

The Relationship of Social Economic Status and Obesity Among Adolescents

Zhaoyang Xie^{1,a,*}

¹*School of Psychology and Cognitive Science, East China Normal University, Shanghai, 200062, China,*

a. 71213200023@stu.ecnu.edu.cn

**corresponding author*

Abstract: This paper discusses the impact on adolescent obesity from the perspectives of subjective social economic status (SSES) and objective social economic status (OSES). It is found that both types of social economic statuses were negatively associated with obesity, which is mean that higher social economic status (SES) is a protective factor of obesity. By reviewing previous relevant literature, this paper further found that: (1) External environment (e.g., community) and personal SES can interacted predict the obesity; (2) Childhood social economic status may lead to obesity by affecting cognitive function; (3) Life history theory and energy balance theory can explain the association between subjective social economic status and obesity. There is a certain difference between SSES and OSES, and it is recommended both of them need to be used at the same time in one research. Further research is needed on the underlying mechanisms of social economic status and obesity, as well as longitudinal research and intervention experiments. This paper provides methods and reference for researchers to understand the association between obesity and two types of social economic status among adolescents.

Keywords: subject social economic status, object social economic status, obesity, adolescents

1. Introduction

Obesity are the major causes of death and disability worldwide. More and more teenagers are also facing the problem of obesity. In 2016, the World Health Organization reported a 6.8% obesity prevalence among children and adolescents, up from 2.9% in 2000 [1]. A common way of measuring obesity is by measuring one's body mass index (BMI), and generally individual are obesity if BMI over 30kg/m². It is important for individual to pay attention to the obesity problem among adolescents. Children are at serious risk for obesity not only because of its effects on the body, but also because of its risks to their health and the quality of their lives. Therefore, exploring the influencing factors of obesity in adolescents can better help individual find appropriate prevention and intervention measures.

Social economic status (SES), refers to the wealth, power and relative social status held by an individual or family. In addition, generally social economic status can be divided into subjective social economic status (SSES) and objective social economic status (OSES). OSES is mainly assessed through some specific and objective indicators, such as the level of education of individual has

received, the occupational status, as well as the income and so on. SSES reflects a person's perception of one's own social economic status or rank of social economic status relative to others. Childhood obesity is closely related to both types of social economic status, according to a large number of studies [2]. In the areas with lower objective social economic status, people may have higher obesity percentage because of the problems, like more junk food and fewer fitness facilities. And people with lower subjective social economic status could have more unhealthy behaviors, such as eating a lot of high-calorie foods, which is one of the causes of obesity.

However, the social economic status used in many articles is only one specific type of subjective social economic status or objective social economic status. But there are differences between subjective judgment results and the objective evaluation criteria of SES. Some scholars suggest that the research should discuss the above two types of social economic status at the same time [3]. Therefore, this paper's purpose is to discuss the association between two socioeconomic statuses and the obesity epidemic among adolescents at the same time. In addition, this paper will review some mediators and moderators of social economic status and adolescent obesity from other researches. This paper helps individuals understand how social economic status affects adolescent obesity. It is kind of helpful to other researchers for prevention and adjustment. To sum up, this paper will first briefly discuss obesity definitions and some effects of adolescents' objective social economic status and subjective social economic status, then make some inferences about their internal mechanisms. Finally, it will summarize the limitations of the current researches and provide some prospects.

2. Obesity and Adolescence

Due to cultural, dietary and ethnic differences, the definitions of obesity vary from East to West. The body mass index (BMI) is calculated by dividing the weight by the height squared. Adults reach the standard of obesity if BMI over the 30kg/m^2 . However, for special groups such as teenagers, other methods need to be considered. Subjects below the 5th percentile were considered underweight, normal weight was below the 85th percentile, overweight was between the 85th and 95th percentiles, and obesity was above the 95th percentile. Therefore, subjects who are overweight and obese should be above the 85th percentile [4].

Adolescence is a critical stage in the development of an individual's life [5]. Due to the particularity of this period, research on the physical and mental development of adolescents is particularly necessary. Adolescents develop rapidly physically, while their psychological development is slower, thus their physical and mental development is unbalanced. Adolescents may be more sensitive to the opinions of others, begin to pay attention to their own appearance, and be emotionally unstable. The obesity prevalence has been increasing in recent years among the adolescence. Obesity in adolescents is not conducive to physical development, and obesity may cause some cardiovascular diseases. Moreover, adolescent obesity may have an impact on mental health. If during this period due to overweight or obesity, they are negatively evaluated by other classmates, and individuals may have negative emotions such as low self-esteem.

