What factors are associated with excess body weight in Australian secondary school students?

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Editorial p 152
Perspective p 165
Letter p 171
Clinical focus p 174
Research p 184

Abstract

Objectives: To examine the prevalence of overweight and obesity in Australian secondary school students and identify factors associated with excess adiposity.

Design, setting and participants: Cross-sectional survey of students aged 12–17 years (in school years 8–11) who completed the National Secondary Students' Diet and Activity survey in 2009–10, which included a web-based self-report questionnaire and height and weight measurements.

Main outcome measures: Overweight and obesity based on international standard body mass index (BMI) cut-offs for children and adolescents.

Results: Data were analysed for 12 188 students. Just under one in four students were either overweight (18%) or obese (5%). After adjusting for demographic and health-behaviour characteristics, males were more likely than females to be overweight or obese (OR, 1.23; 95% CI, 1.07–1.40; $P = 0.004$), as were both low (OR, 1.67; 95% CI, 1.40–1.99; $P < 0.001$) and medium (OR, 1.33; 95% CI, 1.14–1.55; $P < 0.001$) socioeconomic position (SEP) students compared with high SEP students. Students engaging in low levels of physical activity (OR, 1.21; 95% CI, 1.08–1.36; $P = 0.001$), more time in small-screen recreation (OR, 1.18; 95% CI, 1.05–1.32; $P = 0.005$), and short sleep duration (OR, 1.22; 95% CI, 1.05–1.41; $P = 0.008$) also had higher odds of being overweight or obese.

Conclusions: There is a need for interventions to reduce overweight and obesity during adolescence. Preventive measures should include a focus on facilitating physical activity and reducing sedentary behaviour, as well as promoting adequate sleep, particularly among young people from lower SEP neighbourhoods who appear to be most susceptible.

The prevalence of overweight and obesity among Australian children and adolescents doubled between 1985 and 1997,[1] with similar increases observed in other large developed countries.[2] Young people who are overweight or obese are at increased risk of experiencing chronic diseases such as type 2 diabetes, cardiovascular disease, stroke and some cancers later in life.[3]

While many studies have focused on exploring the link between one specific behaviour (eg, excessive time spent watching television, short sleep duration) and overweight or obesity in this population, only a few have assessed the relative importance of a range of factors that are postulated to be associated with excess body weight.[4,5] Given the finite resources available to tackle obesity, a clearer understanding of the correlates of overweight in adolescence is needed to allow preventive efforts to be directed towards areas where they are likely to have the most benefit.

The aim of our study was to describe the current prevalence of overweight and obesity among Australian adolescents and to examine associations between weight status and selected demographic and health-behaviour characteristics in order to identify potential targets for intervention.

Methods

We used data from the National Secondary Students' Diet and Activity (NaSSDA) survey conducted in Australia during May 2009 to April 2010. The methods employed in the NaSSDA survey have been described in detail elsewhere.[6] In brief, the sampling procedure was a two-stage probability design, with schools randomly selected at the first stage of sampling and classes selected within schools at the second stage. Students completed a web-based questionnaire assessing their diet, physical activity and sedentary behaviour in their regular class groups, and had their height and weight measured by trained researchers in a confidential setting. The survey was approved by the Human Research Ethics Committee of Cancer Council Victoria, relevant education authorities in each state and territory, and the principals of selected schools. Informed written parent or carer and student consent was required for participation in each component of the study.

Measures

Questionnaire

Consumption of key healthy or core foods was assessed by asking students to indicate how many serves of vegetables and fruit they usually ate each day. These short dietary questions were used in the 1995 National Nutrition Survey and have reasonable validity when compared with 24-hour recall of vegetable and fruit intake for adults.[7] Students were identified as being low-level consumers of vegetables or fruit if they reported eating one serve or less per day of each.

Intake of key unhealthy or non-core foods was assessed by asking students to indicate how frequently they consumed sugary drinks (eg, soft drink, cordials, sports drinks) and how often they had meals or snacks such as burgers, pizza, chicken or chips from fast-food or takeaway food places. Students were identified as being high consumers of fast food if they reported eating these foods at least 1–2 times a week, and of sugary drinks if they reported drinking at least one cup (250 ml) per day.

Physical activity was assessed using the 60-minute moderate-to-vigorous physical activity (MVPA) screening measure, which is reliable, valid and correlates well with objective measures of physical activity.[8] Students were identified as engaging in low levels of physical activity if they did not meet the recommended 60 minutes of MVPA per day on at least 4 days in the past week.