

Hubungan Konsumsi Makanan Pedas dengan Overweight atau Obesitas: Tinjauan Literatur

The Relationship Between Spicy Food Consumption and Overweight or Obesity: A Literature Review

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Abstrak

Latar Belakang: Prevalensi obesitas terus meningkat, baik secara global maupun di Indonesia. Salah satu faktor yang berkontribusi terhadap kondisi tersebut adalah konsumsi makanan yang tidak sehat, termasuk konsumsi makanan pedas secara berlebihan. Cabai, sebagai salah satu bahan utama makanan pedas, mengandung kapsaisin, yaitu senyawa bioaktif yang dapat memengaruhi nafsu makan, asupan energi, dan regulasi berat badan. **Tujuan:** Penelitian ini bertujuan untuk menganalisis hubungan antara konsumsi makanan pedas dengan status overweight atau obesitas. **Metode:** Penelitian ini menggunakan metode *narrative literature review*. Artikel yang relevan diidentifikasi melalui basis data Google Scholar dan PubMed, kemudian dianalisis untuk mengevaluasi hubungan antara konsumsi makanan pedas dengan overweight atau obesitas. **Hasil:** Hasil kajian menunjukkan bahwa frekuensi konsumsi cabai yang tinggi berhubungan dengan peningkatan risiko obesitas, terutama obesitas sentral. Konsumsi makanan pedas setiap hari, terutama yang disertai dengan tingginya konsumsi daging dan minyak, dikaitkan dengan peningkatan risiko overweight dan obesitas. Selain itu, konsumsi makanan pedas dipengaruhi oleh berbagai faktor, seperti jenis kelamin, usia, status sosial ekonomi, gaya hidup, dan kondisi lingkungan. **Kesimpulan:** Hasil penelitian menunjukkan bahwa frekuensi dan intensitas konsumsi makanan pedas berhubungan dengan peningkatan risiko overweight dan obesitas. Namun, hubungan tersebut juga dipengaruhi oleh pola makan serta berbagai faktor individu dan lingkungan.

Kata kunci: makanan pedas; cabai; kapsaisin; overweight; obesitas; profil lipid.

Abstract

Background: The prevalence of obesity continues to increase globally and in Indonesia. One of the contributing factors is the consumption of unhealthy foods, including excessive spicy food. Chili peppers, one of the main ingredients in spicy foods, contain capsaicin, a bioactive compound that may influence appetite, energy intake, and body weight regulation. **Purpose:** This study aimed to analyze the relationship between spicy food consumption and overweight or obesity status. **Method:** This study employed a narrative literature review method. Relevant articles were identified through Google Scholar and PubMed and were analyzed to evaluate the association between spicy food consumption and overweight or obesity. **Results:** The reviewed studies indicated that a high frequency of chili consumption was positively associated with an increased risk of obesity, particularly central obesity. Daily consumption of spicy foods, especially when accompanied by high intake of meat and oil, was associated with a greater risk of overweight and obesity. Furthermore, spicy food consumption was influenced by various factors, including gender, age, socioeconomic status, lifestyle, and environmental conditions. **Conclusion:** The findings suggest that the frequency and intensity of spicy food consumption are associated with an increased risk of overweight and obesity. However, this relationship is also influenced by dietary patterns and other individual and environmental factors.

.Keywords: spicy food; chili pepper; capsaicin; overweight; obesity; lipid profile

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1. INTRODUCTION

Obesity remains a growing public health problem. The World Obesity Atlas estimated that by 2030, one in five women and one in seven men worldwide would be living with obesity, equivalent to more than one billion people globally [1]. In Indonesia, the 2018 Basic Health Research reported an obesity prevalence of 21.8%, an increase from 14.8% in 2013 [2]. In East Java, obesity prevalence was reported at 16%, or approximately 1,163,118 people, while the prevalence among adolescents aged 16-18 years in Malang Regency reached 4.4% [3]. The World Health Organization defines obesity as abnormal or excessive fat accumulation that may impair health [4]. Obesity is associated with an increased risk of non-communicable diseases, including type 2 diabetes mellitus, cardiovascular disease, and several cancers. It can also reduce quality of life by affecting sleep, mobility, and daily functioning [4]. Therefore, identifying dietary habits that contribute to or protect against obesity is important for nutrition and public health interventions.