3. Obesity and Social Economic Status

3.1. Obesity and Objective Social Economic Status

3.1.1. The Association between OSES and Obesity

OSES is usually assessed by the indicators like educational level, occupation and income. Obesity has been found to be negatively correlated with objective social economic status in a number of studies [4]. In a same school, teenagers with low-SES were more likely to be obese than those with high-SES. In addition, studies also revealed that social economic status in childhood can also

negatively predict obesity [6]. These phenomena all indicate that objective social economic status is very significant indicator of obesity.

3.1.2. Internal Mechanism: Obesity and OSES

The living environment could partly explain the phenomena. Objective social economic status is often related to family education level and family income level. This means that adolescents with high objective social economic level have more opportunities to be exposed to information about health, and are also being able to select a diet that is low in fat and high in nutrition, and even enjoy better medical conditions. In addition, many research shows that the SES of living environment and SES of individual can interacted predict the obesity. Individual with high-SES living in high-end residential areas, they are less likely to be obese than those with lower incomes in the same region [7]. Another research shows that high-SES students have greater risk in low-SES school [4]. The interaction effect also can be found in the developed country and developing country, Low SES is risk factor for obesity in the developed country but is protective factor in developing country [8]. The studies above have proven that the living environments (like community and school) are crucial for the relationship between obesity and objective social economic status [4,7-8]. The same results may be found in other living environments for teens.

Cognitive function is another factor should be considered. Low objective social economic status could influence the cognitive function, especially for the childhood SES. With different growth environments, even peers with the same level of social economic status, they may also have some differences in psychological and physiological aspects due to different social and economic status in childhood. According to some studies, lower childhood social economic status is associated with more significant maladaptive schemes, cognitive impairments, as well as lower positive schemes [9], and these factors might lead to the problem behavior like overeating. Some researchers have also explored the impact of childhood social economic status on executive function. The results show that high stress childhood environment (poor economic status and high unpredictability in childhood) can lead to people's overriding dominant responses worse [10]. Resisting the temptation of unhealthy food and not overeating are related to our inhibitory function, and lower childhood social economic status can affect our inhibitory function. The social economic status of adolescents and children may be positively correlated to executive function, which is the process of conscious control over individual thoughts and actions, indicating that the higher the social economic status of children, the stronger the control ability may be, so that individual can strictly control the quantity and quality of food while eating and stay away from obesity. In the above researches, the subjects are adults instead of teenagers, however, puberty is the intermediate stage between childhood and adulthood. During adolescence, cognitive function is closely associated with social economic status and obesity.

3.2. Obesity and Subjective social economic status

3.2.1. The association between SSES and Obesity

An individual's subjective SES is the perceived position within a social hierarchy, which reflects their assessment of how they rank relative to others. The number of paper focus on the subjective social economic status is relative lower when compared to that of the objective social economic status. Little research has been conducted linking SSES and health behaviors [11]. For instance, a search of literature that performed in *PsycInfo* in April 2021 yielded 185,000 hits on unhealthy behavior topics. There were 52,000 hits for the relationship of tobacco and education, and over 17,000 clicks for the combination of tobacco and income. However, searches for perceived social economic status or subjective social economic status with unhealthy behaviors produced only 318 results. It is not a

systemic and comprehensive literature search, but the result shows that the subjective social economic status is need more attention from researchers.

Subjective social economic status is usually tested by an image of ladders, where subjects are asked to indicate their position within a specific group, usually within a country's population. Understanding the association between objective and subjective SES is crucial for researchers. Two models are commonly used currently and described the relationship. The first is that objective social economic status affects physical and psychological effects by affecting subjective social economic status. Another view is that subjective social economic status affects health as a separate, unique cause suggests that subjective social economic status and objective social economic status may not overlap. Objective and subjective socioeconomic status are moderately correlated, but their degree of correlation varies from race to race, and a relationship exists between subjective social economic status and health that is independent of objective social economic status [12]. Therefore, it is recommended for researchers to measure subjective social economic status as an independent variable. Subject SES is a important indicator of obesity. Research shows that lower subject SES is associated with higher energy intake, which is a cause of obesity [13].

