e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

International Research of Multidisciplinary Analysis
IRMA JOURNAL
Vol. 3, No. 8, August 2025 hal. 841-960
Journal Page is available at http://irma.nindikayla.com/index.php/home

The Relationship Between Physical Activity and Dietary Patterns and the Prevalence of Obesity Among Adolescents

Fatma Syukrina[1], Rizki Rahma Wati[2]
[1,2]Universitas Salakanagara, Indonesia
Email: fatma.syukrina@unsaka.ac.id

Abstract

Adolescent obesity is a global health issue that requires serious attention. This study aims to describe the relationship between physical activity and dietary patterns and the prevalence of obesity among adolescents. The method used was a qualitative case study with a descriptive approach. Data were collected through in-depth interviews, observations, and anthropometric measurements. The results indicate that adolescents with low physical activity levels are more likely to be obese, while high-calorie, low-fiber diets also contribute to weight gain. The family environment, school, peers, and social media also play a significant role in shaping adolescents' eating behaviors and physical activity. The conclusion of this study is that low physical activity and unhealthy dietary patterns are the primary risk factors for obesity in adolescents. Efforts to prevent obesity must involve increasing physical activity, promoting a balanced diet, providing nutrition education, and fostering a supportive environment.

Keywords: Physical Activity, Diet, Obesity, Adolescents, Case Study

INTRODUCTION

Adolescence is a crucial period in an individual's growth and development. During this stage of life, adolescents undergo significant physical, psychological, and social changes. Nutritional needs increase alongside rapid growth, yet at the same time, adolescents face challenges in maintaining a balance between food intake and physical activity. Changes in modern lifestyles, such as increased consumption of fast food, sugary drinks, high-calorie snacks, and low levels of physical activity, are factors that can contribute to excessive weight gain in adolescents (Kurdanti et al., 2015).

Obesity among adolescents is a health issue that is receiving increasing attention. The prevalence of obesity among adolescents in Indonesia continues to rise year after year (Suha & Rosyada, 2022). Obesity is not only related to physical appearance but is also associated with long-term health risks. Adolescents with obesity are at higher risk for metabolic disorders, reduced physical fitness, psychosocial issues, low self-esteem, and non-communicable diseases (NCDs) in adulthood (Utami et al., 2017).

Physical activity is a key factor in obesity prevention. It plays a role in increasing the body's energy expenditure. Adolescents who are inactive, rarely exercise, and engage in more sedentary activities—such as prolonged sitting, using electronic devices, watching TV, or studying without sufficient physical movement—tend to have a higher risk of body fat accumulation (Mutia et al., 2022). Several studies indicate a negative association between physical activity and the incidence of obesity among adolescents (Dungga, 2020; Hanafi & Hafid, 2019; Utami et al., 2017).

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

In addition to physical activity, dietary patterns are also a major factor associated with the occurrence of obesity. Unbalanced dietary patterns, such as the consumption of high-calorie, high-fat, and high-sugar foods, fast food, and sugary drinks, as well as low intake of vegetables and fruits, can lead to energy intake exceeding the body's needs. If this condition persists, the excess energy will be stored as fat and increase the risk of obesity (Sari & Samsudi, 2024; Wulandari et al., 2016).

Adolescents' eating behaviors and physical activity do not exist in isolation but are influenced by the family environment, school, peers, social media, and the availability of food in their surroundings. An environment that does not support a healthy lifestyle can make it easier for adolescents to develop unhealthy eating habits and low levels of physical activity.

In the concluding section of the introduction, the author explains the rationale for adopting a case study approach in this article. A case study was chosen because it can provide a more in-depth understanding of the relationship between physical activity and dietary patterns and the incidence of obesity among adolescents. This approach does not merely view obesity as a number or nutritional status but also describes the habits, behaviors, and life contexts of adolescents that contribute to this condition. The objective of this article is to describe the relationship between physical activity and dietary patterns and the incidence of obesity among adolescents through a case study approach.

LITERATURE REVIEW

Obesity in Adolescents: Definition, Prevalence, and Impact

Obesity is defined as a condition characterized by excessive body fat accumulation, which can impair health (Kurdanti et al., 2015). Body Mass Index (BMI) is frequently used to classify nutritional status, including obesity. Adolescents with a BMI above the 95th percentile for their age and sex are considered obese (Utami et al., 2017).