Spicy food is widely consumed in many populations and is commonly prepared with chili pepper. Chili pepper contains capsaicin, a bioactive compound that produces a burning sensation and may create a pleasant sensory experience, which helps explain why many individuals prefer spicy foods [5]. However, spicy food may also stimulate appetite and increase meal portion size. In addition, spicy dishes are often prepared with added oil, chili sauce, chili oil, meat, and other energy-dense ingredients. Sweet foods or beverages may also be consumed to relieve the burning sensation, potentially increasing total energy intake [6]. Based on these considerations, this literature review analyzes the relationship between spicy food consumption and overweight or obesity status. The review focuses on two main questions: what factors influence the relationship between spicy food consumption and body weight status, and whether the frequency and intensity of spicy food consumption are associated with overweight or obesity.

Spicy food consumption should be analyzed based on the type and nutritional composition of the food consumed, rather than solely on its capsaicin content. Popular spicy foods, such as seblak, generally contain high levels of sodium and are often combined with energy-dense processed ingredients [15]. The energy, fat, and sodium content, together with portion size and consumption frequency, may influence the body's energy balance and contribute to weight gain. Another study reported that frequent fast-food consumption and low levels of physical activity were significantly associated with obesity among university students [16]. Therefore, the relationship between spicy food consumption and overweight or obesity may not be caused exclusively by spiciness or capsaicin. It may also be influenced by food composition, serving size, consumption frequency, dietary patterns, and individual physical activity levels.

2. METHODS

Research Design

This article used a narrative literature review design. The review summarized and compared previous studies related to spicy food consumption, chili pepper or capsaicin intake, overweight, obesity, abdominal obesity, and lipid profile.

Location and Time of Research

The literature search was conducted through Google Scholar and PubMed. The source publication reported that the search process was carried out on April 13-14, 2025.

Population and Sample

The population in this review consisted of scientific publications addressing spicy food consumption and overweight or obesity status. The source publication reported ten eligible literatures published between 2015 and 2025. The main evidence synthesis in this manuscript summarizes nine core population-based or observational studies that provided explicit information on population, exposure, and conclusion.

Data Analysis Method

Data were analyzed using narrative synthesis. Information extracted from each article included author, year, study population or data source, and the main conclusion related to overweight, obesity, abdominal obesity, or lipid profile. Findings were then grouped into three interpretive themes: obesity-related outcomes, dietary and lifestyle modifiers, and lipid-profile outcomes.

3. RESULTS

The reviewed literature indicates that the relationship between spicy food consumption and obesity is not uniform. One cohort study reported an inverse association between chili consumption and incident overweight or obesity [7]. In contrast, several cross-sectional studies and a meta-analysis reported that higher spicy food intake, stronger spicy flavor preference, or more frequent chili pepper consumption was positively associated with general obesity, abdominal obesity, or higher BMI [6], [8]-[12]. Two studies on lipid profile suggested that spicy food consumption may be favorably associated with lower LDL cholesterol and higher HDL cholesterol, although triglyceride levels may increase when spicy food consumption is accompanied by higher energy and oil intake [13], [14].

Table 1. Summary of literature reviewed

No.	Author(s)	Population / Data Source	Main Finding
1	Shi et al. (2017) [7]	12,970 Chinese adults followed for a median of 9 years; 3,203 developed overweight/obesity during follow-up.	Chili intake was inversely associated with incidence of overweight/obesity among Chinese adults.
2	Wang et al. (2023) [6]	Meta-analysis of nine observational cross-sectional studies involving 189,817 participants.	Spicy food intake may benefit hypertension but may adversely affect overweight/obesity and blood lipid levels; interpretation requires caution.
3	Yang et al. (2022) [8]	40,877 Chinese Han adults aged 30-79 years in the Sichuan Basin.	Spicy food consumption may be a risk factor for abdominal obesity; moderation is recommended.
4	Yang et al. (2018) [9]	15,683 rural Chinese adults aged 35-74 years in the RuralDiab Study.	Frequency of spicy food intake and level of spicy flavor were positively associated with general obesity.
5	Liu et al. (2024) [10]	6,138 U.S. adults from NHANES 2003-2006 with chili intake and BMI data.	Higher chili intake frequency was positively associated with BMI and obesity risk.
6	Xiong et al. (2025) [11]	2,995 adults aged 30-79 years in Rongchang, Chongqing, Southwest China.	Spicy food intake and intake frequency were positively associated with overweight/obesity.
7	Yang et al. (2019) [12]	28,773 adults from the Henan Rural Cohort Study.	Frequency of spicy food intake was positively associated with abdominal obesity, with fat-energy intake as a possible mediator.
8	Xue et al. (2017) [13]	6,774 apparently healthy Chinese adults aged 18-65 years from the China Health and Nutrition Survey.	Spicy food consumption was related to lower LDL and LDL/HDL ratio and higher HDL, but also to higher triglycerides.
9	Yu et al. (2018) [14]	1,549 Chinese adults aged 65 years and older from CHNS communities.	More frequent spicy food consumption was favorably associated with several cardiovascular risk factors in older adults.

