Portfolio Project

Estimation of Obesity Levels Dataset

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Introduction

I am Elena S. Álvarez, a professional with a background in Biology and Bioinformatics, holding a BSc and a Postgraduate degree in the respective fields. Throughout my academic journey, I gained proficiency in Python programming and knowledge database management tools like MySQL. Complementing my formal education, I have pursued additional courses to enhance my skills in Python, machine learning, and data science.

My interest in a career in data analysis stems from its potential to drive impactful insights across various industries. Particularly drawn to the healthcare and biology sector.

Completing this data analysis bootcamp has significantly contributed to my professional development. Through this program, I gained a deeper understanding and proficiency in utilising essential tools such as Pandas, Seaborn, Matplotlib, and NumPy. These skills have empowered me to manipulate and visualize data effectively, enabling more insightful analysis.

Estimated Obesity Levels Dataset

This dataset provides valuable insights for organisations, enhancing decision-making across industries. In healthcare, it improves patient care and reduces costs, while food and beverage companies can innovate products and marketing strategies. Fitness centres can tailor programs for better results. Leveraging this data optimises ROI by informing strategic decisions and mitigating risks, benefiting organisations significantly.

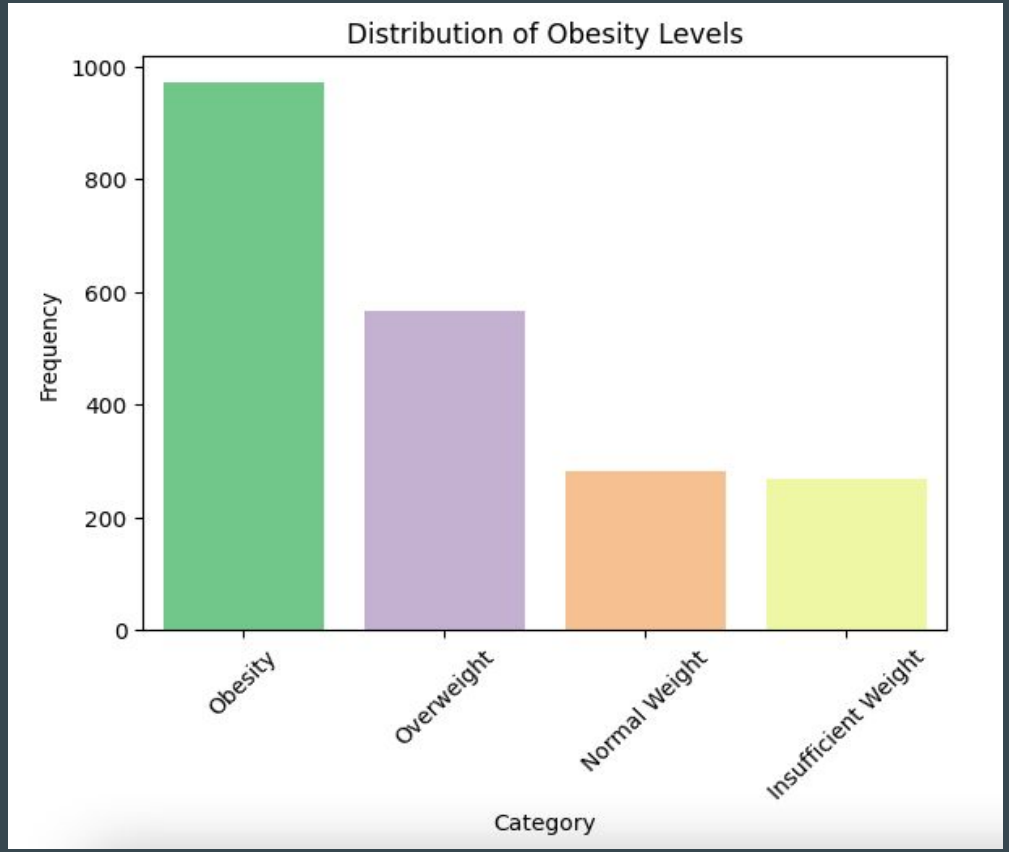
This dataset includes data for the estimation of obesity levels in individuals from the countries of Mexico, Peru and Colombia, containing 17 attributes, some of them include: gender, age (years), height (m), weight (kg), smoker, high caloric food consumption, physical activity frequency, alcohol consumption and obesity level.

