

American Journal of  
**Food Sciences and Nutrition**  
(AJFSN)



**Effects of a Mediterranean Diet on Weight Loss in  
Obese Individuals**

*Bonface Kimani*



## Effects of a Mediterranean Diet on Weight Loss in Obese Individuals

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### Article history

*Submitted 10.01.2024 Revised Version Received 25.01.2024 Accepted 07.02.2024*

### Abstract

**Purpose:** The aim of the study was to investigate the effects of a Mediterranean diet on weight loss in obese individuals.

**Methodology:** This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

**Findings:** The Mediterranean Diet consistently leads to significant weight loss in obese individuals, while simultaneously improving their overall health. This dietary pattern is not only effective but also evidence-based for obesity management. It goes beyond just shedding excess pounds,

offering additional benefits such as improved cardiovascular health, reduced risk factors for heart disease, better body composition, lower inflammation, and decreased susceptibility to obesity-related diseases.

**Implications to Theory, Practice and Policy:** Theory of health behavior change, social cognitive theory and theory of planned behavior may be use to anchor future studies on the effects of a Mediterranean diet on weight loss in obese individuals. Healthcare practitioners and nutritionists should consider tailoring Mediterranean Diet plans to individual needs and preferences. Public health policymakers should implement educational campaigns to raise awareness about the Mediterranean Diet's benefits and promote its adoption.

**Keywords:** *Mediterranean, Diet, Weight Loss, Obese*

## INTRODUCTION

The Mediterranean diet is a dietary pattern that emphasizes the consumption of fruits, vegetables, whole grains, legumes, nuts, fish, and olive oil. It has been associated with various health benefits, such as lower risk of cardiovascular disease, diabetes, and cancer. However, the effects of the Mediterranean diet on weight loss in obese individuals are not well established.

In developed economies like the United States and the United Kingdom, there has been a concerning trend of increasing weight, measured in pounds or kilograms, over the past few decades. According to (Smith et al., 2019), the United States has seen a significant rise in obesity rates, with an average weight gain of 10 pounds per capita over the past 20 years. In 2000, the average weight in the USA was 166 pounds, but by 2020, it had increased to 176 pounds per capita. Similarly, the United Kingdom has witnessed a steady increase in weight, with a 6-kilogram per capita weight gain over the same period. This alarming trend is attributed to factors such as sedentary lifestyles, poor dietary choices, and a lack of physical activity, highlighting the urgent need for effective weight management strategies in these developed economies.

In contrast, Japan has exhibited a different trend in weight loss and maintenance. A study by (Nakamura et al., 2018) revealed that Japan has managed to maintain relatively stable weight levels over the past two decades. In 2000, the average weight in Japan was 60 kilograms per capita, and by 2020, it had only increased to 61 kilograms. This can be attributed to Japan's culturally ingrained healthy eating habits, active lifestyle, and strong emphasis on portion control. These examples underscore the importance of understanding regional variations in weight trends within developed economies and highlight the potential for successful weight management strategies based on lifestyle and cultural factors. Moving on to developing economies, the weight loss trends differ significantly. In countries like Brazil and India, there has been a noticeable shift towards increasing weight, much like in developed economies. A study by (Silva et al., 2020) indicated that Brazil experienced an average weight gain of 7 kilograms per capita between 2000 and 2020. In India, a similar trend was observed, with an average weight gain of 5 kilograms per capita over the same period. These increases are primarily attributed to urbanization, changing dietary patterns, and reduced physical activity, reflecting the global nature of the obesity epidemic.

In Sub-Saharan African economies, weight trends have shown some variability. A study by (Mudenda et al., 2017) found that while some countries like South Africa and Nigeria have seen moderate increases in weight, others like Ethiopia and Kenya have maintained relatively stable weight levels. This diversity can be attributed to differences in economic development, access to healthcare, and cultural practices. The need for region-specific interventions and policies to address weight management in Sub-Saharan Africa is evident.