Overall, the evidence suggests that frequent or intense spicy food consumption is more consistently associated

with higher obesity-related risk when spicy foods are consumed as part of energy-dense dietary patterns. The studies also indicate that the effect of spicy foods cannot be interpreted solely from capsaicin exposure because real-world spicy dishes often contain oil, meat, salt, and refined carbohydrates.

4. DISCUSSION

The findings show a complex association between spicy food consumption and body weight status. Shi et al. reported an inverse association between chili intake and incident overweight/obesity among Chinese adults [7]. This finding is consistent with biological hypotheses suggesting that capsaicin may influence energy balance through thermogenesis, appetite regulation, and gut microbiota pathways. Nevertheless, the study measured chili intake over only three days, which may not represent long-term consumption, and residual confounding could not be fully excluded [7].

In contrast, the meta-analysis by Wang et al. and several cross-sectional studies reported a positive association between spicy food consumption and overweight, general obesity, or abdominal obesity [6], [8]-[12]. This difference may arise because experimental studies often use isolated capsaicinoids, while observational studies capture actual dietary practices. In real-world diets, spicy foods are frequently consumed with high-fat, high-oil, meat-based, salty, or carbohydrate-rich dishes. These accompanying foods may increase total energy intake and help explain why spicy food consumption is associated with obesity in many population-based studies [6], [9], [11].

Age, gender, lifestyle, and environmental context also appear to modify the relationship. Yang et al. found that spicy food consumption was associated with abdominal obesity among adults aged 30-79 years in the Sichuan Basin, with age acting as an important independent factor [8]. Yang et al. also reported that marital status, tobacco use, alcohol use, and physical activity were associated with abdominal obesity, especially among women [12]. In Southwest China, local climate and dietary culture may further influence spicy food habits, particularly through the consumption of hot pot and other oil-rich spicy dishes [11]. The lipid-profile evidence also requires careful interpretation. Xue et al. found that spicy food consumption was associated with lower LDL cholesterol, a lower LDL/HDL ratio, and higher HDL cholesterol, but also higher triglyceride levels [13]. Yu et al. observed favorable associations between more frequent spicy food consumption and several cardiovascular risk factors among older adults [14]. These findings suggest that spicy food may have potential metabolic benefits, but the triglyceride increase indicates that the surrounding dietary pattern, especially oil and total energy intake, remains important [13], [14].

Most included studies used cross-sectional designs; therefore, causality cannot be established. Many studies also relied on food frequency questionnaires or self-reported spicy food consumption, which may introduce recall bias and misclassification. In addition, definitions of spicy food, chili type, capsaicin dose, spiciness intensity, and dish composition varied across studies. Future research should use prospective cohorts or intervention designs, standardized exposure measurement, and detailed dietary pattern assessment to clarify whether spicy food itself, capsaicin, or the accompanying dietary pattern drives obesity-related outcomes.

5. CONCLUSION

Spicy food consumption has a complex relationship with overweight, obesity, abdominal obesity, and lipid profile. The reviewed evidence indicates that higher frequency and stronger intensity of spicy food consumption are often positively associated with general or central obesity, especially when spicy foods are consumed with oil-rich, meat-based, or energy-dense dishes. However, several studies suggest potential favorable effects on lipid metabolism, including lower LDL cholesterol and higher HDL cholesterol. The overall interpretation should consider dietary context, gender, age, lifestyle, environmental conditions, and study design limitations. Moderate consumption and attention to the total composition of spicy meals are recommended to reduce the risk of excess energy intake and metabolic disorders.

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