

## Short Communication

# Overweight and Obesity Younger Adolescents Have a High Risk of School, Behavior and Health Related Difficulties

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Overweight and obesity are frequent and younger adolescents (<16 years) concerned may experience school, behavior and health related difficulties. This study assessed the risk of a wide range of issues common in early adolescents (low school performance, last-30-day use of tobacco, alcohol, cannabis, or other illicit drugs, lack of physical/sports activity, poor health status, poor physical health, poor psychological health, poor social relationships, poor living environment, back pain, sustained physical/verbal violence, sustained sexual abuse, perpetrated violence, last-12-month suicide ideation, lifetime suicide attempt) of overweight or obese subjects in reference to normal-weight subjects (defined by measured body weight/height and French-adolescents threshold values).

The population included all 1559 middle-school students from an urban area in eastern France. They completed a questionnaire at school. Data were analyzed using multinomial logistic regression models. The study design and measurements have been described in Supplementary text.

Overweight and obese subjects represented respectively 27.6% and 11.6%. Overweight, obese and normal-weight subjects greatly differed in gender, family structure, father's occupation, and family insufficient income (supplementary data, Table S1) as well as in most previous difficulties (Table S2).

Based on gender-age-adjusted odds ratios (OR<sub>ga</sub>), obese subjects had a higher risk of low school performance, poor health, back pain, suicide attempt, sustained physical/verbal violence, sustained sexual abuse, perpetrated violence, poor physical health, poor psychological health, poor social relationships, and poor living environment (OR<sub>ga</sub>

1.50 to 2.89) (Table S3). Compared with normal-weight subjects, overweight subjects had a higher risk of suicide attempt, poor physical health, poor psychological health, and poor living environment (OR<sub>ga</sub> 1.51 to 1.72) (Table S3). Sensibility analyses highlighted that the higher risks remained after further adjustment for socioeconomic features (Table S4). These risks may be underestimated as the subjects refusing weight/height measurements (7.9%) had higher risk than the others for a number of issues (Table S5).

In conclusion, obese younger adolescents, and to a lesser degree, overweight ones are at high risks of a wide range of school, behavior and health related difficulties, independently of socioeconomic features.

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