The prevalence of obesity among adolescents in Indonesia shows an alarming increase (Suha & Rosyada, 2022). Data from the 2018 Riskesdas survey indicate a prevalence of obesity among adolescents aged 13–15 years of 4.8% (Suha & Rosyada, 2022). However, some recent studies show higher rates, particularly in urban areas (Sindy, 2018). This increase is a cause for concern because obesity in adolescents can persist into adulthood and increase the risk of various noncommunicable diseases.

The impact of obesity on adolescents is far-reaching. In addition to physical appearance issues, obesity can lead to metabolic disorders, such as insulin resistance and type 2 diabetes mellitus (Telisa et al., 2020). Obesity is also associated with an increased risk of cardiovascular diseases, such as hypertension and dyslipidemia (Utami et al., 2017). Furthermore, obesity can affect adolescents' mental health, including depression, anxiety, and low self-esteem (Indrasti et al., 2022).

Physical Activity and Obesity

Physical activity is defined as any bodily movement produced by skeletal muscles that increases energy expenditure (Hanafi & Hafid, 2019). Regular and adequate physical activity is crucial for maintaining adolescent health. Sufficient physical activity can help adolescents burn calories, boost their metabolism, and maintain a healthy weight (Ermona & Wirjatmadi, 2018).

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

Low levels of physical activity are one of the primary risk factors for obesity in adolescents (Fadhilah et al., 2021). Less active adolescents tend to have lower energy expenditure, so excess energy is stored as body fat (Hanafi & Hafid, 2019). Various studies indicate a negative association between physical activity and the incidence of obesity. Physically active adolescents have a lower risk of obesity compared to less active adolescents (Febriani Dungga, 2020; Kurdaningsih et al., 2016).

Recommended types of physical activity for adolescents include aerobic activities (running, cycling, swimming), strength training (light weightlifting), and activities to improve flexibility (stretching) (Khadijah & Armanila, 2017). The recommended duration of physical activity is at least 60 minutes of moderate-to-vigorous intensity physical activity daily (Fadhilah et al., 2021).

Diet and Obesity

Diet refers to a person's eating habits, including the types of food consumed, meal frequency, portion sizes, and mealtimes (Sindy, 2018). A healthy and balanced diet is crucial for maintaining adolescent health. A healthy diet involves consuming a varied, nutritionally balanced diet that meets the body's energy needs (Khadijah & Armanila, 2017).

An unhealthy diet is a major risk factor for obesity in adolescents (Sari & Samsudi, 2024). Consumption of high-calorie, high-fat, and high-sugar foods, fast food, and sugary drinks, along with low intake of vegetables and fruits, can lead to energy intake exceeding the body's needs (Mardiana et al., 2022; Telisa et al., 2020). Excess energy is stored as fat and increases the risk of obesity.

The consumption of fast food and sugary drinks is a common habit among adolescents and is closely associated with the prevalence of obesity (Hanafi & Hafid, 2019; Setyawati & Rimawati, 2016). Fast food is generally high in calories, fat, and sodium, yet low in fiber. Sugary drinks are also high in calories without providing sufficient satiety. The habit of consuming these foods and beverages can increase the risk of obesity in adolescents (Purba et al., 2015).

Low fiber intake is also associated with an increased risk of obesity. Fiber helps promote a feeling of fullness, regulate blood sugar levels, and improve digestive health (Khadijah & Armanila, 2017). Insufficient fiber intake can cause adolescents to feel hungry sooner, eat more, and be at risk of obesity (Setyawati & Rimawati, 2016).

Environmental and Behavioral Factors in Adolescents

Adolescent behavior, including physical activity and dietary patterns, is influenced not only by individual factors but also by the surrounding environment (Kurdanti et al., 2015). The family environment plays a crucial role in shaping adolescents' eating habits and physical activity. Parents can model a healthy lifestyle, provide nutritious food, limit consumption of unhealthy foods, and encourage children to be physically active (Kurdanti et al., 2015).

The school environment can also influence adolescent behavior. Schools can offer sports programs, nutrition education, healthy cafeterias, and an environment that supports physical activity (Sugiatmi & Handayani, 2018). The availability of fast food near schools, a lack of sports facilities, and insufficient nutrition education can increase the risk of obesity among adolescents (Adriyan & Sulchan, 2014).

