

CHILDHOOD OBESITY AND ACADEMIC PERFORMANCE IN SCHOOL GOING CHILDREN

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Introduction

During early development, children are highly impressionable and start to implement routines and tools that they carry with them into adulthood. Apart from habits and routines created, children who do not obtain proper nutrients as they develop, can suffer from physical ailments as well. Some of the most common nutritional problems for children include overall low diet quality, the under consumption and overconsumption of certain dietary components, unhealthy meal and snack patterns, problematic feeding practices and disordered eating. These problems lead to many complications in growing children like under nourishment, PEM, obesity, mental and physical problems etc. Childhood obesity is a growing epidemic affecting children at an alarming rate in the world.

Regularly eating high-calorie foods, such as fast foods, baked goods and vending machine snacks, can cause your child to gain weight. Candy and desserts also can cause weight gain, and more and more evidence points to sugary drinks, including fruit juices and sports drinks, as culprits

in obesity in some people. Children who don't exercise much are more likely to gain weight because they don't burn as many calories. Too much time spent in sedentary activities, such as watching television or playing video games, also contributes to the problem. TV shows also often feature ads for unhealthy foods. A child who comes from a family of overweight people, he or she may be more likely to put on weight. Psychological factors like personal, parental and family stress can increase a child's risk of obesity because some of the children overeat to cope with problems or to deal with emotions. Some prescription drugs can increase the risk of developing obesity.

Childhood obesity can profoundly affect children's physical health, social, and emotional well-being, and self esteem. It is also associated with poor academic performance and a lower quality of life experienced by the child. Childhood obesity has also been found to negatively affect school performance. A research study concluded that overweight and obese children were four times more likely to report having problems at school than their normal weight peers. They are also more likely to miss school more frequently, especially those with chronic health conditions such as diabetes and asthma, which can also affect academic performance.

Obesity and educational outcomes are interrelated, and mediated by biological (e.g. diseases), behavioural (e.g. lack of physical activity), emotional and mental health factors (e.g. low self-esteem, poor social connection). Children with obesity have lower life satisfaction, and are more prone to being bullied by schoolmates. This can lead to lower class participation and reduced educational performance.

Childhood Nutrition and Food Habits

A healthy nutritious diet is an essential component in the growing and developing years of children. It aids in building a strong foundation in the child with regard to staying healthy and imbibing good eating habits right from childhood. The three most important benefits of early childhood nutrition are helping in building immunity against various infectious

diseases, ensuring proper development of brain and other vital organs and improving a child's activity levels and cognitive functioning. Therefore, proper nutrition for children is important as it sets the stage for them towards living a healthy and balanced life for the rest of their lives.

Healthy eating in childhood and adolescence is important for proper growth and development and to prevent various health conditions. Healthy eating can help individuals achieve and maintain a healthy body weight, consume important nutrients, and reduce the risk of developing health conditions such as high blood pressure, heart disease, type 2 diabetes, cancer, osteoporosis, iron deficiency, dental caries (cavities).

Childhood nutrition should be a balance between the high energy and nutrient content required for growth and development and establishing a healthy diet with weight control, in association with regular physical exercise. The balance between these two aspects changes from the very high-fat content of infancy to the low-fat, high-fibre diet of adulthood. The diet for a child should be focused on natural, fresh sources of energy and nutrients. Drastic dieting and fad foods must be avoided. A positive attitude to healthy eating should be encouraged from an early stage.

Multiple parental factors influence a child's dietary habits and are reciprocally interacting, so they cannot be considered separately. The family environment that surrounds a child's domestic life has an active role in establishing and promoting behaviours that will persist throughout their life. Family meals seem to represent an important moment of both control and interaction, which contributes the most in modelling children's dietary habits. Parents should avoid excessive pressure or restriction as it can create a negative social and emotional experience that could affect children's acceptance of the food. Instead, parents should encourage their children on healthy snacking as well as not to skip their breakfast. This can be achieved through positive and active social modelling as well as moderate restriction. Given the considerable evidence for the strong effect of parents on their children's dietary habits, we believe that parents' child-feeding behaviours

should receive more attention in childhood obesity prevention policies. We recommend that parents should be provided with information and guidance on how, as well as what, to feed their children, and these promotion strategies should be particularly aimed at parents' unhealthy eating too so they can improve their diet and so their children will imitate them.

Childhood Obesity and Academic Performance

Obesity is a complex condition that interweaves biological, developmental, environmental, behavioural, and genetic factors; It is a significant public health problem. The most common cause of obesity throughout childhood and adolescence is an inequity in energy balance; that is, excess caloric intake without appropriate caloric expenditure. Adiposity rebound in early childhood is a risk factor for obesity in adolescence and adulthood. There is no single element causing this epidemic, but obesity is due to complex interactions between biological, developmental, behavioural, genetic, and environmental factors. The role of epigenetics and the gut microbiome, as well as intrauterine and intergenerational effects, have recently emerged as contributing factors to the obesity epidemic. Other factors including small for gestational age status at birth, formula rather than breast feeding in infancy, and early introduction of protein in infant's dietary intake have been reportedly associated with weight gain that can persist later in life.

Many studies have been conducted to examine the effects of early-life factors on the risk of childhood obesity. Both prenatal factors, such as gestational weight gain, and postnatal factors, such as feeding practices during infancy, have been studied. Gestational weight gain is used as an indicator of prenatal factors. Research suggests that the offspring of overweight or obese women tend to have higher birth weights and more body fat, and have increased risks of developing obesity later in life . A recent meta-analysis of findings from 12 cohort studies reported that the risk of childhood overweight/obesity was significantly associated with excessive gestational weight gain.

