Modeling Type 1 Diabetes Environmental Drivers in Metropolitan France

Business Data Challenge Report

Elea Bordais (ENSAE)   **Ismael Dembele** (ENSAE)   **Paul Toudret** (ENSAE)   **Patryk Wiśniewski** (ENSAE)

Abstract

This study investigated environmental and socioeconomic drivers of regional Type 1 Diabetes (T1D) incidence in metropolitan France using 2023 hospital (PMSI) and aggregate data with regression and machine learning models. Key findings indicate a protective association for sunshine duration (proxying Vitamin D) and a positive association for regional tobacco addiction prevalence (especially in males), alongside socioeconomic factors. While suggesting these factors modulate regional T1D risk, those findings require cautious interpretation and further investigation.