Peers and social media also have a significant influence on adolescent behavior (Indrasti et al., 2022). Adolescents tend to follow their peers' eating habits, food trends,

and food promotions that appear on social media (Sari & Samsudi, 2024). The influence of peers and social media can reinforce unhealthy eating habits and sedentary behavior (Kurdanti et al., 2015).

Conceptual Framework

The conceptual framework of this study describes the relationship between physical activity and dietary patterns and the incidence of obesity in adolescents. The independent variables in this study are physical activity and dietary patterns, while the dependent variable is the incidence of obesity. Other factors influencing this relationship include the family environment, school, peers, and social media.

Low physical activity and unhealthy dietary patterns (high in calories, high in fat, high in sugar, low in fiber) increase energy intake beyond the body's needs. Excess energy is stored as fat, leading to weight gain and an increased risk of obesity. The family environment, school, peers, and social media influence adolescents' physical activity and dietary patterns. Family support, school programs, peer influence, and exposure to social media can either reinforce or weaken healthy lifestyle habits among adolescents.

METHOD

The Methods section explains that this article employs a case study approach with narrative and descriptive characteristics. This approach is used to provide an in-depth description of the conditions of adolescents who are obese or at risk of obesity, particularly in relation to physical activity and daily dietary patterns. The case study allows the author to understand adolescent behavior in a real-life context, whether at home, at school, or within social circles.

The research design is described as a descriptive case study focused on observing physical activity, dietary patterns, and obesity status among adolescents. The author clarifies that the study does not aim to make broad generalizations but rather to gain a deeper understanding of the factors associated with obesity in the cases examined.

The methods section also includes the location and timing of the study. The location may be a school, community setting, health center, or specific area relevant to the case. Describing the location is important to provide the social and environmental context that influences adolescents' physical activity and dietary patterns. The study period is specified according to the data collection timeline.

The research subjects are described narratively, focusing on the adolescents who are the focus of the case study. Subject characteristics may include age, gender, educational level, body weight, height, nutritional status, exercise habits, eating habits, and daily activities. Subject selection may use the purposive sampling technique, which involves selecting participants based on specific criteria aligned with the research objectives. These criteria may include adolescents willing to serve as respondents, possessing measurable anthropometric data, and able to provide information regarding physical activity and dietary patterns.

Data collection is conducted through interviews, observations, completion of simple questionnaires, dietary record-keeping, and anthropometric measurements. Interviews are used to determine eating habits, the frequency of fast-food consumption, consumption of sugary drinks, snacking habits, breakfast habits, as well as adolescents' perceptions of physical activity and body weight. Observations are conducted to observe daily activities and habits related to adolescents' lifestyles. Questionnaires are

used to obtain more structured information regarding physical activity and sedentary behavior.

Anthropometric measurements were taken by measuring body weight and height. The measurement results were used to determine adolescents' nutritional status based on age-specific body mass index or appropriate nutritional status guidelines. The authors note that measurements were conducted carefully to ensure the data accurately reflect the subjects' conditions.

Research instruments included interview guidelines, observation sheets, dietary record forms, physical activity questionnaires, a weighing scale, and a height measuring device. These instruments were used to obtain data supporting the analysis of the relationship between physical activity and dietary patterns with the incidence of obesity.

Data analysis was conducted using a descriptive narrative approach. Data obtained from interviews, observations, questionnaires, dietary records, and anthropometric measurements were organized, grouped, and then interpreted according to the research focus. The analysis aimed to describe how low physical activity and an unbalanced diet are associated with the occurrence of obesity in adolescents.

The methods section also addresses research ethics. The authors explain that subject identities were kept confidential, data were used solely for scientific purposes, and both subjects and their parents or guardians provided informed consent. This is crucial because the study involves adolescents, a demographic group requiring special ethical protection.

RESULTS AND DISCUSSIONS

The Results and Discussion section presents the findings and discussion in an integrated manner. The discussion begins with a description of the characteristics of the subjects or cases studied. These characteristics include age, gender, body weight, height, nutritional status, physical activity habits, eating habits, snacking habits, consumption of sugary drinks, and sedentary behavior. The presentation is narrative in style to align with the case study approach.

The research results then describe adolescents' physical activity. The author can describe the frequency of exercise, the types of physical activity performed, the duration of daily activity, walking habits, activities at school, activities at home, and the time spent on sedentary activities. If it is found that adolescents spend more time sitting, using electronic devices, watching TV, or engaging in passive activities, this condition can be explained as a factor contributing to low energy expenditure.

