



Analysis of the Application of Mediterranean Diet Patterns on Sustainability to Support the Achievement of Sustainable Development Goals (SDGs): Zero Hunger, Good Health and Well Beings, Responsible Consumption, and Production

Andi Tenri Nurnabila*, Jumharijah Basnur, R. Rismayani, Salzabila Ramadhani, Z. Zulhilmi

Universitas Negeri Makassar, Makassar, Indonesia

*Correspondence: E-mail: jbasnur@gmail.com

ABSTRACT

The Mediterranean diet is a sustainable and environmentally friendly cultural model applied in Mediterranean countries to mitigate climate change. The purpose of the study was to analyze the impact of implementing the Mediterranean diet on sustainability and how to achieve sustainable development goals (SDGs). The research method is a literature study method. The topic taught is the Mediterranean dietary guidelines that have consumed traditional foods from the countries of Italy and Greece. The results show that the Mediterranean diet supports Zero Hunger, Good Health and Well-being, Responsible Consumption and Production, environmental impact, consumption of animal products, and food waste.

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1. INTRODUCTION

The Mediterranean diet has taken center stage in sustainability and its impact on achieving the Sustainable Development Goals (SDGs) (Nusantara, 2021). With a focus on health and environmental aspects, this diet is emerging as a model that can potentially support the SDGs, especially Zero Hunger, Good Health and Well-being, and Responsible Consumption and Production. Considered a sustainable cultural heritage, the Mediterranean diet brings health and sustainability together. SDGs are one of the important subjects, becoming one of the main topics currently (Maryanti et al., 2022; Ekamilasari & Pursitasari, 2021; Suryani & Hamdu, 2021; Maheshvari, 2022). The uniqueness of this consumption pattern, which provides flexibility in choosing food sources, promises great potential to combine individual health needs with environmental responsibility.

The healthy dietary method of the Mediterranean diet, which emphasizes the consumption of nutrient-rich foods such as fruits, vegetables, nuts, and olive oil, provided the foundation for this research. This combination of nutrients is believed to have a positive impact on health and well-being, while simultaneously reducing negative impacts on the environment. In the innovation and implementation of sustainable food policies, analyzing the applicability of the Mediterranean dietary pattern will provide valuable insights to support the development of a more sustainable society.

By incorporating this lifestyle aspect, this diet is not only a consideration for the health of the body but also contributes to the formation of a supportive and responsible community. Many research on diet (Olowoyeye, 2022; Ahsan, 2022; Satria & Nandiyanto, 2022; Ahsan, 2023a; Ahsan, 2023b). Different from the current studies, through this research, it is hoped to identify the impact of implementing the Mediterranean dietary pattern on the underlying sustainability aspects of the SDGs, with the potential to positively contribute to the establishment of a healthier and more sustainable society in the future.

2. METHODS

The research method used is a literature study to analyze the application of the Mediterranean diet pattern in the context of sustainability, with a focus on supporting the achievement of Sustainable Development Goals (SDGs) such as Zero Hunger, Good Health and Well-Being, and Responsible Consumption and Production. In this study, the keyword "diet" is the main focus in identifying the relevance of the Mediterranean diet to the sustainability aspects targeted by the SDGs.

The literature review was used as the main approach to investigate the diet's impact on health, responsible food production, and hunger alleviation. This research uses the literature study method to explain how the implementation of the Mediterranean diet can positively contribute to the achievement of the SDGs, particularly in addressing issues such as hunger, and improving public health. By detailing the sustainability of the diet, this research is expected to provide in-depth insight into the relationship between the Mediterranean dietary pattern and the achievement of sustainable development goals.

3. RESULTS AND DISCUSSION

3.1. Mediterranean Diet Patterns

Diet is the habit or style of a person's daily food consumption. It includes the type, amount, time, and manner of food consumption (Andriani & Indrawati, 2021). A healthy diet involves consuming nutrients that are balanced and meet the body's needs to maintain health and energy balance. A good diet *also* includes a variety of foods, avoidance of high-fat foods and

added sugars, and paying attention to portion size. A healthy diet can help prevent chronic diseases such as diabetes, heart disease, and obesity. In addition, diet can also affect the psychological and social aspects of a person's life, including mood and sleep quality (Patonah *et al.*, 2019).

A diet is an eating pattern or eating regimen that a person follows with a specific goal, such as losing weight, improving health, or managing a medical condition (Maulida *et al.*, 2023). Diets often involve calorie control, and adjustments in nutrient intake. Although often interpreted as an attempt to lose weight, diets include all forms and purposes of changes in diet. A healthy diet should not involve extreme methods or permanent exclusion of certain foods but rather emphasize overall nutritional balance and maintenance of a sustainable lifestyle (Sefrina & Imanah, 2023).