The core problem statement lies in understanding the disparity between those who maintain healthy weights and those who struggle with obesity. Through this analysis, I hope to uncover hidden patterns and relationships within daily routines that contribute to weight management.These recommendations will serve as powerful tools for both the prevention and management of obesity.

The dataset can be accessed through this link.

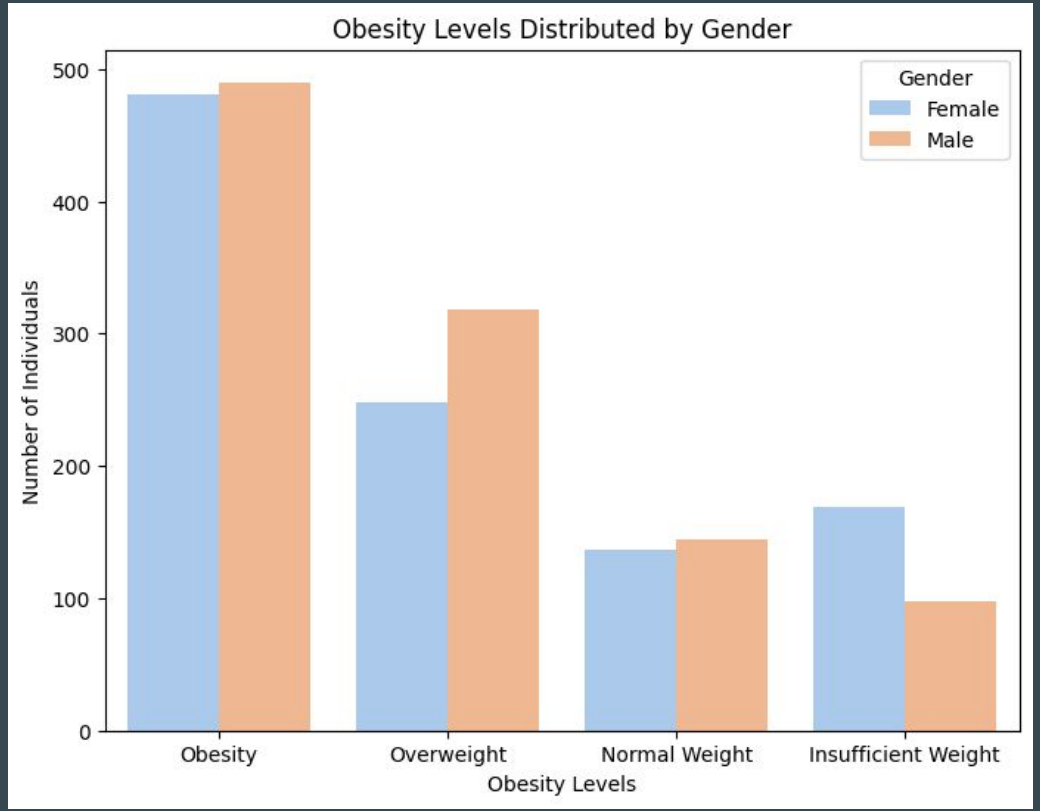
Exploring Weight Distribution: Insights

The dataset showcases a distribution of participants across diverse weight categories, with obesity and overweight emerging as the most prevalent. This highlights the importance of investigating the factors that contribute to these weights classifications, including dietary patterns and levels of physical activity.