The discussion regarding physical activity is centered on the concept of energy balance. Low levels of physical activity result in the body not utilizing much of the energy obtained from food. If energy intake exceeds energy expenditure, the excess energy is stored as fat. This condition can lead to weight gain and, in the long term, contribute to obesity. Adequate physical activity, whether through sports or simple daily activities, plays a crucial role in helping maintain a healthy weight, improve fitness, and support adolescents' metabolic health.

Previous research has also highlighted the importance of physical activity in maintaining adolescent health. A lack of physical activity among adolescents is associated with an increased risk of obesity (Hanafi & Hafid, 2019; Utami et al., 2017; Dungga, 2020). Insufficient physical activity, combined with a sedentary lifestyle,

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

contributes significantly to weight gain. Research indicates that adolescents who spend a lot of time on passive activities, such as using electronic devices or watching television, tend to have a higher risk of obesity (Kurdaningsih et al., 2016). Therefore, increasing physical activity is key to preventing obesity in adolescents.

Furthermore, the study results describe adolescents' dietary patterns. The author can describe breakfast habits, frequency of main meals, portion sizes, consumption of fast food, high-calorie snacks, fatty foods, sweet foods, sugar-sweetened beverages, as well as vegetable and fruit intake. If subjects have a high-calorie, low-fiber diet, this can be characterized as a dietary pattern that poses a risk for obesity.

The discussion of dietary patterns explains that foods high in calories, sugar, and fat, and low in fiber can increase daily energy intake. Fast food and high-calorie snacks are often easily accessible and have flavors that adolescents prefer, but they do not always provide a good nutritional balance. Sugary drinks can also add to daily calorie intake without providing sufficient satiety. If these habits persist over time, the risk of weight gain increases significantly.

Unhealthy eating patterns, particularly the consumption of high-calorie and low-fiber foods, have a significant impact on increasing the risk of obesity among adolescents (Sari & Samsudi, 2024; Wulandari et al., 2016). The consumption of fast food—which is high in fat, sugar, and salt, and low in fiber—has been proven to be a major risk factor for obesity (Hanafi & Hafid, 2019; Imelda et al., 2020). Additionally, insufficient consumption of fruits and vegetables also contributes to nutritional imbalance and weight gain (Suha & Rosyada, 2022).

This section also discusses irregular eating habits. Adolescents who frequently skip breakfast may experience excessive hunger at the next meal, leading them to eat larger portions or choose high-calorie foods. Habits such as eating dinner too late, eating while using electronic devices, frequent snacking, and not paying attention to portion sizes can also worsen energy balance.

Irregular eating habits and unhealthy food choices are often the primary triggers of obesity in adolescents. Skipping breakfast can lead adolescents to overeat at the next meal, while eating dinner too late can disrupt the body's metabolism (Imelda et al., 2020). Excessive consumption of fast food and sugary drinks is also a key factor increasing the risk of obesity (Ayu et al., 2015).

Furthermore, the authors explain the relationship between physical activity and dietary patterns and the incidence of obesity. These two factors are interrelated in shaping the body's energy balance. Adolescents with low physical activity and high-calorie diets face a greater risk of obesity because the body receives a high amount of energy but does not expend it in a balanced manner. Thus, obesity in adolescents cannot be understood solely through a single factor but rather through a combination of eating behaviors, physical activity habits, and the environment.

The relationship between physical activity and dietary patterns and the occurrence of obesity in adolescents has been extensively studied. Research indicates that the combination of insufficient physical activity and unhealthy dietary patterns significantly increases the risk of obesity (Alfianto et al., 2016; Dungga, 2020; Utami et al., 2017). An energy imbalance, where calorie intake exceeds energy expenditure, is the primary driver of body fat accumulation and weight gain. Therefore, comprehensive

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

interventions that include increasing physical activity and improving dietary habits are crucial in efforts to prevent obesity in adolescents.

The discussion should also elaborate on the role of the family environment. Families influence adolescents' eating habits through the food provided at home, family eating patterns, food purchasing habits, and support for physical activity. Families that pay little attention to healthy eating or rarely encourage children to be physically active may increase the risk of obesity. Conversely, families that provide nutritious food, limit high-calorie foods, and model an active lifestyle can help prevent obesity in adolescents.

