

Chapter 1

Introduction

1.1 Background

Obesity is a serious global health issue, affecting approximately 400 million people worldwide (Alhashemi et al., 2022). Among university students, the prevalence was found to be even more concerning, with rates reaching up to 40% globally (Ilić et al., 2024). Obesity is a condition resulting from an interplay of genetic, behavior, and environmental factors. In many cases, obesity in adulthood begins from being overweight during childhood (Engin, 2024). Obesity can also significantly increase the risk of chronic illnesses like diabetes type 2, cardiovascular disease, hypertension, and even certain cancers (Blüher, 2019). Additionally, obesity can also impact mental health resulting to issues such as loss of social confidence, social isolation, and depression (Sarma et al., 2021).

This research will mainly focus on the differences between the diet quality, sleep quality and obesity occurring rates of two countries Greece and Indonesia specifically in University Students. In Greece, the adult obesity rate has reached up to a total of 37.5% (Diamantis et al., 2022). However, for university students around 32.1% for males and 8.4% for females (Chourdakis et al., 2010). A similar pattern was observed in Indonesia where there was an upward trend to about 35.4% for adults and 34.7% for university students (Vidiawati et al., 2025; Wicaksari, 2022). This statistical report highlights the relevancy to greatly improve the progress of this condition.

Among several modifiable lifestyle factors, dietary habits and sleep habits have been increasingly recognized. Diet quality is defined as an individual's adherence towards the dietary guidelines provided (Hiza et al., 2018). Poor dietary habits are characterized by consuming foods consisting of high calories

such as sugar, processed foods, and fatty foods accompanied by low consumption of fruits, vegetables and nutrient dense foods (Flieh et al., 2021; Harb et al., 2022; Yasmin et al., 2021). In contrast, a good diet quality is categorized by the variety, amount, and overall balance of food consumed (Miller et al., 2020). To help mitigate obesity from diet issues one could incorporate foods with high fiber content like fruits and vegetables to improve diet quality along with regular exercise (Miketinas et al., 2019).

Similarly, sleep patterns are also closely linked with obesity. Sleep quality is described as a multidimensional construction of sleep, that emphasizes aspects such as sleep initiation, sleep maintenance, and refreshment upon awakening (Bai et al., 2023). Insufficient sleep can cause hormonal imbalance particularly ghrelin and leptin which leads to an increase in appetite thus resulting to weight gain (Beccuti & Pannain, 2011; Chaput et al., 2022). Furthermore, according to guidelines by Chaput et al. (2018), highlights that young adults are recommended to sleep for around 7 to 9 hours a day. Another indicator of good sleep quality is sleeping onset latency, which is ideally between 15 to 30 minutes (Markwald et al., 2018). This shows that diet quality and sleep quality pose impacts towards obesity rates (Hur et al., 2021).

Recent studies have discussed the associations between diet and sleep quality. An example was a study done by Godos et al. (2021) which shows that consuming healthy foods was associated with better sleep and lower BMI. Another similar study observed the associations between sleep quality and diet quality where it was found that Korean young adult females with poor sleep quality tend to have higher BMI (Hur et al., 2021). This occurrence mainly happens because of the associations with melatonin production and gut-brain axis associating with serotonin production (Meng, 2017; Wang, et al., 2022).

Between Indonesia and Greece, there are several cultural differences that are significant role in shaping an individual's habits (Jeon et al., 2021). In Indonesia, sleep patterns are mainly influenced by

religious practices that can lead to various sleep durations and influencing sleep quality (Naharong, 2022). On the other hand, Greece has a stricter schedule along with a cultural tradition called siesta which involves engaging in short daytime sleeping habits (Anastasopoulou et al., 2024; Georgousopoulou et al., 2016). Moreover, dietary habits in Indonesia mainly consisted of high carbohydrate intake such as rice and noodles (Afandi, 2019). In contrast, the Greek diet is mainly characterized by the Mediterranean diet (Martimianaki et al., 2022).

This research is significant as it illustrates cultural differences and how modifiable risk factors interplays with the rate of increasing obesity conditions. This can also aid in providing culturally specific interventions along with filling gaps on how interconnected role of sleep as a mediating factor between diet quality and obesity. By addressing this gap, the study offers a more comprehensive understanding of how behavioral and environmental factors jointly influence health outcomes in young adults.

1.2 Objective

Examine the role of sleep quality as a mediating factor in the relationship between diet quality and obesity prevalence among university students in Greece and Indonesia, while also considering other well-known determinants such as a sedentary lifestyle and smoking.

1.3 Hypothesis

- **H0 (Null Hypothesis):** Sleep quality does not mediate the relationship between diet quality and obesity prevalence among university students in Greece and Indonesia.
- **H1 (Alternative Hypothesis):** Sleep quality mediates the relationship between diet quality and obesity prevalence among university students in Greece and Indonesia.