

Chapter 1

Introduction

1.1 Background

Central obesity has become an important public health concern because it is closely related to metabolic complications and long-term disease risk. It refers to the excessive accumulation of visceral fat in the abdominal region (Lu et al., 2025). This form of fat distribution is important to examine because it reflects not only body size, but also where excess fat is stored. In Indonesia, its prevalence has risen to 36.8%, nearly doubling from 18.8% reported less than two decades ago (Ministry of Health of the Republic of Indonesia, 2023). This increase shows that central obesity is becoming a prominent health issue in the Indonesian population.

Central obesity is a complex condition that cannot be explained by a single cause. Its rising burden can be influenced by several interacting factors, including dietary intake, physical activity, age, sex, and socioeconomic status (Mekonnen et al., 2023). Among these factors, dietary intake remains important because repeated consumption of energy-dense foods can contribute to positive energy balance and abdominal fat accumulation. Foods and beverages high in sugar and fat are relevant because they are often energy-dense, palatable, and commonly consumed as part of modern dietary patterns (Avesani et al., 2023). However, sugar and fat intake should not be viewed as the only causes of central obesity, but as part of a broader set of behavioral and environmental contributors.

This broader view is important because food choices are not determined only by nutrient content or availability. They are also shaped by how individuals perceive and respond to the sensory properties of foods. Taste perception refers to the way a person detects, experiences, and evaluates taste stimuli during food consumption. Two important aspects of taste perception are sensory sensitivity and sensory liking. Sensory sensitivity describes how well a person detects or perceives the strength of a taste, while sensory liking describes how much a person enjoys that taste (Rohde et al., 2020; Boesveldt, 2018; Dominic et al., 2025). These aspects are related but distinct, as a person may detect

a taste strongly without necessarily liking it, or may like a taste even when it is perceived less intensely.

Evidence linking taste perception with dietary intake and body weight status remains inconsistent. For sweet taste, studies suggest that higher sensitivity is associated with lower sweetness preference and lower total energy intake, whereas others report no clear association between sweet taste sensitivity and dietary intake, while sweet liking has been positively associated with total energy intake (Chamoun et al., 2018; Han et al., 2017; Jayasinghe et al., 2017). For fat taste, some studies report no association between fat sensitivity and liking for fatty foods, while others suggest that lower fat sensitivity may be related to higher dietary fat intake without necessarily corresponding to greater fat liking (Chamoun et al., 2018; Costanzo et al., 2017; Ozturk & Dikmen, 2021). Similar variation is seen in relation to body weight status, as lower fat taste sensitivity and greater liking for fatty foods have been reported among individuals with obesity, while sweet taste sensitivity has not shown a consistent relationship with obesity status (Brondel et al., 2022; Hardikar et al., 2017; Khalighi et al., 2025; Vignini et al., 2019). These findings indicate that sensory sensitivity and liking may relate to eating behavior and obesity differently depending on the taste quality, sensory measure, and population studied. Taste perception can vary across ethnic groups and dietary environments (Williams et al., 2016). Therefore, findings from Western populations may not fully apply to Indonesian populations, where evidence remains limited.

This study is significant because it examines taste perception, dietary intake, and central obesity within one framework, while addressing the limited evidence available in the Indonesian context. Rather than viewing central obesity only as a result of dietary intake, this study also considers how individuals perceive and like sweet and fatty tastes, which may influence food choices and intake patterns. The study is also urgent because central obesity is increasing in Indonesia and is associated with metabolic, long-term health, and reproductive health risks among adults of reproductive age, commonly defined as 15–49 years (World Health Organization, 2025; Zeng et al., 2025). However, the

role of sweet and fat taste perception in dietary intake and central obesity remains unclear. Therefore, this study addresses the research problem of limited and inconsistent evidence on the association between sensory sensitivity and liking for sweet and fatty tastes, sweet and fat intake, and central obesity among Indonesian adults of reproductive age.

The reproductive-age group was selected to keep the study population relevant to both central obesity and reproductive function. Visceral fat accumulation can disrupt the hypothalamic-pituitary-gonadal axis and impair reproductive function in both sexes (Gurbuz et al., 2026; Tesfa & Zewdie, 2026). In this study, the upper age cutoff was set at 40 years because the burden of infertility is primarily concentrated within the 35–39-year age subgroup (Liang et al., 2025; Zeng et al., 2025). Among women over 40 years, declining desire for pregnancy and regular contraceptive use may obscure infertility diagnosis, making reproductive status more difficult to assess (Zeng et al., 2025). The cutoff also helped reduce potential age-related variation in taste perception, allowing a more stable sensory profile among participants (Kondo et al., 2020).

1.2 Objective

To examine the relationship between sensory sensitivity and liking for sweet and fatty tastes, dietary sugar and fat intake, and central obesity measured by waist-to-hip ratio among Indonesian adults of reproductive age.

1.3 Hypothesis

H_0 : There is no significant association between sensory sensitivity and liking for sweet and fatty tastes, dietary sugar and fat intake, and waist-to-hip ratio among Indonesian adults of reproductive age.

H_1 : There is a significant association between sensory sensitivity and liking for sweet and fatty tastes, dietary sugar and fat intake, and waist-to-hip ratio among Indonesian adults of reproductive age.