The family environment plays a crucial role in shaping adolescents' eating behaviors and physical activity. Family eating patterns, food availability at home, and family habits regarding physical activity significantly influence adolescents' habits (Imelda et al., 2020; Nursela et al., 2025). Family support for physical activity, such as providing sports facilities or encouraging adolescents to participate in physical activities, can help reduce the risk of obesity. Conversely, families that pay little attention to healthy eating habits and are physically inactive can increase the risk of obesity in adolescents.

The school environment is also a crucial aspect of this discussion. Schools can influence adolescents' dietary patterns and physical activity through sports programs, health education, the availability of healthy cafeterias, and an environment that supports active movement. If the school environment offers many high-calorie snacks and does not encourage physical activity, adolescents are more likely to develop habits that increase the risk of obesity. Therefore, schools can play a role in obesity prevention through nutrition education, regular physical activity, and food monitoring within the school environment.

Schools play a crucial role in creating an environment that supports a healthy lifestyle for adolescents. The availability of healthy cafeterias, nutrition education programs, and regular physical activities can help adolescents develop good eating habits and increase physical activity (Sindy, 2018; Adriyan & Sulchan, 2014). Schools can also set an example of healthy living through active extracurricular activities and health promotion programs. Thus, schools can serve as effective agents of change in efforts to prevent obesity among adolescents.

In addition to families and schools, peers and social media can also influence adolescent behavior. Adolescents often follow their peers' eating habits, food trends, and food promotions featured on social media. Trendy foods and beverages high in sugar or calories often become part of adolescents' lifestyles. This can reinforce unhealthy eating habits if not balanced with proper nutrition education and good self-control.

The influence of peers and social media on adolescents' eating behaviors and physical activity is significant. Adolescents tend to follow food and beverage trends that are popular among their peers and on social media (Imelda et al., 2020; Nursela et al., 2025). Promotions of fast food and sugary drinks on social media can encourage adolescents to consume less healthy foods. Therefore, appropriate nutrition education and increased awareness of the impacts of unhealthy food consumption are crucial to help adolescents make better choices.

The discussion may also address the psychological aspects of obesity. Adolescents with obesity may experience low self-esteem, body dissatisfaction, or social pressure from their environment. These conditions can affect motivation to engage in physical

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

activity, especially if adolescents feel embarrassed to exercise in front of their peers. Therefore, efforts to prevent and manage obesity should be conducted in a supportive manner, rather than through an approach that blames adolescents.

Psychological factors play a significant role in adolescent obesity. Adolescents with obesity often face issues with self-confidence, negative body image, and social pressure (Alivia & Adriyanto, 2018; Utami et al., 2017). This can affect their motivation to participate in physical activity and lead them to avoid exercise. Therefore, a supportive approach focused on enhancing self-esteem and self-confidence is crucial in addressing obesity among adolescents.

In the concluding section of the results and discussion, the authors emphasize that the case study findings suggest that obesity in adolescents is closely linked to daily behaviors. Low physical activity and an unbalanced diet are mutually reinforcing factors in increasing the risk of obesity. Although the results of the case study cannot be broadly generalized, these findings remain important because they provide a deep understanding of how adolescents' daily habits can contribute to the occurrence of obesity.

Overall, the results of this study provide strong evidence regarding the relationship between physical activity, dietary patterns, and obesity in adolescents. The combination of insufficient physical activity, consumption of high-calorie and low-fiber foods, and the influence of social and psychological environments contributes to an increased risk of obesity. These findings align with previous research indicating that adolescent obesity is a multifactorial issue requiring a comprehensive approach to its management (Kurdanti et al., 2015; Sugianti et al., 2018; Telisa et al., 2020).

This section may also include practical implications. Adolescents should be encouraged to gradually increase physical activity, reduce prolonged sitting, limit consumption of fast food and sugary drinks, increase intake of water, vegetables, and fruits, and pay attention to portion sizes. Families, schools, and healthcare providers need to collaborate in creating an environment that supports a healthy lifestyle.

Addressing adolescent obesity requires a multi-stakeholder approach. Adolescents need education on the importance of physical activity and healthy eating (Khairunisa & Khofifah, 2021; Ibnu & Sari, 2019). Families should provide support and set a good example in adopting a healthy lifestyle. Schools can provide adequate sports facilities, organize nutrition education programs, and offer healthy cafeteria options. Healthcare professionals can provide nutrition counseling and assist adolescents in planning safe and effective weight-loss programs.

