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**Trends in adolescent mental health problems and the role of lifestyle factors**

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**Background:**

Adolescent mental health problems are on the rise globally, including in Sweden. One indicator is an increase in psychosomatic symptoms (PSS) over time. Lifestyle factors such as physical activity (PA), diet, smoking, and alcohol consumption may influence the trends in PSS. However, we found limited research on such associations.

**Methods:**

This study is based on data collected every four years from nationally representative samples of 15-year-old boys and girls in Sweden (N = 9,196, 50.5% girls), as part of the Health Behavior in School-aged Children (HBSC) study. PSS was measured using a scale developed from the HBSC symptom checklist. We analyzed the trends in PSS from 2002 to 2018 and fitted models to investigate the associations between the trends and lifestyle factors. We included interaction terms between time and each lifestyle factor and fitted separate

models for the high and low socioeconomic status (SES) groups.

**Results:**

In general, the mean scores for PSS increased from 2.26 in 2002 to 2.49 in 2018 ( $p < .001$ ). Compared to the average mean scores during preceding years, the changes in PSS mean scores at each survey year were also significant in all years except 2010. More frequent breakfast intake, daily consumption of fruits and vegetables, and higher PA were associated with lower PSS mean scores while smoking and alcohol consumption had the opposite association. The only significant interaction ( $B = .050$ ;  $CI: .015, -.085$ ;  $p < .01$ ) was observed in the high SES group, indicating that the increasing trend in PSS was stronger among those who had been drunk once or more in a lifetime, compared to those who had never been drunk.

**Conclusions:**

The results indicate increasing trends in mental health problems among young people in Sweden. Furthermore, the study revealed that alcohol drunkenness was associated with a more substantial rise in PSS over time among those in the high SES group. Further research is needed to understand the reasons behind these findings.

**Key messages:**

- Psychosomatic complaints have increased among Swedish adolescents in recent decades.
- Although alcohol drunkenness has significantly declined among Swedish adolescents, it was not sufficient to influence trends in psychosomatic symptoms among those in the high socioeconomic group.