ranges from 0.799% for girls and 0.95% for boys, to 5.5% and 7.6%, respectively, there is a noteworthy higher mean body mass index (**O'Reilly; NCD Risk Factor Collaboration**, 2019). While obesity among children between the ages of 12 and 19 is still increasing, some studies based on nationwide surveys found that the prevalence of obesity in American children under the age of 11 kept constant or even fell. Although **Skinner et al.** (2018) found no change in the prevalence of obesity in children aged 2–19, there is contradicting evidence indicating a notable rise among children aged 2–5.

The findings of this study also help to clarify the complex combination of factors causing the rising obesity incidence among Chinese young people. The emergence of digital media is among the most significant factors since it leads people to be less active and adopt unhealthy diets (**Al Kubaisi**, 2023). Teenagers and young adults are losing activity as they spend more time in front of screens for diverse objectives. This is mostly responsible for obesity since a combination of bad eating patterns and inactivity can dramatically increase body mass index (BMI) over time. This tendency matches world trends since less exercise and poor eating habits arise from greater time spent in front of screens (**Górnicka et al.**, 2020). Sometimes targeted ads and influencer marketing in digital media serve to normalize lazy lives and bad eating habits. China's fast embrace of technology and the internet fits comparable global trends; digital platforms greatly influence consumer decisions in lifestyle. In China, financial and cultural aspects also contribute to define these actions. Fast-food consumption and Western eating patterns which in turn have made nutrient-poor foods more accessible have come from globalization and economic development. Therefore, the study underlines the need of policies that target the impact of digital media on adolescent habits and promote healthier, more active lifestyles in order to fight the growing obesity epidemic.

5.1. Implications

Given China's disturbingly high rates of children and teenage obesity, public health policy and intervention initiatives have great

ramifications from this study. The results underscore the whole need of steps to reduce the detrimental effects of media consumption on exercise and healthy living. Analyzing how digital platforms influence lifestyle decisions and developing tailored legislation helps lawmakers promote digital literacy and improved behaviors. To combat the easy access to negative content, public health campaigns may, for instance, use digital media to spread advised good diet and activity practices. The study goes on to say that government oversight of digital ads especially those aimed at young people may help stop the normalizing of bad diet and lack of movement. Furthermore, advocated is the inclusion of educational initiatives involving physical activity and proper nutrition into school curricula to motivate long-lasting behavioral modification in young people.

5.2. Limitations and Future Research

Though this study has several limitations, generally it helps to explain the causes of childhood obesity in China. First, the reliance on existing national survey data may not capture all nuances of the local contexts and emerging trends thus these numbers could ignore some subtleties of local settings and new trends. Furthermore, the cross-sectional structure of the data makes it challenging to find a cause-and-effect relationship between obesity and usage of digital media. If it is to better grasp the changing factors affecting obesity, future research should take into account doing longitudinal studies. Moreover, the study could not take into account regional variations and socioeconomic status as possible moderating factors to better understand obesity patterns inside demographic groups. Particularly in the sphere of creating digital interventions catered to the needs of different types of young people, more research is required on the favorable uses of digital media to support good behaviors.

Acknowledgement

Key project of the Ministry of Education in the “14th Five-Year Plan” of National Education Science in 2021: The phased research results of “a study on the influencing factors and regulating mechanism of Primary school teachers' choice of responsible behavior” (Project Number: DEA210328).

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