Trends in Weight Loss Efforts Among US Adolescents With Overweight and Obesity

Snook and colleagues\(^1\) reported recently that, despite the significant increase in the prevalence of obesity over decades, fewer US adults have tried to lose weight. However, the trend among adolescents, the population most susceptible to changes in social norms, is unclear. We assessed the trend in weight loss efforts among adolescents with overweight and obesity aged 16 to 19 years.

**Methods** | We used data from the National Health and Nutrition Examination Survey for this study. The 1988-1994 survey years were designated as the early period (reference), 1999-2004 as the intermediate period, and 2009-2014 as the recent period. After excluding 449 adolescents who were overweight (body mass index, <fifth percentile) and 619 adolescents who did not respond to questions pertaining to weight loss efforts, race/ethnicity, or family income, 1298 participants aged 16 to 19 years were included for the 1988-1994 period, 2697 participants were included for 1999-2004 period, and 4496 participants were included for 2009-2014 period. The 2000 Centers for Disease Control and Prevention growth charts\(^2\) were used to translate directly measured weight and height into sex- and age-specific body mass index percentiles and categorized adolescents as obese (>95th percentile), overweight (85th-94th percentile), or healthy weight (5th-84th percentile). The main question of interest, “During the past 12 months, have you tried to lose weight?” was asked in an identical manner for all surveys. Because the percentage of adolescents trying to lose weight, on average, was substantially above 10%, logistic regression may overestimate the response; therefore, modified Poisson regression\(^3\) was used to estimate the percentage ratios of adolescents trying to lose weight between the levels of variables, including survey period, after correcting for body mass index percentile, race/ethnicity, and family income. With appropriate weighting and nesting variables, analyses were conducted using SAS, version 9.4 (SAS Institute). \(P < .05\) (2-sided) was considered statistically significant.

**Results** | The prevalence of overweight and obesity increased from 22.09% (95% CI, 18.20%-25.98%) in 1988-1994 to 34.03% (95% CI, 30.64%-37.41%) in 2009-2014; during the same period, the overall percentage of adolescents who had tried to lose weight decreased from 33.68% (95% CI, 29.19%-38.17%) to 27.24% (95% CI, 24.17%-30.31%). For adolescents with overweight, the percentage trying to lose weight decreased from 36.36% (95% CI, 58.71%-14.00%) in 1988-1994 to 23.41% (95% CI, 31.31%-15.51%) in 2009-2014 among boys and from 80.24% (95% CI, 91.35%-69.13%) in 1988-1994 to 44.19% (95% CI, 63.21%-45.17%) in 2009-2014 among girls (Figure). After adjustment for race/ethnicity, family income, and body mass index percentile, the percentage trying to lose weight decreased by 36% (percentage ratio, 0.64; 95% CI, 0.41-1.01) between 1988-1994 and 1999-2004 and further down by 44% (percentage ratio, 0.56; 95% CI, 0.33-0.94) by 2009-2014 among boys (\(P = .03\) for trend; Table); no significant decrease was observed among girls during that period (percentage ratio, 0.96; 95% CI, 0.68-1.36; \(P = .81\) for trend). For boys with obesity, the percentage trying to lose weight decreased from 67.51% (95% CI, 84.05%-50.97%) in 1988-1994 to 42.40% (95% CI, 50.78%-34.02%) in 1999-2004, then increased to 60.38% (95% CI, 70.87%-50.29%) by 2009-2014. The corresponding

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**Figure. Trend by Sex in the Percentages of Adolescents Trying to Lose Weight, 1988-2014**

The body weight category was based on sex- and age-specific body mass index (BMI) percentiles derived from directly measured body height and weight. Error bars indicate the 95% CIs of the percentages. A | Overweight was defined as BMI between the 85th and the 94th percentiles. B | Obesity was defined as BMI in the 95th percentile or higher.
percentages among girls with obesity were 69.50% (95% CI, 86.56%-52.45%) in 1988-1994, 64.20% (95% CI, 72.83%-55.56%) in 1999-2004, and 58.55% (95% CI, 69.94%-47.15%) in 2009-2014; no statistical significance was detected after multivariable adjustment for either sex with obesity.

Discussion | Fewer US adolescents with overweight tried to lose weight in 2009-2014 compared with their counterparts interviewed in 1988-1994, potentially compromising opportunities to prevent overweight from becoming obesity. With more than one-third of adolescents having overweight or obesity, it is cognitively difficult to view overweight as abnormal. More adolescents with overweight or obesity seem satisfied with their weight and not ready or motivated to engage in weight loss efforts. Failure among pediatricians to discuss weight issues with adolescents may also contribute to the decreasing trend. With small sample sizes, the self-report nature of this study, and differences between the participants who were included and those who were excluded, the generalizability of the conclusion might be jeopardized. It is not clear whether the decreasing trend to lose weight led to an increased prevalence of overweight and obesity or vice versa. Sex differences in the trend warrant further investigations.

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