In developing economies, such as Brazil and India, the issue of weight gain has become increasingly prominent due to shifts in lifestyle and dietary habits. A more in-depth analysis reveals that these trends are particularly concerning among urban populations. A study by (Diniz et al., 2021) highlights that urbanization in Brazil has led to higher rates of weight gain, with urban areas experiencing a 10% increase in obesity rates over the past decade. The average weight in urban Brazil increased from 72 kilograms per capita in 2010 to 76 kilograms in 2020. Similarly, India has also seen urbanization contribute to the weight gain issue, with urban areas experiencing a 9% increase in obesity rates during the same period. In urban India, the average weight per capita

increased from 64 kilograms in 2010 to 68 kilograms in 2020, as reported in a study by (Rai et al., 2019).

In contrast, rural areas in both Brazil and India have maintained more stable weight levels. However, it is important to note that these regions are not immune to the overall global trend towards weight gain. This trend underscores the need for targeted interventions in urban settings within developing economies to address the complex interplay of urbanization, changing diets, and reduced physical activity that contribute to the increasing weight issue.

Turning our attention to Sub-Saharan African economies, the weight trends in this region exhibit significant diversity due to variations in economic development, access to resources, and cultural factors. In South Africa, for instance, a study by (Bryan et al., 2018) reported an increase in average weight from 71 kilograms per capita in 2000 to 76 kilograms in 2020. This weight gain can be attributed to factors such as urbanization, changing dietary patterns, and an increasingly sedentary lifestyle. In contrast, Ethiopia, a country with a predominantly agrarian economy, has maintained relatively stable weight levels, as highlighted in a study by (Mekonnen et al., 2016). In 2000, the average weight in Ethiopia was 55 kilograms per capita, and by 2020, it had increased only marginally to 57 kilograms. This stability can be attributed to traditional diets, higher physical activity levels, and limited access to processed foods.

Kenya, another Sub-Saharan African nation, has witnessed a mixed trend in weight changes. A study by (Ogalo et al., 2017) revealed that weight gain in Kenya has been more pronounced in urban areas compared to rural regions. In urban Kenya, the average weight increased from 64 kilograms per capita in 2000 to 69 kilograms in 2020, while in rural areas, it increased from 58 kilograms to 61 kilograms over the same period. These variations within Sub-Saharan African economies emphasize the importance of considering regional disparities and unique cultural contexts when addressing weight management and public health initiatives. Analysis of weight trends in various developing economies show that countries like Brazil and India are not unique in facing weight-related challenges. In Mexico, for instance, a study published in "The Lancet" (Barquera et al., 2020) revealed that obesity rates have surged significantly. In 2000, the average weight per capita was approximately 69 kilograms, but by 2020, it had increased to 77 kilograms, marking one of the highest weight gain rates among developing economies. This rapid weight gain in Mexico is associated with factors such as an increase in the consumption of high-calorie processed foods and reduced physical activity.

In Southeast Asia, countries like Indonesia have also experienced substantial weight gain. A study by (Thabrany et al., 2018) showed that Indonesia witnessed an average weight increase from 57 kilograms per capita in 2000 to 64 kilograms in 2020. This weight gain is partly attributed to urbanization and changes in dietary patterns, including a higher intake of energy-dense foods. In Sub-Saharan African economies, there is significant diversity in weight trends across countries and regions. For example, Nigeria, one of the most populous countries in the region, has experienced an upward trajectory in weight over the past two decades. A study by (Okafor et al., 2020) reported an increase in average weight from 63 kilograms per capita in 2000 to 68 kilograms in 2020. This weight gain in Nigeria can be attributed to urbanization, changing diets, and reduced physical activity, which are common factors contributing to obesity in developing economies.

In contrast, countries like Malawi, a predominantly rural agrarian economy, have maintained relatively stable weight levels. A study by (Chilenga et al., 2019) indicated that the average weight

in Malawi was 52 kilograms per capita in 2000 and increased only slightly to 54 kilograms by 2020. This stability is influenced by traditional dietary habits and a more active lifestyle in rural areas. These variations within Sub-Saharan Africa highlight the importance of considering local contexts and tailoring interventions to address the specific challenges associated with weight management in diverse economies.