The local community and school food environments, facilities, and services affect children's eating and physical activity behaviours. Children may buy food and beverage products from food stores close to home and school. School nutrition services, in particular school lunch, and school physical education affect children's energy balance. In addition, parental concerns about safety issues may limit a child's ability to play outdoors or walk to school.

Some research suggests that stress during childhood and adolescence, including peer influence, is associated with obesity risk, but this is still not well understood . It has been suggested that high levels of stress may change eating patterns and increase consumption of highly palatable foods. Repeated high levels of stress and/or chronic stress may alter the biology of stress regulation and appetite/energy regulation; both of these components directly affect neural mechanisms that contribute to stress-induced and food cue-induced overeating of highly palatable foods

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Overweight students both girls and boys achieved lower average marks for math and language than their non-overweight peers. The overweight students also demonstrated significantly more detentions, worsened school attendance and less participation on school athletic team. Obesity is negatively associated with academic performance in both genders at school.

Children who are overweight scored lower on math and reading tests when compared to their non-overweight peers. Contributing factors to poor nutrition were numerous, including the consumption of fast food. Both young and adolescents who are obese earn lower test scores than students

who are of average weight. They also display shorter attention spans, decreased mental flexibility, and lower intellectual functioning. He said that obese females were more likely to report repeating a grade and considering them poor students. Also, obese students display delays in social development and psychological impairments.

Obesity and its related diseases, such as metabolic syndrome, may have a direct effect on cognitive functions and concentration at school. For instance, metabolic syndrome was found to have an impact on cognitive functions and brain structure through physiological impairments. Another study found a direct link between childhood obesity and lower cognitive performance, independently of physical activity, sleep, and diet.

There exists an interrelationship between unhealthy behaviours, obesity and educational outcomes. Behavioural risk factors, such as poor nutrition and lack of physical activity, may directly play a role on both obesity and low concentration at school, resulting in poor performance at school. Insufficient levels of physical activity can be both a cause and a consequence of obesity, and can lead to lower concentration.

A clear relationship between physical activity and cognition has been documented. A recent systematic review of 64 studies found that physical activity has a positive influence on cognitive functions as well as brain structure and function. Similarly, a meta-analysis of 44 studies showed that physical activity has a positive association with cognition in children.

Regarding the effect of physical activity on school achievement, a systematic review of 14 longitudinal studies found evidence for a significant longitudinal positive relationship between physical activity and academic performance, although the dose-response relationship needs further investigation. In a Cochrane review, physical activity interventions produced small yet significant improvements in mathematics achievements, executive function, and working memory. However, there was no evidence to suggest an effect on reading, vocabulary and language achievements, attention, inhibitory control and simultaneous processing. Hence, while the

association between physical activity, cognitive function and school achievement is evident, the best way to incorporate physical activity within schools to improve academic achievement (e.g. activity breaks versus active lessons) is less clear.

Emotional and mental health problems can also mediate the relationship between obesity and education performance. Overweight children and adolescents may often be excluded from friendships and bullied by other children. Because of this, overweight children may feel isolated, lonely or socially disconnected; they may have lower self-esteem, poor well-being and suffer from emotional and mental health problems.

These problems may have deleterious effects on educational outcomes. Children who are bullied and socially excluded by others engage less in class: they step aside and refuse to speak up for fear of being bullied. Moreover, behavioural problems in schools, such as disobedience and violence, may emerge. The relationship between obesity and bullying is much more pronounced in girls than in boys in all countries.

Emotional and mental health consequences in children and adolescents are comparable to the well-known effects of the obesity stigma in adults. Weight bias and obesity stigma are associated with poor body image, low self-esteem, loneliness, suicidal thoughts and acts, depression, and anxiety.

Children with obesity have significantly lower performance at school than their healthy weight counterparts, and teenagers with obesity are more often absent from school. These relationships remain significant after controlling for mediating and confounding factors such as family affluence, life satisfaction, and bullying. Higher the BMI in childhood, the lower the performance at school, in all countries. On average across all 32 countries in the analysis, boys and girls with a healthy weight are 13% more likely to report good school performance, compared to their peers with obesity.

References

- 1) Albuquerque, D., Nóbrega, C., Manco, L., Padez, C. (2017). The contribution of genetics and environment to obesity. *Br. Med. Bull.* 123, 159–173.
- 2) Ickovics, J.R., Connor, O., Duffany, K., Shebl, F.M., Peters, S.M., Read, M.S., Gilstad-Hayden, K.R. (2019). Implementing school-based policies to prevent obesity: cluster randomized trial. *Am J Prev Med*, 56, 1–11.
- 3) Rinninella, E., Raoul, P., Cintoni, M., Franseschi, F., Miggiano, Gasbarrini, A. (2019). What is the healthy gut microbiota composition a changing ecosystem across age, environment, diet, and diseases. *Microorganisms*, Vol 7, 14.
- 4) Raj, M. (2020). Review Article Obesity and cardiovascular risk in children and adolescents. Vol 16, 13–20.
- 5) Qasim, A., Turcotte, M., de Souza, R.J., Samaan, M.C., Champredon, D., Dushoff, J. (2018). On the origin of obesity: identifying the biological, environmental, and cultural drivers of genetic risk among human populations. *Obes Rev*, Vol 19, 121–49.