CONCLUSION

The conclusion section summarizes the article's main findings. The conclusion states that physical activity and dietary patterns are associated with the incidence of obesity in adolescents. Adolescents with low physical activity tend to have lower energy expenditure, while a diet high in calories, sugar, and fat and low in fiber can increase daily energy intake. An imbalance between energy intake and energy expenditure is a key factor contributing to obesity.

In conclusion, this study reinforces the evidence of a significant association between physical activity and dietary patterns and the incidence of obesity in adolescents. The case study results indicate that adolescents who are physically inactive and consume

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

unhealthy foods have a higher risk of developing obesity. Therefore, comprehensive interventions that include increasing physical activity, improving dietary patterns, and providing environmental support are crucial in efforts to prevent and address obesity in adolescents.

The conclusion also emphasizes that obesity in adolescents is influenced not only by individual behavior but also by the family environment, school, peers, and social media. Sedentary habits, consumption of fast food, sugary drinks, high-calorie snacks, and low intake of vegetables and fruits are behaviors that require attention in obesity prevention efforts.

Based on the case study findings, obesity prevention efforts among adolescents should be implemented through increased physical activity, balanced dietary patterns, nutrition education, and environmental support. Adolescents need to be educated on the importance of maintaining a balance between food intake and physical activity. Families are encouraged to provide nutritious meals and model a healthy lifestyle. Schools can play a role through sports programs, health education, and monitoring access to healthy snacks.

To prevent obesity in adolescents, a holistic and integrated approach is required. Efforts to increase physical activity can be implemented through school sports programs, active extracurricular activities, and family support for physical activities outside of school. Improving dietary patterns can be achieved through nutrition education, providing healthy food at school and home, and limiting the consumption of fast food and sugary drinks (Khairunisa & Khofifah, 2021; Ibnu & Sari, 2019). Environmental support, such as from family, school, and peers, is crucial for creating an environment conducive to adolescents adopting a healthy lifestyle.

Future studies are advised to use a larger sample size and an analytical research design to more robustly test the relationship between physical activity, dietary patterns, and obesity. However, the case study approach remains valuable as it provides an in-depth understanding of adolescent behaviors related to obesity.

Further research using a quantitative approach is highly recommended to examine the relationship between physical activity, dietary patterns, and obesity in greater depth. The use of cross-sectional or longitudinal research designs will allow researchers to identify the most significant risk factors and formulate more effective intervention strategies (Sari & Samsudi, 2024; Wulandari et al., 2016). Additionally, studies involving a larger number of subjects will enhance the generalizability of research findings and contribute more significantly to our understanding of obesity among adolescents.

REFERENCES

Adriyan, P., & Sulchan, M. (2014). KONTRIBUSI MAKANAN JAJAN DAN AKTIVITAS FISIK TERHADAP KEJADIAN OBESITAS PADA REMAJA DI KOTA SEMARANG. Gizi Indonesia, 37(2). https://doi.org/10.36457/gizindo.v37i2.158

Alfianto, C., Wahyuni, T. D., & Sutriningsih, A. (2016). HUBUNGAN ANTARA AKTIVITAS FISIK DAN POLA MAKAN DENGAN KEJADIAN OBESITAS PADA REMAJA DI SMA LABORATORIUM MALANG. Nursing News Jurnal Ilmiah Keperawatan. https://publikasi.unitri.ac.id/index.php/fikes/article/download/392/310

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

Alivia, N. Y., & Adriyanto, A. (2018). HUBUNGAN ANTARA PERILAKU MAKAN DAN CITRA TUBUH DENGAN STATUS GIZI REMAJA PUTRI USIA 15-18 TAHUN. Amerta Nutrition, 2(2), 147–154. https://doi.org/10.20473/amnt.v2i2.2018.147-154

Ayu, R., Purba, M. B., & Pramantara, I. D. P. (2015). Konsumsi fast food dan soft drink sebagai faktor risiko obesitas pada remaja. Jurnal Gizi Klinik Indonesia, 12(1), 1–8. https://doi.org/10.22146/ijcn.23311

Dungga, E. F. (2020). Hubungan Pola Makan Dan Aktivitas Fisik Dengan Kejadian Obesitas Pada Anak. Jambura Nursing Journal, 2(1), 22–32. https://doi.org/10.37311/jnj.v2i1.4477