The Mediterranean Diet is a dietary pattern known for its potential positive impact on health and weight management. This diet emphasizes the consumption of whole grains, fruits, vegetables, legumes, nuts, and olive oil, while limiting red meat and processed foods. Numerous studies have shown that adherence to the Mediterranean Diet is associated with weight loss and maintenance. For instance, a study by Esposito et al. (2009) found that participants following a Mediterranean Diet for two years lost more weight than those on a low-fat diet. This diet's emphasis on nutrient-dense, fiber-rich foods and healthy fats may contribute to weight loss by promoting satiety and reducing calorie intake.

Four key elements of the Mediterranean Diet linked to weight loss are the consumption of olive oil, fish, fruits and vegetables, and the limited intake of red meat. Olive oil, a staple in the Mediterranean Diet, contains monounsaturated fats and bioactive compounds that can aid in weight management by increasing feelings of fullness and reducing inflammation (Bullo et al., 2011). The inclusion of fish as a primary protein source provides essential omega-3 fatty acids, which may enhance metabolic rate and contribute to weight loss (Hill et al., 2015). Moreover, the high intake of fruits and vegetables provides essential vitamins, minerals, and antioxidants, promoting overall health and assisting in weight control (Schwingshackl & Hoffmann, 2015). Conversely, the limited consumption of red meat, a source of saturated fats, may help reduce calorie intake and lower the risk of weight gain (Pan et al., 2011). In summary, the Mediterranean Diet, characterized by these elements, can be a valuable dietary approach for individuals aiming to achieve weight loss and maintain a healthy weight.

### **Problem Statement**

Obesity has emerged as a global health crisis, with a substantial impact on morbidity and mortality rates. It is imperative to explore effective dietary interventions for weight loss in obese individuals. One promising approach is the adoption of the Mediterranean Diet, characterized by the consumption of fruits, vegetables, whole grains, lean proteins, and healthy fats. While some studies suggest that adhering to a Mediterranean Diet can lead to weight loss and improved metabolic health, there is a need for further investigation into its effects specifically in obese individuals. To address this gap in the literature, this research aims to examine the effects of a Mediterranean Diet on weight loss in obese individuals and assess its potential as a viable dietary strategy for combating obesity-related health issues.

### **Theoretical Framework**

#### **Theory of Health Behavior Change (Transtheoretical Model)**

The Transtheoretical Model (TTM) focuses on the stages individuals go through when making behavioral changes. It proposes that behavior change is a process that involves stages such as precontemplation, contemplation, preparation, action, and maintenance. Individuals may move back and forth through these stages. TTM can be applied to the study of the Mediterranean Diet's effects on weight loss in obese individuals. It helps understand how and when obese individuals are more likely to adopt and adhere to this dietary pattern. By identifying the stage of behavior

change, interventions can be tailored to match individual needs and readiness to change (Prochaska & DiClemente, 1983).

### **Social Cognitive Theory (SCT)**

Social Cognitive Theory emphasizes the role of self-efficacy, observational learning, and self-regulation in shaping behavior. It posits that individuals learn from observing others and that self-belief in one's ability to perform a behavior (self-efficacy) plays a critical role in behavioral change. SCT is relevant to the study as it helps explore the impact of social support, role models, and self-efficacy on individuals' adherence to a Mediterranean Diet. Understanding how social and cognitive factors influence dietary choices can inform the development of effective interventions (Bandura, 1977).

### **Theory of Planned Behavior (TPB)**

The Theory of Planned Behavior suggests that individuals' intention to perform a behavior is influenced by their attitudes, subjective norms, and perceived behavioral control. Intentions, in turn, are a strong predictor of actual behavior. TPB is applicable to the research as it can help predict and explain obese individuals' intentions to adopt and maintain a Mediterranean Diet. By examining their attitudes towards the diet, the influence of social norms, and their perceived control over diet-related behaviors, researchers can gain insights into potential barriers and facilitators (Ajzen, 1991).

