

Youth's potential of adopting the Mediterranean diet lifestyle in response to climate change: Empirical study in Crete, Greece

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What is the link between Climate change and the food systems?

Food systems can support and protect environmental sustainability and nurture human health, however; they are also one of the most important conductors of environmental pressures, in particular climate change, through Greenhouse gas emissions¹, land-use and water use. The food system is responsible for 30% of global greenhouse gas emissions and 70 % of freshwater-use². On the opposite side, climate change has major impacts on food security worldwide, the stability of the food systems can be at risk because of variability in supply³. Thus, climate change and the food sector hold a reciprocal harmful relationship that needs to change to ensure fewer negative impacts on both environment and food security.

There is an urgent need for considerable investment in mitigation adaptation and actions toward a more "climate-smart food system". This great food transformation can take the shape of a new dietary pattern, research has shown that climate change can be mitigated not only by changing the production and distribution process, but also through what consumers decide to eat⁴. If a global dietary transformation towards a sustainable diet takes place, food consumption will no longer be a conductor of environmental pressures.

What is a sustainable diet? The Food and Agriculture Organization of the United Nations defines sustainable diets as "diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair, and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources" (FAO, 2012).

The Mediterranean Diet: a sustainable, healthy, and eco-friendly heritage

Plant-based diets present a great alternative to ensure both a healthy and an eco-friendly lifestyle. The Mediterranean Diet, one of the most known plant-based and sustainable diets, can be a great preventative measure against climate change. In 2010, UNESCO designated the Mediterranean diet as part of the intangible cultural heritage of humanity. It is considered one of the healthier, more prudent, and balanced dietary models currently in existence. The traditional Mediterranean diet has a rich cultural heritage coming from Europe, Asia, and Africa. It also provides a sense of belonging and identity.

¹ Baroni, 2007.

² Molden, 2013.

³ Wheeler, 2013.

⁴ Marlow, et al., 2009.



Figure 1: The Mediterranean Diet pyramid
(Source: UNESCO -2010 edition)

As seen in the figure, the Mediterranean Diet is characterized by a high consumption of cereals, greens and vegetables, nuts, fruits, and most importantly olive oil. Fish, eggs, and dietary products are consumed moderately with a lower consumption of meat. Wine is consumed moderately as well, depending on the social and religious beliefs. This diet is known for its uniqueness, it combines personal relationships and enjoyment of the act of eating with a healthy, moderate dietary pattern that emphasizes plant-based foods over meat-based foods. The Mediterranean diet takes many shapes, there are several variations on a basic theme adapted to individual country's cultures.

Adopting the Mediterranean diet is not only good for physical and mental health, but also, it is considered one of the most sustainable diets; in comparison to Western and European diets; since it combines low greenhouse gas emissions, low demand of soil water and less deforestation than any other diet⁵. As seen in the following table, the Mediterranean Diet offers the least negative environmental footprints:

Pressure Indicators	European Dietary Pattern	Mediterranean Dietary Pattern	Western Dietary Pattern
Land Use (m ² /capita/day)	25.11	14.80	33.15
Water Use (L/capita/day)	1319.090	1079.965	1105.437
GHG Emissions (kg CO ₂ eq/capita/day)	7.59	4.88	9.08
Eutrophication potential (gPO ₄ eq/capita/day)	55.85	35.50	51.60

Table 1: Environmental footprints for the Mediterranean dietary pattern, European dietary pattern, and Western dietary pattern
- Source: (Belgacem, et al., 2021).

Unfortunately, the adherence to this diet has become low over the years, especially among the younger population⁶. Globalization has caused the socio-cultural-food habits to become uniform, abandoning the traditional food of the Mediterranean. This abandonment of the Mediterranean Diet has led us to question: **“What are the factors that influence the consumers’ willingness to adopt the Mediterranean diet to prevent climate change?”**

Local regional diets, a strategic lever towards more sustainability and health

Analyzing the geography of food through the diets of different regions is a great way to put forth the capacity of societies to fulfill their needs in a way that protects the environment, their food systems and their health. To give some perspective to the Mediterranean diet, here are the Nordic and Okinawan diets known for their health and environmental benefits to societies.