Hanafi, S., & Hafid, W. (2019). Hubungan Aktivitas Fisik dan Konsumsi Fast Food dengan Kejadian Obesitas Pada Remaja. Kampurui Jurnal Kesehatan Masyarakat (The Journal of Public Health), 1(1), 38–48. https://doi.org/10.55340/kjkm.v1i1.49

Ibnu, Z., & Sari, H. P. (2019). EDUKASI GIZI BERBASIS MEDIA SOSIAL MENINGKATKAN PENGETAHUAN DAN ASUPAN ENERGI- PROTEIN REMAJA PUTRI DENGAN KURANG ENERGI KRONIK (KEK). Gizi Indonesia, 42(2), 105–114. https://doi.org/10.36457/gizindo.v42i2.469

Imelda, T., Hartati, Y., & Haripamilu, A. D. (2020). Faktor Risiko Terjadinya Obesitas Pada Remaja SMA. Faletehan Health Journal, 7(03), 160–169. https://doi.org/10.33746/fhj.v7i03.160

Khairunisa, R., & Khofifah, H. (2021). Edukasi Gizi Seimbang sebagai Upaya Meningkatkan Pengetahuan pada Remaja di Desa Bedingin Wetan pada Masa Pandemi COVID-19. Jurnal Kesehatan Global, 4(2), 133–140. https://doi.org/10.33085/jkg.v4i2.4853

Kurdanti, W., Suryani, I., Syamsiatun, N. H., Siwi, L. P., Adityanti, M. M., Mustikaningsih, D., & Sholihah, K. I. (2015). Faktor-faktor yang mempengaruhi kejadian obesitas pada remaja. Jurnal Gizi Klinik Indonesia, 12(3), 127–134. https://doi.org/10.22146/ijcn.22900

Kurdaningsih, S. V., Sudargo, T., & Lusmilasari, L. (2016). Physical activity and sedentary lifestyle towards teenagers' overweight/obesity status. International Journal of Community Medicine and Public Health, 3(6), 1435–1440. https://doi.org/10.18203/2394-6040.ijcmph20160623

Mutia, A., Jumiyati, J., & Kusdalinah, K. (2022). POLA MAKAN DAN AKTIVITAS FISIK TERHADAP KEJADIAN OBESITAS REMAJA PADA MASA PANDEMI COVID-19. Journal of Nutrition College, 11(1), 1–8. https://doi.org/10.14710/jnc.v11i1.32070

Nursela, N., Asthiningsih, N. W. W., & Masnina, R. (2025). HUBUNGAN AKTIVITAS FISIK DAN POLA MAKAN DENGAN KEJADIAN OBESITAS PADA REMAJA DI SMP KOTA SAMARINDA. Jurnal Kesehatan Tambusai, 6(1), 2269–2280. https://doi.org/10.31004/jkt.v6i1.42024

Sari, E. S., & Samsudi. (2024). Hubungan Pola Makan Dan Aktivitas Fisik Dengan Kejadian Obesitas Pada Remaja di SMA Negeri 1 Abuki. Jurnal Penelitian Sains dan Kesehatan Avicenna, 3(2), 154–162. https://doi.org/10.69677/avicenna.v3i2.86

Sindy, G. (2018). HUBUNGAN POLA MAKAN DAN AKTIVITAS FISIK DENGAN KEJADIAN OBESITAS PADA REMAJA DI SMA NEGERI 9 PADANG TAHUN 2018.

e-ISSN: 2985-4415
DOI: 10.57254/irma.v3i8.87

Suha, G. R., & Rosyada, A. (2022). Faktor-faktor yang berhubungan dengan kejadian obesitas pada remaja umur 13–15 tahun di Indonesia (analisis lanjut data Riskesdas 2018). Ilmu Gizi Indonesia, 6(1), 1–12. https://doi.org/10.35842/ilgi.v6i1.339

Utami, N. A., Seno, K., & Panunggal, B. (2017). HUBUNGAN POLA MAKAN DAN AKTIVITAS FISIK TERHADAP KEJADIAN OVERWEIGHT DAN OBESITAS PADA REMAJA.

Wulandari, S., Lestari, H., & Fachlevy, A. F. (2016). Faktor yang Berhubungan dengan Kejadian Obesitas pada Remaja di SMA Negeri 4 Kendari Tahun 2016. Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat Unsyiah, 1(2), 22–32