

Association of eating behaviours with anxiety and depression symptoms in overweight adolescents: a cross sectional study

P. Moitra¹ and J. Madan¹

¹Department of Food, Nutrition & Dietetics, Sir Vithaldas Thackersey College of Home Science (Autonomous), SNDT Women's University, Santacruz West, Mumbai, India

Globally, an increasing prevalence of obesity and depression among adolescents has generated interest in understanding the association between these conditions^(1,2). Diet is a cornerstone strategy for the prevention of obesity and there is emerging evidence that unhealthy eating behaviours and nutritional inadequacies might exacerbate the duration and severity of depression^(3,4). This cross-sectional study was conducted to examine the association of eating behaviours with depression, anxiety, and stress symptoms in 10–15 years old overweight adolescents in Mumbai, India.

Selection of adolescents attending grades 5 to 9 was done from four private and three government schools using a purposive sampling method. Adolescents (n = 516) provided socio-demographic information and completed the 21 item Depression Anxiety Stress Scale (DASS-21) questionnaire for anxiety and depression symptoms. Three interviewer-administered 24h diet recalls were conducted to estimate nutrient intakes and a validated food frequency questionnaire (FFQ) evaluated the snacking patterns in a subsample (n = 242). Weight, height, and waist and hip circumferences were measured using standard procedures and sex specific body mass index (BMI) for age z scores helped classify the body weight status. Descriptive statistics and binary logistic regression analyses were performed to estimate the prevalence and predictors of anxiety and depression symptoms in overweight/ obese adolescents.

Adolescents' mean age was 13.1(1.8) years, 54.3% were girls and 21.6% and 13.2% were overweight and obese respectively. Overall, a higher prevalence of obesity was observed in younger (10–12 years) and private school adolescents (p < 0.05). A significantly higher anxiety and stress scores but not of depression were observed in girls. Among overweight adolescents, 38.8% reported mild to moderate depression, 57.5% had anxiety, and 43.8% experienced stress symptoms. Moreover, adolescents having lower mean intakes of protein, fats, vitamin B 12, Vitamin C, iron and zinc reported significantly higher depression scores. Regression analyses indicated that being overweight was associated with a 2.35 fold increase in odds of having anxiety (95% CI 2.03–2.61, p < 0.001) and 1.78 fold increase in depression (95% CI = 1.54–1.92, p 0.032). Attending private schools was associated with higher anxiety scores and a greater frequency of healthy eating behaviours such as breakfast, fruit, and nut consumption predicted decreased odds of having depression in adolescents.

In this study, a substantial proportion of overweight adolescents experienced depression, anxiety, and stress symptoms. Several eating behaviours emerged as predictors of depression risk, suggesting a critical role that diet might play in mediating obesity and depression in adolescents. Future prospective studies are warranted to assert any causal relationships and to guide appropriate interventions.

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