

## Predictive Modeling of Obesity Trends Using Machine Learning Techniques

P Laksia<sup>1#</sup>

<sup>1</sup>Faculty of Management, Social Sciences and Humanities, General Sir John Kotelawala Defence University, Sri Lanka

<sup>#</sup>40-adc-0013@kdu.ac.lk

Obesity prevalence is on the rise, presenting a host of health problems for major portions of the world; effective predictive modeling has been brought to the fore to assist in public health intervention. This study analyzes and predicts the level of obesity on the ground based on various variables, applying a wide-ranging dataset from the UCI Machine Learning Repository. K-Nearest Neighbors, Random Forest, Decision Tree, Support Vector Machine, clustering, and regression analyses are some of the machine learning techniques applied in this research. This returned an accuracy of 94.32%, a precision of 95%, a recall of 94%, and an F1 score of 94%. The findings on the best-predicting models of obesity are of major importance in informing improved public health strategies and interventions. This study, therefore, identifies the role of machine learning in the identification of trends in obesity and calls for improved versions of these predictive models.

**Keywords:** *obesity, machine learning, K-Nearest Neighbors, Random Forest, decision tree, support vector machine, classification, clustering, regression*