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**Project Title**

Health Behaviour Profiles and Predicting Health Outcomes from Risky Health Behaviour Combinations

**Project Summary**

Previously, we have analyzed the Canadian Longitudinal Study on Aging (CLSA) by performing cluster analysis of unhealthy health behaviours (protocol: van Allen et al., 2021). We identified seven distinct clusters of participants based on their health behaviours and examined associations between cluster memberships and health, well-being, and healthcare utilization. With data from the first follow-up time point we can predict health outcomes (healthy aging, life satisfaction, living with chronic conditions) from cluster membership assessed at baseline. Additionally, we can perform the same predictive analysis using individual health behaviours, and interactions, from baseline to predict health outcomes at the follow-up assessment. Taken together, these approaches can be compared to answer the question of which method most accurately predicts future health outcomes and to identify which combinations of health behaviours are most strongly predictive of healthy aging.

**Keywords**

Health behaviours, Machine learning, Cluster analysis