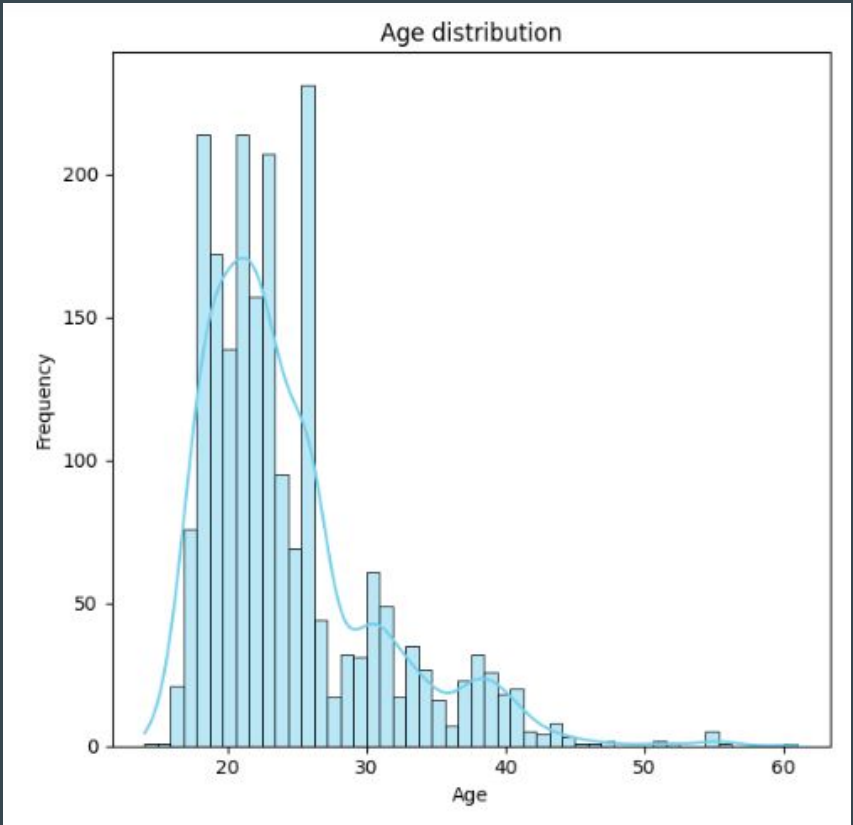


Exploring Weight Distribution: Insights

There are similar weight distributions between gender, showing a balanced pattern. Obesity and overweight emerge as prevalent conditions regardless of gender. The data suggests a balanced distribution of weight categories across gender, with no significant disparities observed.

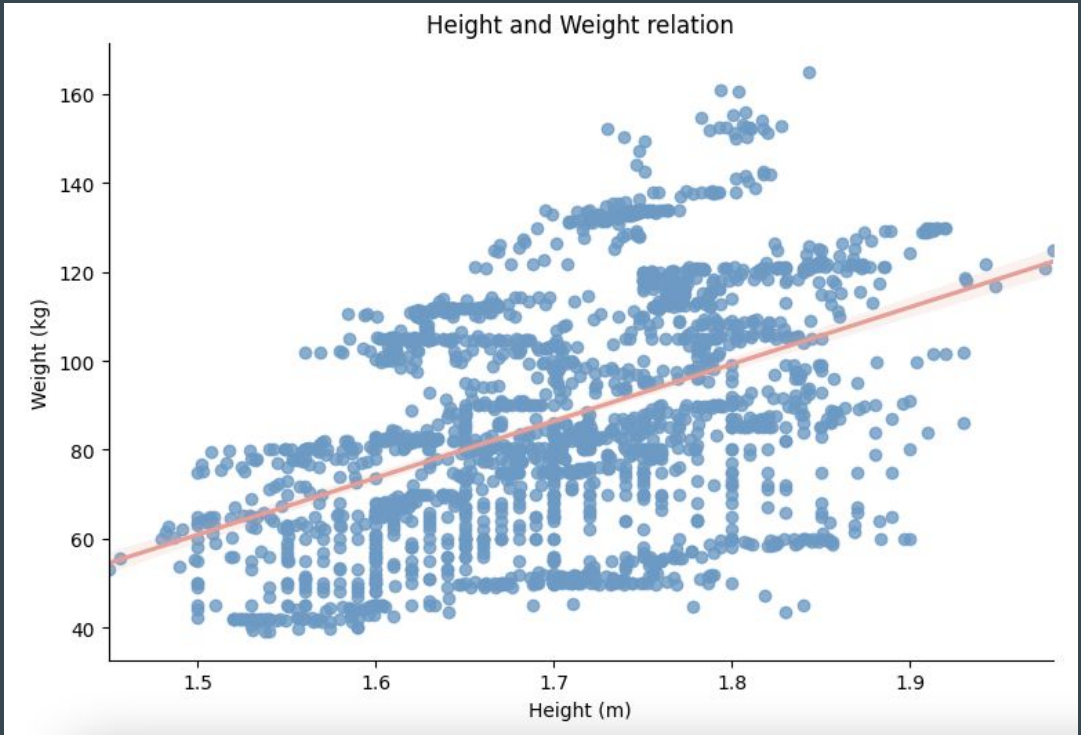


Exploring Weight Distribution: Insights



Here, the dataset showcases the age distribution among participants, highlighting an age range spanning roughly from 20 to 30 years old. This data aids in customising approaches for individuals, considering diverse social, epigenetic, and occupational factors to devise effective strategies for weight improvement and better comprehension of their circumstances.

