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Relationship Between Nutrition Knowledge And Fast Food Consumption With Obesity In Adolescents

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Abstract

Obesity is a condition when a person's weight exceeds normal limits due to excessive accumulation of fat tissue in the body. WHO in 2022 stated that 8% of children and adolescents aged 5-19 years in the world are obese. This study aims to determine the relationship between nutrition knowledge and fast food consumption with obesity in adolescents. This study was written using a literature review method based on articles collected using the Google Scholar and PubMed search engines. The inclusion criteria for the articles used were articles published between 2015 and 2025, both international and national articles, accessible in full text, original research, and containing information related to the relationship between nutritional knowledge and fast food consumption with obesity in adolescents. Based on the search results, a total of nine articles related to the topic were obtained. Based on these articles, four out of six articles stated that there was no relationship between nutritional knowledge with obesity in adolescents. Meanwhile, three out of four articles stated that there was a relationship between fast food consumption with obesity in adolescents. The relationship between nutrition knowledge and fast food consumption with adolescent obesity is inconsistent. This happens because there are various factors that influence it..

Keywords: Adolescents, Fast Food Consumption, Nutritional Knowledge, Obesity.

INTRODUCTION

Obesity is a condition when a person's weight exceeds normal limits due to excessive accumulation of fat tissue in the body. Obesity in adolescents can be determined by checking their Body Mass Index (BMI). BMI can be calculated by dividing body weight (in kg) by height (in meters squared). If an adolescent's BMI is more than 2 standard deviations above the WHO growth reference median, then the adolescent is categorized as obese. Obesity in adolescents is a health problem whose prevalence is increasing globally. The World Health Organization (WHO) states that only 2% of children and adolescents aged 5-19 years were obese in 1990 or around 31 million young people. Whereas in 2022, this figure has increased to 8% of children and adolescents who are obese or around 160 million young people (WHO, 2022).

Adolescence is a critical period because during this time transformation occurs. Adolescents aged 10-19 years experience an increase in height of up to 20% of their final adult height and 50% of their adult weight, as well as an increase in bone mass of up to 40%. Due to this rapid growth and change, the nutritional needs of adolescents increase. Good nutrition is essential during this time as it impacts growth, pubertal development, body composition, and long-term health (Norris *et al*., 2022). However, in the midst of these needs, adolescents tend to choose fast food. Adolescents are very easily influenced by the social environment, including peers and residential locations close to fast food restaurants, so the frequency of fast food consumption increases. The practical, modern presentation of fast food, and its strategic location make fast food easily accessible and the main choice of adolescents (Nuraelah & Maisaroh, 2025).

Fast food is known to be high in fat, sugar, and salt, but low in fiber, vitamins, and minerals. This is in accordance with research conducted by Lucio *et al*. (2020) which states that menus at several fast food restaurants and movie theaters in Mexico contain calories, carbohydrates, and fats that far exceed daily recommendations for children and adolescents. A study conducted by Elias *et al*. (2025)

found that adolescents who frequently consumed fast food were almost three times more likely to be overweight or obese than those who consumed fast food two times or less per week. In addition, a study conducted by Mancone *et al*. (2024) discussed a multifaceted food literacy intervention to improve nutrition knowledge and self-regulation in adolescents. The intervention successfully improved nutrition knowledge, ability to read food labels, and cooking skills that contributed to changes in healthier eating behaviors, including increased fruit and vegetable consumption and reduced consumption of fast food and processed snacks. This demonstrates the important role of food literacy and nutrition knowledge in influencing adolescents' food choices and eating behaviors. Thus, this study aimed to determine the relationship between nutrition knowledge and fast food consumption with obesity in adolescents.

RESEARCH METHODS

This study, which examined the relationship between nutrition knowledge and fast food consumption with obesity in adolescents, used a literature review method based on articles collected using the search engines Google Scholar and PubMed. Some of the keywords used when collecting journals were "nutrition knowledge", "fast food consumption", 'obesity', and "adolescents". In addition, the articles used were articles published between 2015 and 2025, both international and national articles, accessible in full text, original research (not a literature review or meta-analysis), and contained information related to the relationship between nutritional knowledge and fast food consumption with obesity in adolescents. Based on the search results, a total of nine articles related to the topic were obtained.

