



Peer effects on childhood and adolescent obesity in China



Peng NIE^{a,*}, Alfonso SOUSA-POZA^{a,d}, Xiaobo HE^{b,c}

^a Institute for Health Care & Public Management, University of Hohenheim, 70599 Stuttgart, Germany

^b School of International Economics and Trade, Shanghai Finance University, China

^c Global Food Studies, Faculty of the Professions, University of Adelaide, Australia

^d IZA, Germany

ARTICLE INFO

Article history:

Received 8 April 2015

Received in revised form 12 June 2015

Accepted 17 June 2015

Available online 24 June 2015

JEL classification:

I10

I15

J13

C14

Keywords:

Peer effects

Children and adolescents

BMI

China

ABSTRACT

Using data from the China Health and Nutrition Survey (CHNS), this study analyzes peer effects on obesity in a sample of 3- to 18-year-old children and adolescents in China. Even after a rich set of covariates and unobserved individual heterogeneity are controlled for, it is evident that such peer effects do indeed exist. These effects are stronger in rural areas, among individuals at the upper end of the BMI distribution, and especially among females. All else being equal, female adolescents whose peers have a higher BMI are less likely to consider themselves overweight, suggesting that peer effects may be working through changed societal bodyweight norms.

© 2015 Elsevier Inc. All rights reserved.

1. Introduction

Obesity is a global public health concern not only for Western countries but also for emerging countries like China (Cheng, 2012). In China, obesity among children and adolescents is increasing sharply, with a quadrupling of obesity and a 28 fold increase in overweight among 7- to 18-year-olds within just 15 years (1985–2000) (Lenton, 2008). The prevalence of abdominal obesity in children and adolescents aged 6–17 years has also increased dramatically (Liang, Xi, Song, Liu, & Mi, 2012): based on the International Obesity Task Force (IOTF) criterion, general obesity and overweight increased from 6.1% in 1993 to 13.1% in 2009 while abdominal obesity increased from 4.9% to 11.7% over the same period. Child and adolescent adiposity is even worse in some metropolitan cities like Beijing where, according to China's Working Group on Obesity (WGO), 21.7% of 2- to 18 years-olds were obese in 2004 (cited in Shan et al., 2010).

A large body of literature explores possible explanations for this rapid increase in childhood and adolescent obesity, including individual, social, economic, and environmental factors (De la Haye, Robins, Mohr, & Wilson, 2011). One recent research stream examines the role of social networks on weight outcomes (see, e.g., Christakis & Fowler, 2007; Cohen-Cole & Fletcher, 2008), emphasizing the important role of peers in influencing the bodyweight of both adolescents and adults. Understanding such peer effects has particularly important implications for public policy design and interventions, primarily because, if peer effects do indeed exist, then

* Corresponding author. Tel.: +49 711 459 23423; fax: +49 711 459 23953.

E-mail addresses: Peng_Nie@uni-hohenheim.de (P. Nie), alfonso.sousa-poza@uni-hohenheim.de (A. Sousa-Poza), xiaobo.he@adelaide.edu.au (X. He).

preventing obesity in one individual could have a beneficial effect on others. That is, spillovers associated with social networks lead to a social multiplier effect (Christakis & Fowler, 2007).

This paper investigates whether similar peer effects on bodyweight exist in a sample of 3- to 18-year-old children and adolescents in China. In doing so it fills three research gaps. First, unlike the existing literature on peer effects and obesity, which is strongly dominated by research from the United States, it expands empirical investigation beyond the Western world. Such expansion is important because peer effects may well be influenced by culture, with individualistic societies being possibly less susceptible to peer effects than more collective societies (Gwozdz et al., 2015; Mora & Gil, 2013). Whereas Western cultures like the U.S. highlight individualism, self-autonomy, competition, and the significance of individual possessions, eastern ones like China are prone to foster co-operation, community, dependence, and relatedness (Gonzalez-Mena, 1993). In addition, Chinese children are more strongly socialized than American children, making them more likely to be vulnerable to others' opinions, judgments, and evaluations (Fung, 1999). Differences may therefore be expected between peer effects on individual weight in Western environments like the U.S. and those in Asian environments like China. Yet to the best of our knowledge, our paper is the first to analyze peer effects on childhood and adolescent weight in rural and urban China.