3.2.2. Internal Mechanism: Obesity and SSES

The experience of low subjective socioeconomic status has been shown to influence energy balance and dietary behavior in some researchers [13]. Energy balance can usually be achieved through energy intake and energy consumption. When energy intake is greater than energy consumption, people will gain weight, and when energy intake is lower than energy consumption, people will lose weight. Dietary behavior is one of the reasons that affect energy intake. For example, people deliberately choose high calorie food or eat too much food, which may lead to increased energy intake and then may cause obesity. And when food is scarce (or it may just be induced and not real), it may cause insecurity. More specifically, when people perceive that their subjective social economic status is low, the possibility of food scarcity and insecurity will lead people to prefer to eat high-energy food. Although the energy intake has exceeded the energy required for the day, people may still be afraid of food scarcity in the future and store more energy.

According to life history theory, individuals choose different survival strategies based on early life experiences. Among them, when individuals realize that they are at a disadvantage (for example, subjective social economic status is relatively low), individuals are more likely to choose fast strategies instead of slow strategies, which lead to people prefer enjoying the benefits of the moment instead of delayed satisfaction, such as risky behaviors and overeating behaviors. By contrast, if people prefer choose the slow strategies, they would pay more attention to the quality of life, like value the future more, avoiding the problems like obesity, and refuse to take risks as well as more abide by the social norms. In schools, there are often many cues for students to perceive their social economic status. By comparing the clothes worn by classmates, the brand of mobile phones, and even the pocket money they have, teenagers will have an understanding of their social economic status. And the comparison results may lead teens to feel peer pressure and affect how they behave.

4. Limitation and Future Direction

Socioeconomic status and its internal mechanisms have been the subject of numerous studies over the past two decades, and various of of breakthroughs have been made in the research fields, research groups, and research ideas. As far as the research field is concerned, researchers have gradually expanded from objective socioeconomic status to subjective socioeconomic status. Additionally, some researchers have considered the socioeconomic status of the community as well as the socioeconomic status of the school. Previous studies mainly focus on adults, but some have begun to

consider youth as subjects. In terms of research methods, most surveys are measured by questionnaires, but some researchers also conduct experimental studies. However, the above studies have one thing in common, which is that social economic status is a strong indicator of adolescent obesity. Studies of the relationship between social economic status and obesity are theoretically and practically valuable. However, there are still some deficiencies in the current research in this field.

In the first place, the population can be further subdivided. For example, whether the adolescents are left behind children or migrants, come from developed or underdeveloped countries, or different cultural background. Because oriental cultures place a great deal of value on the collective, so people are taught from an early age to control their personal desires and not to be negatively evaluated by others. These factors may lead to different and unexpected results and our results will be more accurate if the population is segmented. The second issue is the lack of a unified standard for measuring social economic status. In terms of objective socioeconomic status, although studies usually measure parents' education level and income, there are also studies that judge whether there are refrigerators, TVs and washing machines in the home, because these appliances are regarded as symbols of high socioeconomic status in certain countries at a specific time. It may be possible for some countries to use this approach to distinguish social from economic status, but further verification is needed to determine whether the results can be extended to other countries. Last but not least, expanding research methods is also an issue that needs to be addressed. The number of longitudinal studies in the field of reform is still very limited, despite the number of studies in the field of reform being abundant. In comparison with cross-sectional research, longitudinal research can provide a more in-depth explanation of the results. In order to further develop this method of research, researchers should be active in expanding it. In addition, intervention research has great practical importance for preventing adolescent obesity in all social institutions like school and still requires more attention from researchers.

In a nutshell, researchers need to pay more attention to their research methods and subjects. In some cases, the subjective and objective socioeconomic statuses are used to measure at the same time, and other variables are strictly controlled for reducing errors.

5. Conclusion

This paper mainly discusses the influence of social economic status on obesity in adolescents, and found that subject social economic status (SSES) and object social economic status (OSES) are negatively association with obesity. The differentiated performances of the effects of subjective SSES and OSES on obesity were also discussed. This paper also reviews the research status of SSES and OSES, and proposes some possible mediating and moderating factors based on different theoretical and empirical evidences, school SES, community SES, executive function and so on. As shown above, most of the research is mainly cross-sectional research, thus more longitudinal and experimental studies are needed in this field. Besides, this paper also has practical significance, and can provide some enlightenment for families, schools and other social institutions to prevent and intervene in adolescent obesity.

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