RESULTS AND DISCUSSION

This study reviewed nine articles that discussed the relationship between nutrition knowledge and fast food consumption with adolescent obesity. The results of the review of several articles show pros and cons related to the research topic. The results are summarized in Table 1.

Table 1. Results of Literature Review Study on the Relationship between Nutrition Knowledge and Fast Food Consumption with Obesity in Adolescents

Author(s) and Year	**Research Design**	**Respondents**	**Research Results**
Shabah *et al*. (2023)	Cross-sectional	245 students in grades X and XI of SMA Islam Al-Azhar 1 Jakarta	A total of 59.2% of respondents had normal nutritional status, 20% were overweight, and 18.4% were obese, and there were 77.1% of respondents with insufficient nutritional knowledge. After statistical tests, it was found that there was no significant relationship between nutritional knowledge with the incidence of overweight and obesity (p=0.437).

Author(s) and Year	Research Design	Respondents	Research Results
Dewi & Kartini (2017)	Case control	60 students in grades VII and VIII of SMPN 11 Semarang (30 obese cases and 30 non obese controls)	Most students (73.3%) had good nutritional knowledge and there was no significant relationship between nutritional knowledge with the incidence of obesity (p=0.076).
Intantiyana *et al*. (2018)	Cross-sectional	67 adolescen t girls with overweight and obesity at SMAN 9 Semarang City	Most of the respondents were obese (65.7%) and had good knowledge of balanced nutrition (70.1%). So after statistical tests, it is known that there is no significant relationship between knowledge of balanced nutrition with the incidence of obesity in overweight adolescent girls at SMAN 9 Semarang City (p=0.837).
Wang *et al*. (2022)	Cross-sectional	2,701 children and adolescents aged 8-18 years in China drawn from the China Health and Nutrition Survey (CHNS) in 2004, 2006, 2009, 2011, and 2015	A total of 293 participants were overweight or obese and 837 participants had a high level of dietary knowledge. Participants with a high level of dietary knowledge had a lower risk of being overweight or obese (OR: 0.56; 95% CI: 0.40-0.78).
Cai *et al*. (2023)	Longitudinal study	2,035 adolescents aged 12-17 years in China who participated in at least one of the five waves of the China Health and Nutrition Survey (CHNS) from 2004-2015	Adolescents with moderate dietary knowledge were less likely to be overweight or obese compared to adolescents with low dietary knowledge (OR: 0.20; 95% CI: 0.05-0.80; p<0.05).
Lestari *et al*. (2023)	Cross-sectional	397 adolescents in Kendari,	There is no significant relationship between the level

Author(s) and Year	Research Design	Respondents	Research Results
		Southeast Sulawesi	of knowledge with the incidence of obesity in adolescents (p=0.538). However, there is a significant relationship between fast food eating patterns with the incidence of obesity in adolescents (p=0.007).
Kencanaputri *et al*. (2024)	Cross-sectional	112 students in grades X and XI of SMAN 6 Depok	The majority of adolescents were not overweight (80.4%) and rarely consumed fast food (70.5%). After statistical tests, it was found that there was no significant relationship between fast food consumption with the incidence of overweight and obesity in adolescents (p=0.608).
Mahumud *et al*. (2021)	Cross-sectional	282,213 adolescents aged 11-17 years from 89 countries spread across six WHO regions, both low-middle and high income countries in 2003-2015	The prevalence of overweight ranged from 2.40% (Sri Lanka) to 29.08% (Niue), while obesity ranged from 0.40% (Sri Lanka) to 34.66% (Cook Islands). Overweight and obesity in adolescents were significantly related with fast food consumption (RRR of overweight: 1.09; 95% CI: 1.05-1.12 and RRR of obesity: 1.32; 95% CI: 1,26-1,38).
Hafid & Hanapi (2019)	Cross-sectional	275 high school students in grades X and XI in Gorontalo Regency	As many as 98.9% of respondents in this study were categorized as frequently consuming fast food. After statistical testing, it was found that there was a significant relationship between fast food consumption with the

Author(s) and Year	Research Design	Respondents	Research Results
			incidence of obesity in adolescents in Gorontalo Regency in 2019 (p=0.002).