Second, it broadens the almost exclusive current focus on adolescents and adults by analyzing children as well. This lack of research on the young is surprising given the wide recognition in the consumer science literature that young children's consumption decisions are affected by those of their peers (Dishion & Tipsord, 2011). If such peer effects do exist, they could be especially important in that eating habits are formed at a young age (Kelder, Klepp, & Lytle, 1994; Schwartz, Chase, Oppezzo, & Chin, 2011). Third, by allowing us to assess whether a relation exists between peer obesity and individual perceptions of weight status, our data enable closer examination than in prior studies of the mechanisms through which peer effects might work. There is only limited evidence in some Western countries on how weight perceptions are influenced by peers (Ali, Amialchuk, & Renna, 2011; Blanchflower, Landeghem, & Oswald, 2009; Gwozdz et al., 2015; Maximova et al., 2008).

Overall, our results show not only that peer effects exist among Chinese children and adolescents aged 3 to 18 years but that such effects are stronger among females than among males, in rural than in urban areas, and among individuals at the upper end of the BMI distribution. Our results also support the notion that peer BMI affects individual bodyweight perceptions.

The remainder of the paper proceeds as follows: Section 2 reviews the relevant literature. Section 3 describes the identification issues for peer effects, our identification strategy, and our analysis of underlying mechanisms. Section 4 outlines the data and methods. Section 5 reports the results of the empirical analysis and robustness checks, and Section 6 concludes the paper.

2. Prior research

The relevant studies analyzing peer effects on obesity are listed in Table 1. The seminal study by Christakis & Fowler (2007) confirms the existence of a social-network multiplier effect. Using data from the 32-year Framingham Health Study (1971 to 2003), they show that adults are 57% more likely to be obese if their friends become obese. Several other studies based on the National Longitudinal Study of Adolescent Health (Add Health) dataset also reveal a positive association between peer effects and adolescent obesity (Cohen-Cole & Fletcher, 2008; Fowler & Christakis, 2008; Halliday & Kwak, 2009; Renna, Grafova, & Thakur, 2008; Trogdon, Nonnemaker, & Pais, 2008; Yang & Huang, 2013). On the other hand, when Cohen-Cole and Fletcher (2008) use the Add Health data to replicate the findings of Christakis and Fowler (2007), their results, although they do not rule out the possibility of peer effects, suggest that community-level factors can explain a large share of the peer effect. The authors also argue that "shared environmental factors can cause the appearance of social network effects" (Cohen-Cole & Fletcher, 2008, p. 1386). Fowler and Christakis (2008), however, in a rebuttal of this study also based on Add Health data, provide further evidence for the existence of peer effects.

Renna et al. (2008) show that a higher BMI in close friends is associated with higher adolescent BMI, and adolescents are more responsive to the body weight of their same gender friends. This observation is confirmed for the U.S. by Larson et al. (2013), whose analysis of the 2010 Eating and Activity in Teens (EAT) survey in Minnesota suggests that the proportion of overweight friends is correlated with higher adolescent BMI.¹ Likewise, Halliday and Kwak (2009), using Add Health data, confirm a strong correlation between peer and individual BMI, while Trogdon et al. (2008), in a study of same-grade school peer groups, show that peer effects on adolescent weight do exist and are stronger for both individuals with a higher BMI and for females.

Another perspective is offered by Yang and Huang (2013), whose examination of asymmetric peer effects on individual weight indicates that although individual weight gain is associated with having more friends that are obese, weight loss is not correlated with having fewer obese friends. The existence of persistent peer effects on individual weight outcomes is further confirmed by the study of Ali, Amialchuk, Gao, and Heiland (2012) on the peers' dynamic effects on adolescent weight, which also shows that they lead to individual weight gain. The only study that we are aware of that provides causal evidence is that of Yakusheva et al. (2014) that uses a sample of first-year college students.

As Table 1 suggests, we know of only a handful of studies on this topic outside the U.S. Among these, Leatherdale and Papadakis (2011), using cross-sectional data from the Physical Activity Module (PAM) of the School Health Action, Planning, and Evaluation System (SHAPES) in Ontario, Canada, confirm that the likelihood of overweight or obesity for junior students (grades 9 and 10) is significantly influenced by the prevalence of obesity among senior students (grades 11 and 12). Likewise, Mora and Gil (2013), using a sample of secondary school students in Catalonia, Spain, identify a positive and significant casual effect of friend's mean BMI on an

¹ The Eating and Activity in Teens (EAT) survey polls 2793 adolescent respondents (with an average age of 14.4 years), approximately 46% of whom are in middle school and about 54% in high school (see Larson et al., 2013).

Download English Version:

<https://daneshyari.com/en/article/5047479>

Download Persian Version:

<https://daneshyari.com/article/5047479>

[Daneshyari.com](https://daneshyari.com)