Exploring Weight Distribution: Insights

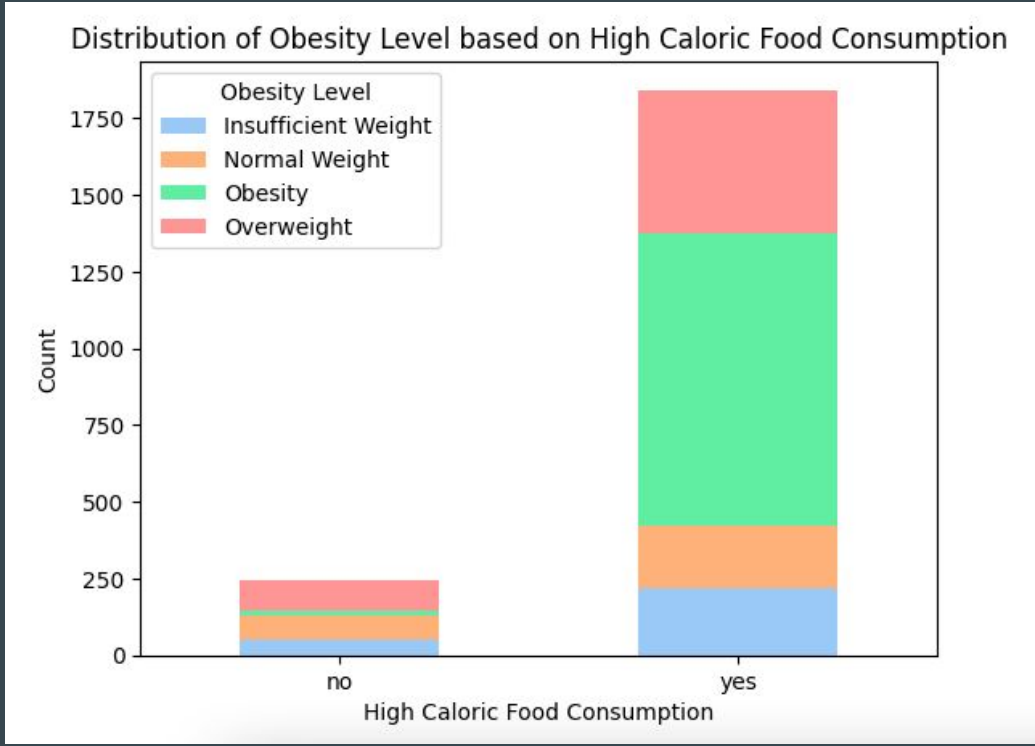


In this visualisation, a discernible positive correlation can be observed, suggesting that taller individuals generally exhibit higher weights, consistent with conventional expectations. However, there are exceptions, with certain individuals displaying elevated weights despite possessing average heights ranging from 1.6 to 1.8m. Moreover, a subtle trend is also observable with a few individuals characterised by lower weight.

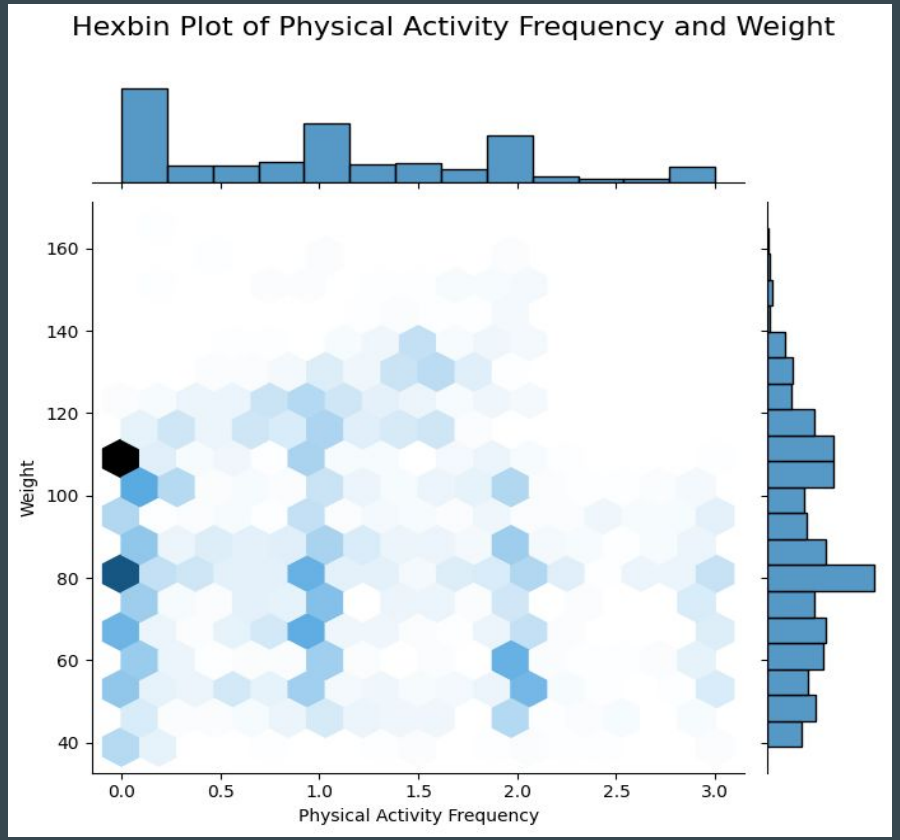
Unveiling the Impact of High-Calorie Food Consumption