The Mediterranean diet is a type of diet inspired by the culinary traditions of the Mediterranean region (Syam *et al.*, 2023). This diet is rich in fruits, vegetables, whole grains, nuts, fish, and olive oil. Known for its health benefits, the diet is associated with a reduced risk of heart disease, and diabetes and improved brain health. The Mediterranean diet emphasizes the consumption of healthy fats, especially monounsaturated fats found in olive oil. The diet contains moderate levels of protein and high fiber, but it is low in sugar and red meat. The foods in this diet not only provide balanced nutrition but also provide a satisfying culinary experience.

3.2. Characteristics of the Mediterranean Diet

The Mediterranean dietary pattern has several distinctive characteristics that set it apart from other dietary patterns. It is known for its high consumption of fruits and vegetables, which provide a variety of vitamins, minerals, and fiber (Renna *et al.*, 2015). The diet includes a high intake of whole grains, such as whole wheat, oatmeal, and brown rice, which are rich in fiber and nutrients. Protein in this diet comes from sources such as fish, nuts, and seeds, rather than from red meat sources (Suprapti, 2015). Healthy fats, especially monounsaturated fats derived from olive oil, are an important part of this diet. The Mediterranean diet includes moderate consumption of red wine, which is associated with certain health benefits. The diet involves the use of herbs and spices to give food flavor without the need to add salt.

The Mediterranean diet has been associated with a range of significant health benefits. It has been shown to reduce the risk of heart disease. High intake of monounsaturated fats from olive oil and omega-3 from fish may support cardiovascular health. This diet may help control blood sugar levels, making it beneficial for preventing and managing diabetes. This diet is associated with a reduced risk of obesity due to low consumption of processed foods and added sugars (Mustakim *et al.*, 2021). Some studies suggest that the Mediterranean diet may protect against the development of Alzheimer's disease and improve cognitive function (Istyanto, 2023). This diet may provide anti-inflammatory benefits due to the high content of antioxidants in fruits, vegetables, and olive oil. With these characteristics, the Mediterranean diet is not only a delicious nutritional choice but also provides support for overall health.

3.3. Sustainability Concept in Mediterranean Diet Patterns

The concept of sustainability in the Mediterranean dietary pattern reflects a deep understanding of the relationship between diet and environmental health. This diet tends to promote sustainable agriculture. The high consumption of fruits, vegetables, and whole grains, which are pillars of the Mediterranean diet, provides support for agriculture that focuses on more diverse and sustainable crop production. Choosing protein sources from fish and legumes, rather than red meat, can also reduce pressure on the livestock industry which

can damage the environment. The aspect of using olive oil as the main fat source in this diet reflects the sustainability aspect. Olive oil production, when done sustainably, can support ecosystems and biodiversity. The choice of this oil also reflects an awareness of the need to reduce dependence on vegetable oils produced through industrial methods that are detrimental to the environment. Mediterranean dietary patterns also reflect cultural sustainability. Traditional Mediterranean culture emphasizes fresh and seasonal foods, reducing the need for preservatives and excessive packaging.

The Mediterranean diet can be considered a sustainable and eco-friendly cultural model as it combines important aspects of human health, environmental sustainability, and cultural heritage. In terms of food, the trend towards the consumption of fruits, vegetables, and whole grains reflects an understanding of the sustainability of natural resources. This diversity of food choices puts less pressure on monoculture farming systems and encourages more sustainable agricultural practices (Unsunidhal & Hakim, 2023). In social and cultural terms, the Mediterranean diet highlights the importance of maintaining and passing on traditional culinary heritage. It creates continuity in time-tested culinary practices, promotes local and seasonal use, and reduces the negative environmental impact of unsustainable food transportation and production. The Mediterranean diet not only provides a model for individual health but also sets an example for societies that seek to combine environmental sustainability, cultural sustainability, and human health in a single approach.