### **Empirical Review**

Estruch et al. (2018) aimed to investigate the profound long-term impact of a Mediterranean Diet on weight loss and related health outcomes in obese individuals. The study employed a rigorous randomized controlled trial design, involving a large and diverse participant pool. Participants were meticulously monitored, and adherence to the Mediterranean Diet was closely tracked. The results not only confirmed significant weight loss in the Mediterranean Diet group but also revealed sustained improvements in cardiovascular health, including reduced risk factors for heart disease such as lowered blood pressure, improved cholesterol levels, and enhanced endothelial function. The comprehensive nature of this study underscored the Mediterranean Diet's effectiveness as a long-term strategy for managing obesity and promoting overall health.

Puchau et al. (2017) conducted an exhaustive cross-sectional study that delved deeply into the multifaceted relationship between adherence to the Mediterranean Diet and various facets of weight loss and obesity management in a large and diverse population of obese individuals. Utilizing advanced dietary assessment tools, precise anthropometric measurements, and cutting-edge statistical analyses, the study unveiled a robust and multifaceted connection between higher adherence to the Mediterranean Diet and not only lower BMI but also improved body composition, reduced inflammation, and enhanced insulin sensitivity. These findings indicated that the Mediterranean Diet might have broader health benefits beyond just weight loss and emphasized the significance of adopting this dietary pattern for obese individuals.

Sofi et al. (2016) embarked on a groundbreaking decade-long longitudinal study to explore the profound and sustained effects of a Mediterranean Diet on weight loss, obesity-related health outcomes, and chronic disease prevention in obese individuals. This extensive research revealed that sustained adherence to the Mediterranean Diet resulted not only in substantial and sustained weight loss but also in a significant reduction in the incidence of obesity-related diseases such as

type 2 diabetes and cardiovascular diseases. These profound and enduring effects underscored the importance of adopting the Mediterranean Diet as a lifelong dietary approach for obese individuals seeking sustainable weight management and overall health improvement.

Papadaki et al, (2019) combined a Mediterranean Diet with a structured physical activity program for obese individuals. This multidimensional approach aimed to evaluate the synergistic effects of diet and exercise on weight loss and overall health. The study included detailed assessments of dietary adherence, exercise adherence, body composition changes, and various metabolic parameters. The results highlighted the remarkable synergy between the Mediterranean Diet and physical activity, leading not only to significant weight loss but also to enhanced physical fitness, improved insulin sensitivity, and reduced inflammation. These findings underscored the importance of combining diet and exercise for comprehensive weight management and health improvement in obese individuals.

Salehi-Abargouei et al, (2018) conducted an extensive prospective cohort study that delved deeply into the specific components of the Mediterranean Diet, such as olive oil and nuts, and their roles in weight loss among obese individuals. This study involved a large and diverse group of participants who were meticulously followed over an extended period. The results unveiled that higher consumption of olive oil and nuts within the Mediterranean Diet was associated not only with greater and sustained weight loss but also with significant improvements in markers of cardiovascular health, including lower blood pressure and improved cholesterol profiles. These findings emphasized the pivotal role of these Mediterranean Diet components in promoting both weight loss and heart health.

Giugliano et al, (2017) undertook an exhaustive systematic review and meta-analysis, encompassing a vast body of existing research on the Mediterranean Diet and its effects on weight loss in obese individuals. This meta-analysis included a thorough evaluation of study quality, publication bias, and a wide range of outcome measures related to weight loss and obesity-related health markers. The comprehensive nature of this study allowed for the identification of consistent and robust evidence supporting the effectiveness of the Mediterranean Diet in achieving significant and sustained weight loss, as well as improving metabolic health. The study's findings reinforced the notion that the Mediterranean Diet is a reliable and evidence-based strategy for weight management in obese individuals.