Individuals who frequently consume high caloric foods tend to fall into the categories of overweight and obesity. This undeniable patterns underscores the importance of dietary choices in shaping weight outcomes.

Consider the implications of this finding: daily food choices directly impact individuals' health and wellbeing. It's time to rethink eating habits and prioritise nutritious options for a healthier future.



Fitness Frequency: A Key to Healthy Weight



There is a general downward trend in the graph, which means that as the physical activity frequency increases, the weight tends to decrease. This suggests that people who are more active tend to weigh less than people who are less active.

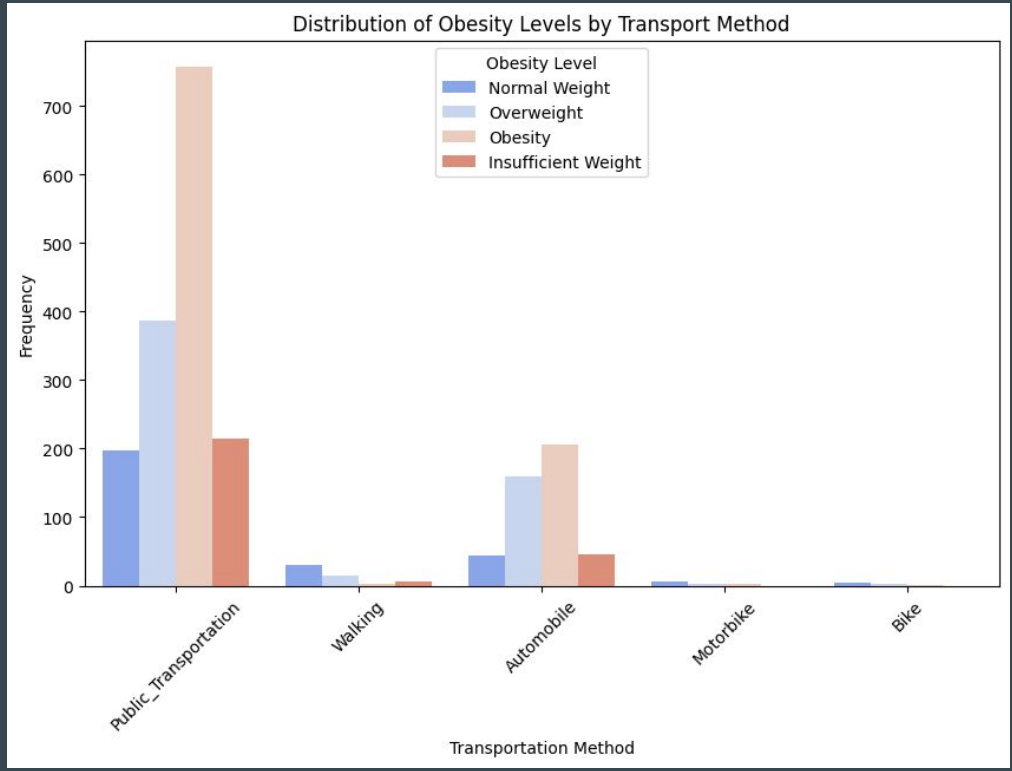
While this suggest that there is a relationship between physical activity and weight, it does not necessarily mean that physical activity causes weight loss. Other factor, such as diet, could also be at play.