The results (table 1.) show that there are four articles that state there is no relationship between nutritional knowledge with obesity in adolescents and two articles that state there is a relationship between nutritional knowledge with obesity in adolescents. Shabah *et al*. (2023) in their study stated that adolescents with good nutrition knowledge do not necessarily apply this knowledge in their daily lives. In addition, low nutrition knowledge can indeed reduce adolescents' efforts to balance their food consumption. But in practice, knowledge alone is not enough to prevent obesity because adolescent behavior is also strongly influenced by the environment, lifestyle, and other external factors. This is in line with research conducted by Dewi & Kartini (2017) which found that most adolescents (95%) had good nutritional knowledge, but this did not make the obesity rate small, because the obese group had more adolescents with good nutritional knowledge. Nutritional knowledge is an indirect factor. Nutritional knowledge will only be effective in preventing obesity if followed by changes in eating behavior and a healthy lifestyle.

Other studies conducted by Intantiyana *et al*. (2018) and Lestari *et al*. (2023) also stated the same thing that despite having good nutritional knowledge, if it is not applied in everyday life, it will not affect the nutritional status of adolescents. Good nutritional knowledge that a person has can provide information related to food choices that suit their body's needs, so that individuals can improve their diet. However, this change in behavior is also influenced by various factors, such as habits, environment, and lifestyle. Food consumption behavior, including the habit of consuming fast food, plays a greater role in determining the nutritional status and incidence of obesity in adolescents.

In contrast to some previous studies, Wang *et al*. (2022) found that higher levels of dietary knowledge were related with a lower risk of being overweight or obese. Similar results were also stated by Cai *et al*. (2023) that adolescents with moderate levels of dietary knowledge were less likely to be overweight or obese compared to adolescents with low dietary knowledge. Adolescents with a high level of dietary knowledge tend to have healthier eating behaviors, such as choosing nutritious foods, reducing consumption of foods high in sugar and fat, and understanding the importance of physical activity. Lack of dietary knowledge can lead to unhealthy eating habits, such as consumption of fast food, sugary drinks, and high-calorie snacks, which contribute to an increased risk of obesity.

Lestari *et al*. (2023) in their study found that fast food consumption is related with the incidence of obesity in adolescents. Fast food is high in calories, fat, protein, sugar, and salt, but low in fiber. Excessive and sustainable consumption of fast food can cause overnutrition problems, including obesity. Fast food can be in the form of foods that are practical and easily available, such as fried chicken, burgers, french fries, nuggets, instant noodles, and packaged side dishes. Similar results were also found by Mahumud *et al*. (2021) that adolescents who often consume fast food have a higher risk of overweight and obesity compared to adolescents who do not consume fast food. Fast food consumption patterns that are rich in calories, fat, sugar, and salt, and low in fiber and other essential nutrients, especially when combined with low physical activity will increase the risk of obesity in adolescents globally.

Another study conducted by Hafid & Hanapi (2019) also found a similar thing that there was a relationship between fast food consumption with the incidence of obesity in adolescents. Frequent consumption of fast food that is high in calories causes the energy intake that enters the body to exceed the energy expended by the body, resulting in fat accumulation and weight gain that leads to obesity.

However, different from several other studies, Kencanaputri *et al*. (2024) found that there was no relationship between fast food consumption with the incidence of overnutrition. This result may occur because most of the adolescents in the study consumed fast food infrequently, which was less than 3 times a week and in moderation as well. The frequency of food consumption is known to affect a person's nutritional status.

CONCLUSION

The relationship between nutrition knowledge and fast food consumption with obesity in adolescents is inconsistent. In theory, nutritional knowledge affects a person's nutritional status, including obesity. However, nutritional knowledge does not stand alone, it is supported by other factors, such as environmental factors, habits, and lifestyle, which can affect the nutritional status of adolescents. In addition, food consumption behavior, including the habit of eating fast food, also plays a role in determining the nutritional status and incidence of obesity in adolescents. Adolescents who frequently consume fast food, which is rich in calories, cause the energy intake into the body to exceed the energy expended by the body, resulting in fat accumulation and weight gain that leads to obesity. However, the infrequency of fast food consumption may be the reason why one study did not find a relationship between fast food consumption with the incidence of overweight and obesity.

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