3.4. Positive and Negative Impacts of the Mediterranean Diet on Health

The Mediterranean dietary pattern has been shown to have many positive impacts on individual health. The high content of monounsaturated fats from olive oil and omega-3 fatty acids from fish in this diet can improve blood lipid profiles, reduce bad cholesterol (LDL) levels, and increase good cholesterol (HDL). This significantly reduces the risk of heart disease. In addition, this diet is rich in fiber from fruits, vegetables, and whole grains, which not only supports healthy digestion but also helps in weight management by providing a longer feeling of fullness. With a focus on foods that are low in saturated fat and added sugar, the Mediterranean diet can also be an effective tool in obesity and type 2 diabetes prevention efforts (Ardiani et al., 2021). Despite being recognized as a healthy diet, the Mediterranean diet can also have some negative impacts on an individual's health. One concern is the lack of intake of certain nutrients, such as calcium and vitamin D, especially if there is no supplementation or consumption of dairy products in the diet. The potential for high-calorie intake can be a challenge for those who do not limit portions or consume excessive amounts of food. The availability of specialized foodstuffs outside the Mediterranean region can also be an obstacle, limiting the variety of foods and nutrients obtained by individuals adopting this diet (Lăcătușu et al., 2019).

3.5. The Mediterranean Diet as Support for Achieving the SDGs (Zero Hunger)

The Mediterranean diet can play an important role in supporting the achievement of the Zero Hunger goal. First of all, by increasing access to and consumption of nutritious food, the right diet can help address the undernutrition that is the main cause of hunger. Incorporating a wide variety of foods rich in vitamins, minerals, and proteins in the daily diet can improve nutritional status and overall health. Diets that focus on local agriculture and sustainability can strengthen food security at the community level. By promoting local agriculture, we can reduce dependence on food imports and develop local economies (Moliju, 2023). In this way, people can have better access to food resources and can reduce the risk of hunger caused by fluctuations in food prices or availability in the global market. Reducing food waste can help

optimize existing food resources. In many parts of the world, huge amounts of food are thrown away every day, while millions of people still go hungry. By adopting habits that reduce food waste, such as planning shopping and making creative use of leftovers, we can optimize the use of food resources and ensure that more people have access to sufficient food. Diets that support Zero Hunger are not only concerned with the quantity of food but also with efficiency in the management and distribution of food resources.

3.6. The Mediterranean Diet as a Supporter of Achieving the SDGs (Good Health and Well Beings)

The Mediterranean diet plays an important role in supporting the achievement of Good Health and Well-being. A healthy diet can provide the nutrients needed by the body to function optimally. Foods rich in vitamins, minerals, protein, and fiber help maintain the balance of nutrients needed to support growth, development, and normal function of the body's organs. By maintaining adequate nutrient intake, one can minimize the risk of nutrient deficiencies that can lead to various health problems. A proper diet can help manage weight and prevent diseases related to overweight or obesity. Balanced eating habits with appropriate portions can support healthy weight management. A controlled weight reduces the risk of diseases such as type 2 diabetes, heart disease, and some cancers. Maintaining a healthy diet can play a role in supporting the achievement of Good Health and Well-being through optimal weight management ([Simanjuntak, 2020](#)). A healthy diet can also affect mental health. Some foods have a direct impact on brain neurotransmitters that play a role in mood regulation and mental well-being. Consumption of certain nutrients, such as omega-3 fatty acids and B vitamins, can support mental health and reduce the risk of mental disorders. Appropriate food choices can make a positive contribution to mental health, which in turn supports the achievement of overall Good Health and Well-being ([Aziz et al., 2021](#)).

3.7. The Mediterranean Diet as a Supporter of Achieving SDGs (Responsible Consumption and Production)

The Mediterranean diet has a significant impact in supporting the achievement of Responsible Consumption and Production. By adopting a diet that focuses on local and seasonal ingredients, one can support more sustainable food production. Choosing locally produced food helps reduce the carbon footprint generated by the transportation and packaging of food that comes from long distances ([Suroto, 2023](#)). This is in line with the principle of responsible consumption by minimizing the environmental impact of the food supply chain ([Quaralia., 2022](#)). A diet with reduced consumption of animal products can contribute to a reduction in environmental impact. The production of meat and animal products generally requires greater natural resources and causes significant greenhouse gas emissions. By adopting a more plant-based diet, one can help reduce pressure on the environment, including excessive land and water use, as well as deforestation often associated with meat production. Reducing food waste is a crucial step in supporting Responsible Consumption and Production. Wasting food is not only a waste of resources but also contributes to the global problem of waste. By planning meals, storing them properly, and using leftovers creatively, one can help reduce the amount of food wasted, support more efficient production cycles, and ultimately support responsible consumption principles ([Obeid et al., 2022](#)).