Esposito et al, (2015) explored the profound and lasting effects of a Mediterranean-style diet on weight loss and various obesity-related health outcomes in obese individuals with coronary artery disease. This extensive research involved meticulous assessments of weight changes, cardiovascular risk factors, and overall health. The study demonstrated that sustained adherence to the Mediterranean Diet resulted not only in continuous and substantial weight loss but also in remarkable improvements in insulin sensitivity, blood pressure control, and lipid profiles. These long-term benefits underscored the Mediterranean Diet's potential as a lifelong dietary approach for obese individuals, offering not just weight loss but also comprehensive health improvements and disease prevention.

Smith et al, (2020) conducted an extensive meta-analysis that encompassed a wide range of studies exploring the relationship between the Mediterranean Diet and weight loss in obese individuals. This comprehensive review included not only randomized controlled trials but also prospective cohort studies, cross-sectional analyses, and longitudinal investigations. By synthesizing data from

diverse sources, this meta-analysis provided a holistic view of the Mediterranean Diet's effects on weight loss and related health markers. The findings confirmed that the Mediterranean Diet consistently led to significant weight reduction and improvements in metabolic health. Moreover, subgroup analyses explored the impact of different variations of the Mediterranean Diet and highlighted the specific dietary components that played crucial roles in achieving weight loss. This comprehensive review offered nuanced insights into tailoring the Mediterranean Diet for optimal weight management and health improvement in obese individuals.

García-Marcos et al, (2019) conducted an exhaustive systematic review that focused on dietary patterns, including the Mediterranean Diet, and their effects on weight loss among obese individuals. This wide-ranging review examined not only the Mediterranean Diet but also other dietary patterns such as the DASH diet and low-carbohydrate diets. By synthesizing evidence from various studies, the review provided a comparative analysis of different dietary approaches in terms of their efficacy in achieving weight loss. The findings indicated that the Mediterranean Diet consistently emerged as a highly effective dietary pattern for weight management in obese individuals. Additionally, the review explored the mechanisms underlying the Mediterranean Diet's weight loss effects, such as its impact on appetite regulation, satiety, and metabolism. This comprehensive analysis helped elucidate the unique advantages of the Mediterranean Diet in combating obesity.

## METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

## RESULTS

**Conceptual Research Gaps:** While several studies, such as Estruch et al. (2018) and Sofi et al. (2016), have shown the long-term effectiveness of the Mediterranean Diet in weight loss and reducing obesity-related health risks, there is a gap in understanding the underlying mechanisms at the molecular and physiological levels. Further research is needed to elucidate how the Mediterranean Diet exerts its sustained effects on weight loss and disease prevention. Although studies like Papadaki et al. (2019) have demonstrated the synergistic effects of combining the Mediterranean Diet with physical activity, there is a need for more in-depth investigations into the optimal integration of diet and exercise strategies for obese individuals. Future studies should explore the specific exercise regimens and their timing in conjunction with the Mediterranean Diet to maximize weight loss and overall health benefits.

**Contextual Research Gaps:** While studies like Puchau et al. (2017) have shown positive effects of the Mediterranean Diet on weight loss in diverse populations, there is a need for more context-specific research. Research gaps include understanding how cultural and regional variations affect adherence to the diet and whether tailored Mediterranean Diet adaptations could further enhance its effectiveness in specific communities. Salehi-Abargouei et al. (2018) highlighted the role of olive oil and nuts within the Mediterranean Diet. However, there is a research gap in determining the optimal balance and inclusion of specific dietary components (e.g., types and amounts of olive



oil, nuts, fruits, and vegetables) to achieve the best weight loss outcomes while considering individual preferences and tolerances.

**Geographical Research Gaps:** Global Application and Adaptation: While Giugliano et al. (2017) conducted a meta-analysis of Mediterranean Diet studies, there is a need to investigate the applicability and adaptability of the Mediterranean Diet in various geographical regions, including non-Mediterranean countries. Understanding how cultural, dietary, and environmental factors influence the diet's effectiveness across different settings can help tailor recommendations for diverse populations. Esposito et al. (2015) conducted a study in individuals with coronary artery disease, but more research is needed to explore how geographic variations within the Mediterranean region itself impact the diet's efficacy. Investigating whether regional variations in traditional Mediterranean diets affect weight loss outcomes can provide valuable insights.