Unraveling the Commute Connection

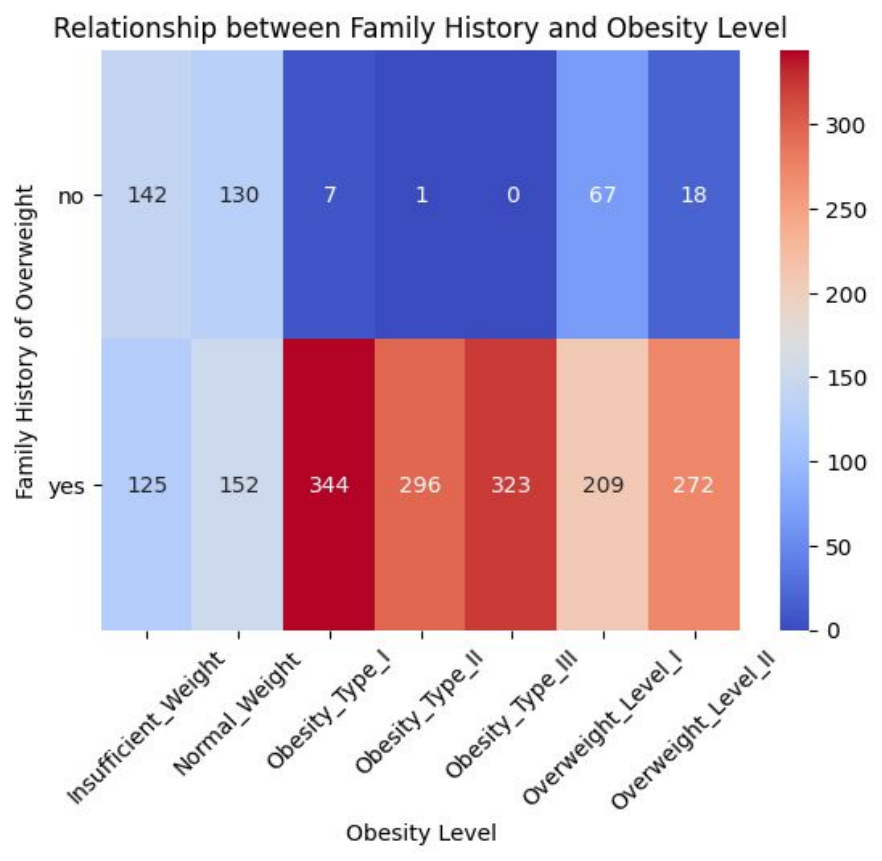
Those individuals with higher levels of obesity predominantly rely on public and private modes of transport, such as automobiles.

In contrast, individuals with normal weight are more inclined to use walking or biking as a way of commuting to work.

While the pattern may not be entirely definitive, there is a discernible trend observed in the collected data. This observation underscores the impact of lifestyle choices on weight management, highlighting the significance of everyday routines.



Cracking the Genetic Puzzle



It is important to see how genetics also play a significant role when it comes to weight management. Obesity, in particular, emerges as a complex and multifactorial condition shaped by a delicate interplay of genetic, behavioral, and environmental elements, all influencing individual responses to diet and physical activity.

This study reveals a notable trend: individuals with obese family members tend to fall within the same weight category. This could stem from shared lifestyle habits or routines, potentially influenced by genetics predispositions. Similar trend is observed with individuals classified as overweight.

This underscores the importance of understanding how the genetic makeup and familiar environment shape the weight journey.

Weight Chronicles: Unveiling Insights, Exploring Paths

- Lifestyle impact: The data indicates a significant relationship between daily habits and weight outcomes. Factors such as physical activity level, type of food and transport are closely linked to weight status, highlighting the importance of adopting healthy habit for weight management.
- Sports and weight: This underscores the importance of regular exercise in maintaining a healthy weight and suggest potential interventions to promote physical activity for weight management.
- Transport: This suggests avenues for promoting active commuting options.
- Psychological factors: Understanding the psychological drivers behind eating habits may inform about approaches regarding obesity prevention and treatment.
- While the current analysis proves valuable insights into the relationship between daily habits and weight outcomes, further research incorporating genetic, socioeconomic, psychological and cultural factors is essential for a comprehensive understanding of obesity and tailored intervention for weight management.