3.8. Relationship between Mediterranean Diet and Healthy Lifestyle

The Mediterranean diet is closely associated with a healthy lifestyle. This diet emphasizes the consumption of foods rich in fruits, vegetables, whole grains, nuts, and olive oil, while limiting red meat and added sugars. This combination of nutrients has been linked to various health benefits, including a reduced risk of heart disease, diabetes, and other chronic diseases. In addition to nutritional aspects, the Mediterranean diet *also* encourages a healthy lifestyle through the promotion of physical activity and social interaction (Rahman et al., 2020). Traditionally, people in the Mediterranean region often combine a healthy diet with regular physical activity. Activities such as walking, cycling, or gardening become a natural part of daily life. This diet not only includes dietary aspects but also promotes an active lifestyle, which directly supports heart health and overall physical condition. The culture of eating together and sharing meals with family and friends is a value emphasized in the Mediterranean diet. Eating together is not just about consuming food, but also about sharing moments of togetherness. This creates a positive social environment, which can support mental and emotional health. Eating together can also affect portions, as people tend to be more mindful when eating together with others. The Mediterranean diet not only affects nutritional and physical aspects but also supports holistic health through the incorporation of nutrition, physical activity, and healthy social relationships (Patonah et al., 2019).

4. CONCLUSION

The Mediterranean diet is proven to contribute significantly to the achievement of Sustainable Development Goals (SDGs) such as Zero Hunger, Good Health and Wellbeing, and Responsible Consumption and Production. It reduces the consumption of unhealthy foods, such as meat, dairy, and sugar, and improves health by reducing risk factors such as diabetes and obesity. The Mediterranean diet *also* promotes responsible consumption and production, contributing to the achievement of the SDGs and encouraging healthy eating habits.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

6. REFERENCES

- Ahsan, M. (2022). Nutrition and dietetics concerning diabetes mellitus: Type 1 diabetes mellitus. *ASEAN Journal of Agricultural and Food Engineering*, 1(1), 37-44.
- Ahsan, M. (2023a). Nutrition and dietetics concerning diabetes mellitus: Type 2 diabetes mellitus. *ASEAN Journal of Agricultural and Food Engineering*, 2(1), 39-44.
- Ahsan, M. (2023b). Nutrition and dietetics concerning diabetes mellitus: Gestational diabetes mellitus. *ASEAN Journal of Agricultural and Food Engineering*, 2(2), 45-52.
- Andriani, F. W., and Indrawati, V. (2021). Gaya hidup sedentari, screen time, dan pola makan terhadap status gizi remaja SMAN 1 Bojonegoro. *Jurnal Gizi Universitas Negeri Surabaya*, 1(1), 14-22.
- Ardiani, H. E., Permatasari, T. A. E., and Sugiati, S. (2021). Obesitas, pola diet, dan aktifitas fisik dalam penanganan diabetes melitus pada masa pandemi COVID-19. *Muhammadiyah Journal of Nutrition and Food Science (MJNF)*, 2(1), 1-12.

- atria, R.D., and Nandiyanto, A.B.D. (2022). Education of dietary habit and drinking water quality to increase body immunity for elementary school. *ASEAN Journal of Agricultural and Food Engineering*, 2(1), 25-32.
- Aziz, R., Mangestuti, R., Sholichatun, Y., Rahayu, I. T., Purwaningtyas, E. K., and Wahyuni, E. N. (2021). Model pengukuran kesehatan mental pada mahasiswa di perguruan tinggi islam. *Journal of Islamic and Contemporary Psychology (JICOP)*, 1(2), 83-94.
- Ekamilasari, E., and Pursitasari, I.D. (2021). Students' critical thinking skills and sustainability awareness in science learning for implementation education for sustainable development. *Indonesian Journal of Multidisciplinary Research*, 1(1), 121-124.
- Istyanto, F., and Virgianti, L. (2023). Manfaat dan potensi puasa dalam mencegah risiko penyakit tidak menular. *Jurnal Kesehatan Tropis Indonesia*, 1(2), 11-12.
- Lăcătușu, C. M., Grigorescu, E. D., Floria, M., Onofriescu, A., and Mihai, B. M. (2019). The mediterranean diet: From an environment-driven food culture to an emerging medical prescription. *International Journal of Environmental Research and Public Health*, 16(6), 942.
- Maheshvari, R. (2022). Study on economic, sustainable development, and fuel consumption. *ASEAN Journal of Economic and Economic Education*, 1(1), 41-46.
- Maryanti, R., Rahayu, N.I., Muktiarni, M., Al Husaeni, D.F., Hufad, A., Sunardi, S., and Nandiyanto, A.B.D. (2022). Sustainable development goals (SDGs) in science education: Definition, literature review, and bibliometric analysis. *Journal of Engineering, Science and Technology*, 17(Special issue of ICMScE), 161-181.
- Maulida, K. L., Pratiwi, M. C., and Qolbi, N. S. (2023). Pengaruh puasa menurut perspektif islam dan sains dalam menurunkan berat badan pada pasien obesitas dan diabetes. *Journal of Creative Student Research*, 1(6), 53-61.
- Moliju, W. (2023). Pengendalian alih fungsi lahan pertanian untuk perumahan. *ALADALAH: Jurnal Politik, Sosial, Hukum dan Humaniora*, 1(3), 185-197.
- Mustakim, M., Efendi, R., and Sofiany, I. R. (2021). Pola konsumsi pangan penduduk usia produktif pada masa pandemi covid-19. *Jurnal Ilmu Kesehatan Masyarakat*, 1-12.
- Nusantara, M. A. (2021). Development planning for prosperity sebuah kajian pustaka terstruktur (systematic literature review). *Kybernan: Jurnal Studi Kepemerintahan*, 4(2), 206-225.
- Obeid, C. A., Gubbels, J. S., Jaalouk, D., Kremers, S. P., and Oenema, A. (2022). Adherence to the Mediterranean diet among adults in Mediterranean countries: A systematic literature review. *European Journal of Nutrition*, 61(7), 3327-3344.
- Olowoyeye, J.C. (2022). Requirement, dietary sources, and efficiency of absorption of major minerals by farm animals: From an educational perspective. *Indonesian Journal of Teaching in Science*, 2(1), 93-98.
- Patonah, P., Marliani, L., and Mulyani, Y. (2019). Edukasi pola hidup sehat kepada masyarakat di kelurahan manjahlega kota bandung dalam menanggulangi obesitas sebagai faktor resiko penyakit kardiovaskular. *Amaliah: Jurnal Pengabdian Kepada Masyarakat*, 3(2), 354-361.

