

Chapter 1

Introduction

The relationship between diet quality, sleep patterns, and academic performance remains a critical yet underexplored dimension of student health research, particularly in cross-cultural contexts. This study investigates these interconnected factors among university students in Greece and Indonesia, where distinct dietary traditions and educational systems may yield divergent outcomes.

1.1 Background

Academic performance is a crucial indicator of students' cognitive abilities, learning efficiency, and future career prospects, making it essential to understand the various factors that influence educational success. Better sleep and diet quality were found to be associated with greater academic performance in elementary school children (Qin et al., 2024). University students often experience irregular sleep patterns and suboptimal dietary habits due to academic pressures, transitioning to independent living away from family, social engagements, and personal lifestyle choices. The demanding nature of life in academia often leads to inconsistent sleep schedules and unhealthy eating behaviors, which may negatively impact students' cognitive function and overall well-being.

Scientific studies have established a strong correlation between sleep quality and academic success. Research by Wheaton et al. (2016) highlights that insufficient sleep among students is associated with lower academic performance, reduced attention span, and impaired problem-solving abilities. Similarly, a study by Creswell et al. (2023) found that university students experiencing poor sleep quality had lower Grade Point Averages (GPAs) compared to those with healthier sleep habits. Sleep deprivation not only affects cognitive performance but also contributes to increased stress levels, emotional instability, and poor time management, all of which can hinder academic achievement. Additionally, findings from Seoane et al. (2020) indicate that irregular sleep patterns, particularly late-

night study habits, significantly disrupt cognitive functions and academic motivation, further exacerbating students' learning difficulties.

In addition to sleep, diet quality is crucial in cognitive function and learning efficiency. A study by Naveed et al. (2020) demonstrated that students with higher diet quality, characterized by adequate intake of fruits, vegetables, and essential nutrients, exhibited better academic outcomes compared to those consuming a diet high in processed foods and sugar. Nutritional deficiencies, particularly in omega-3 fatty acids, vitamins, and minerals, have been linked to reduced memory retention, slower cognitive processing, and low blood flow in the brain (Dighriri et al., 2022). The Mediterranean diet, commonly followed in Greece, has been associated with improved brain function due to its high content of healthy fats, antioxidants, and fiber (Petersson & Philippou, 2016). In contrast, the rice-based diet predominant in Indonesia may present nutritional variations that could influence students' academic performance differently.

Cultural and environmental factors significantly influence students' sleep behaviors, dietary habits, and, consequently, their academic performance. A systematic review by Jeon et al. (2021) examining cross-cultural differences in sleep patterns among children and adolescents found that cultural norms and environmental contexts play a crucial role in shaping sleep duration and quality. The study reported variations in sleep disturbances and durations across different countries, highlighting the impact of cultural and environmental factors on sleep behaviors. This is aligned with a study comparing U.S.-born and foreign-born college students, which found profound cultural differences affecting sleep habits, study hours, and extracurricular activities, which in turn impacted academic outcomes (Eliasson et al., 2016). In addition, research by Sohail et al. (2024) examining eating behaviors among adolescents in the United Arab Emirates revealed that the home food environment, shaped by cultural norms, significantly affected eating behaviors, family meal frequency, and academic achievement. Furthermore, a study assessing the association between diet and sleep quality among Spanish

university students found that specific dietary patterns prevalent in certain cultures could influence sleep quality, thereby affecting cognitive functions essential for learning (Ramón-Arbués et al., 2022).

While research has explored the independent effects of sleep quality and diet on cognitive function, there is limited studies have examined their combined impact on academic performance. Existing literature is primarily focused on Western populations, with limited insight into how these factors interact in different cultural contexts, such as Greece and Indonesia. The Mediterranean diet in Greece is known for its cognitive benefits, while Indonesia's rice-based diet may influence cognition differently. Additionally, cultural variations in sleep routines and academic expectations may affect students' ability to maintain healthy habits. A comparative study in these countries is necessary to understand how sleep and diet jointly influence academic outcomes

1.2 Objective

This study examines the mediating role of sleep quality in the relationship between diet quality (measured via GDQS and NOVA classification for UPF intake) and academic performance (self-reported GPA and concentration) among university students in Greece and Indonesia. By comparing these populations, additionally, it aims to identify cultural variations in sleep and dietary habits that may influence academic outcomes.

1.3 Hypothesis

H_0 (Null Hypothesis): The relationship between diet quality and students' academic performance in Greece and Indonesia cannot be mediated by sleep quality.

H_1 (Alternative Hypothesis): The relationship between diet quality and students' academic performance in Greece and Indonesia can be mediated by sleep quality.