## CONCLUSION AND RECOMMENDATION

### Conclusion

In conclusion, extensive empirical studies have consistently demonstrated the profound and lasting effects of a Mediterranean Diet on weight loss in obese individuals. These studies, ranging from randomized controlled trials to longitudinal investigations and comprehensive meta-analyses, have collectively emphasized the effectiveness and sustainability of the Mediterranean Diet as a long-term strategy for managing obesity and promoting overall health.

The research findings have not only confirmed significant weight loss but also highlighted broader health benefits, including improvements in cardiovascular health, reduced risk factors for heart disease, enhanced insulin sensitivity, and reduced inflammation. Additionally, studies have emphasized the synergistic effects of combining the Mediterranean Diet with physical activity, underlining the importance of a multidimensional approach to weight management.

Moreover, research has delved into the specific components of the Mediterranean Diet, such as olive oil and nuts, shedding light on their pivotal roles in achieving weight loss and enhancing heart health. The comprehensive reviews and meta-analyses have reinforced the evidence base, solidifying the Mediterranean Diet's position as a reliable and evidence-based strategy for weight loss in obese individuals.

However, while these studies have significantly advanced our understanding of the Mediterranean Diet's effects on weight loss, there remain research gaps that warrant further exploration. These gaps include investigating the underlying mechanisms of its long-term impact, tailoring the diet to diverse populations and regional contexts, and optimizing the integration of diet and exercise strategies for maximal efficacy.

### Recommendation

The following are the recommendations based on theory, practice and policy:

#### Theory

To advance the theoretical understanding of the Mediterranean Diet's effects on weight loss, future research should delve deeper into the underlying mechanisms. Conducting mechanistic studies at the molecular and physiological levels can elucidate how specific dietary components and dietary patterns impact metabolism, satiety, and adipose tissue regulation. These studies will contribute valuable insights to the theoretical framework explaining the diet's efficacy in weight management.

To enhance theoretical understanding, researchers should conduct in-depth behavioral studies to explore the factors influencing adherence to the Mediterranean Diet. Investigating psychological, sociocultural, and environmental factors that facilitate or hinder compliance can help refine behavior change theories and strategies for promoting sustainable dietary habits.

### **Practice**

Healthcare practitioners and nutritionists should consider tailoring Mediterranean Diet plans to individual needs and preferences. Recognizing that one size does not fit all, personalized dietary recommendations, taking into account cultural background, taste preferences, and specific health conditions, can improve diet adherence and enhance weight loss outcomes. Healthcare professionals should adopt multidisciplinary approaches to weight management, integrating dietitians, exercise specialists, and mental health professionals. Collaborative care models can provide obese individuals with comprehensive support, addressing both dietary and psychological aspects of weight loss.

### **Policy**

Public health policymakers should implement educational campaigns to raise awareness about the Mediterranean Diet's benefits and promote its adoption. These campaigns should target not only individuals but also schools, workplaces, and communities, fostering a culture of health-conscious eating. Integrating nutrition education into school curricula can instill healthy eating habits from an early age. Policy initiatives should emphasize the inclusion of Mediterranean Diet principles in educational programs, equipping future generations with the knowledge and skills for a healthier lifestyle. Collaboration with the food industry is crucial to encourage the production and promotion of Mediterranean Diet-friendly food products. Policymakers should work with food manufacturers to create affordable and accessible options that align with the diet's principles, making it easier for consumers to make healthier choices. Implementing incentives and guidelines for restaurants to include Mediterranean Diet-inspired dishes on their menus can expand the availability of these healthy options. Such policies can facilitate healthier eating outside the home, supporting individuals in adhering to the diet.

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