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**Social and environmental stressors and cardiometabolic risk**

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**Background:**

Cardiometabolic health is influenced by many social and environmental factors, as demonstrated by the ubiquitous health inequalities. Exposures to social and environmental stressors produce individual biological and behavioural responses and thus may lead to impaired health both directly and indirectly. This study investigated several social and environmental stressors and describe the paths of their effect on cardiometabolic health.

**Methods:**

We analysed a cross-sectional population sample of 2154 Czech subjects (aged 25-64 years, 55% women). The composite score (range 0-5) of metabolic disorders was calculated using 5 biomarkers: waist circumference, blood pressure, fasting blood glucose, HDL-cholesterol, and triglycerides. The higher score represents the higher cardiometabolic risk (CMR). The effects of social stressors (education, income), environmental stressors (air pollution, greenspace, noise) and behavioural factors (unhealthy diet, smoking, alcohol intake, sedentary behaviours) on CMR were assessed using a structural pathway model.

**Results:**

We observed a significant direct effect of higher education on CMR ( $\beta = -0.101$ ; 95% CI [-0.146, -0.056]), as well as an indirect effect mediated via an unhealthy diet ( $\beta = -0.013$ ; 95% CI [-0.022, -0.006]), smoking ( $\beta = -0.015$ ; 95% CI [-0.028, -0.003]), and sedentary behaviours ( $\beta = 0.013$ ; 95% CI [0.007, 0.022]). We also observed a significant indirect effect of higher income via sedentary behaviours ( $\beta = 0.012$ ; 95% CI [0.006, 0.019]). The only environmental stressor significantly predicting CMR was noise ( $\beta = 0.054$ ; 95% CI [0.006, 0.019]), which was also mediating the effect of higher education ( $\beta = -0.003$ ; 95% CI [-0.008, -0.001]).

**Conclusions:**

The effect of social stressors on the development of CMR had a higher magnitude than the effect of the assessed environmental factors. Social stressors lead to an individual's unhealthy behaviour and predispose individuals to higher levels of environmental stressors exposures.

**Key messages:**

- Social stressors exhibited a greater magnitude of effect on cardiometabolic risk compared to environmental stressors.
- Social stressors lead to unhealthy behaviours and predispose individuals to higher environmental stressors exposure.