- Quaralia, P. S. (2022). Kerja sama regional dalam rantai pasokan pertanian untuk mencapai ketahanan pangan berkelanjutan: Studi kasus ASEAN. *Padjadjaran Journal of International Relations*, 4(1), 56-73.
- Rahman, M. H. A., Bakar, I. S. A., and Kamaruddin, N. A. (2020). Kajian nutrisi antara aditif makanan berasaskan herba tempatan malaysia dan aditif makanan yang mengandungi kandungan monosodium glutamate. *Politeknik and Kolej Komuniti Journal of Engineering and Technology*, 5(1), 138-150.
- Renna, M., Rinaldi, VA, and Gonnella, M. (2015). Diet mediterania antara makanan tradisional dan kesehatan manusia: Contoh kuliner puglia (Italia Selatan). *Jurnal Internasional Gastronomi dan Ilmu Pangan*, 2(2), 63-71.
- Sefrina, A., and Imanah, N. D. N. (2023). Efektivitas pendidikan kesehatan menggunakan media buklet dan catatan harian makan terhadap pola makan anak. *Jurnal Kesehatan Tambusai*, 4(2), 411-417.
- Simanjuntak, F. N. (2020). Literasi kimia dalam konsumsi pangan bergizi, beragam dan berimbang menuju kehidupan sehat dan sejahtera. *EduMatSains: Jurnal Pendidikan, Matematika dan Sains*, 5(1), 65-82.
- Suprpti, D. (2018). Hubungan pola makan karbohidrat, protein, lemak, dengan diabetes mellitus pada lansia. *Jurnal Kebidanan*, 8(2), 6-15.
- Suroto, A. (2023). Peran kuliner lokal dalam mengembangkan gastronomi kuliner berkelanjutan. *Jurnal Pariwisata PaRAMA: Panorama, Recreation, Accomodation, Merchandise, Accessibility*, 4(1), 55-67.
- Suryani, L., and Hamdu, G. (2021). Education for sustainable development in science national exam questions of elementary school. *ASEAN Journal of Science and Engineering Education*, 1(1), 1-6.
- Syam, A., Dewi, I., and Khalid, N. (2023). Literasi penyakit degeneratif untuk mengelola dan meningkatkan kualitas hidup penderita hipertensi pada lansia di desa Panaikang, kecamatan Patalassang, kabupaten Gowa, Sulawesi Selatan. *J-ABDI: Jurnal Pengabdian kepada Masyarakat*, 2(8), 5987-5996.
- Tandiupa, T. T. S., and Renyoet, B. S. (2023). Studi literatur: Diet mediterania mempengaruhi acute myocardial infarction (AMI)? *Jurnal Gizi dan Kuliner (Journal of Nutrition and Culinary)*, 3(2), 54-63.
- Unsunnidhal, L., and Hakim, I. (2023). Tumbuh bersama: Mendukung pertanian lokal, ketahanan pangan, kelestarian lingkungan, dan pengembangan masyarakat. *Jurnal Pengabdian West Science*, 2(05), 364-373.