

### Adopting a Less Healthy Lifestyle Pattern During the COVID-19 Pandemic Is Modulated by Body Image Dissatisfaction and Increased Stress in Adults of the Canadian COVIDiet Study

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**Objectives:** The COVID-19 pandemic and related lockdowns may impact lifestyle behaviors including eating habits and physical activity; few studies identified emerging patterns of such changes and associated risk factors. Objectives were to identify patterns of weight and lifestyle behavior change resulting from the pandemic in Canadian adults; and potential risk factors.

**Methods:** Analyses were conducted on 1,609 adults (18–89 y; 90.1% women; 81.8% White) of the Canadian COVIDiet study baseline data (May-Dec 2020). Self-reported current and pre-pandemic weight, physical activity, smoking status, perceived eating habits, alcohol intake and sleep quality were collected by online questionnaires. Based on these 6 indicator variables, categorized into 3–5 levels of change, latent class analysis (LCA) was used to identify lifestyle behavior change patterns. Associations with potential risk factors including age, gender, ethnicity, education, income, chronic diseases, body image perception,

and changes in stress level, living situation and work arrangement were examined with logistic regressions.

**Results:** Participants' mean BMI was  $26.8 \pm 6.7$ ; 61% had  $> =$  bachelor's degree. Since the pandemic, 21% could not always afford balanced meals, 35% had decreased income and 49% changed work arrangement. From LCA, 2 classes of lifestyle behavior change emerged; "healthy" and "less healthy" (probability: 0.58 and 0.42; BIC = 19,354.8, entropy = 5.5). "Healthy" class participants more frequently reported unchanged weight, sleep quality, smoking and alcohol intake, unchanged/improved eating habits and increased physical activity. The "less healthy" class reported significant weight gain, deteriorated eating habits and sleep quality, unchanged/increased alcohol intake and smoking, and decreased physical activity. Among risk factors, body image dissatisfaction [OR = 12.2, 95%CI (9.4–15.8)] and increased stress level [(OR = 5.0, 95%CI (3.8, 6.4)] were associated with adopting "less healthy" behaviors in adjusted models.

**Conclusions:** The COVID-19 pandemic appeared to have influenced lifestyle behaviors unfavorably in some but favorably in others. Body image perception and change in stress level may have modulated these changes; whether these will sustain overtime remains to be studied.

**Funding Sources:** McGill University.