First, the Okinawan diet has been popularized by the observatory studies of cardiologist and geriatrician Makoto Suzuki in the 1970s. Being almost 96% plant-based, the Okinawan diet is centered around seasonal fruits and vegetables, fish and plant-based proteins (tofu, algae) but also

⁵ Belgacem, et al., 2021.

⁶ Kyriacou, et al., 2015.

slow carbohydrates such as adzuki beans and sweet potato. The difference with the MED diet would be in terms of quantities, indeed in Okinawa there is a saying shared by grandmothers : the 'hara hachi bun' which consists of eating only 80% of our needs and never being full. This rival of the MED diet helped Okinawa join the Blue Zones and is now being brought back to tackle the health issues of the population.

On the other side of the planet, in the Scandinavian region, the Nordic diet has also proven its importance in safeguarding human health and the environment. Just like the rest, the Nordic Diet is focused on local and seasonal fruits and vegetables, no processed foods or with high sugar content, fish, lean and high-quality meat, nuts, berries but also traditional foods... For example, the rugbørd is a traditional dark rye bread very rich in fiber, vitamins, minerals and antioxidants that is healthier than white bread. Thanks to a Danish study published in the Journal of Nutrition of 2011, the impact on the health of more than 50,000 people was analyzed and proved the benefits of local and traditional diets.

Understanding sustainable consumer behavior is crucial to any paradigm shifts in how society approaches environmental problems, especially among young consumers, as it is deemed crucial to intervene in the formation and routinization of mainstream unsustainable consumption practices and patterns. Hence, ***we decided to focus mainly on young consumers.***⁷

Definition of the factors that influence the consumers' willingness to adopt the Mediterranean diet to prevent climate change

⁷ A young consumer can be defined as any person between the age of 18 and 30.

The theory of planned behavior, also known as TPB⁸, has been widely used to explain consumers' behavior in an environmental context.

What are the main components of the theory of planned behavior?

According to this theory, there are three main factors that influence the consumers' intention to perform a behavior: their attitude towards the behavior, it refers to the level to which a person evaluates the behavior in question (favorable/unfavorable); subjective norms, which refers to the perceived social pressure to perform or not to perform the behavior; and Perceived Behavioral Control which refers to the perceived ease/difficulty of performing the behavior in question and it is assumed to reflect past experience as well as anticipated impediments and obstacles.

Based on this theory, we have developed a survey and questioned the young population of Crete-Greece, a place widely known as a reference for the diet. The young people of Crete and more particularly in Chania reveal a preference for: Fresh local vegetables, tomatoes, and cucumbers mainly; Dairy products with authentic taste and odor; Olive oil, especially organic extra virgin produced locally; Wine, all national wine types, and brands chain⁹; which is fairly close to the Mediterranean Diet pyramid presented above (Figure1) that has been developed based on the food patterns in this region in the 60s. Our data collection targeted young consumers between the age of 18 and 30 and has taken place in February 2020. This specific age group allows us to understand the different perceptions of the Mediterranean Diet, from different socio-economic backgrounds.

A self-constructed questionnaire was used for the survey. Each construct of the TPB had multiple

⁸ Ajzen, 1991.

⁹ SYNKA, 2020.

items according to the suggestion by Azjen¹⁰. A five-point Likert-type scale (1 strongly disagree; 5 strongly agree; 3 neither agree nor disagree) was used to measure the young consumers' responses to the TPB constructs, with higher scores indicating greater intention to shift towards the Mediterranean Diet for climate issues, stronger attitudes to the Mediterranean Diet, greater perceptions of social pressures, and higher perceived control over the behavior. The questionnaire starts with a definition of the Mediterranean Diet, to inform the respondents about its main components. Among the constructs, Intention consisted of items that aimed to measure the students' planned behaviors regarding the shift towards the Mediterranean Diet to prevent climate change, as well as lowering their meat consumption (e.g., I expect to follow the Mediterranean Diet in the future because of its positive environmental contribution); Attitudes included items that aimed to explore the consumers' evaluations of the shift towards the Mediterranean Diet to prevent climate change (e.g., Shifting towards the Mediterranean Diet to prevent climate change is a good idea); Subjective norms comprised of items that measured the students' perceptions of the societal responses to their decision of shifting towards the Mediterranean Diet (e.g approval from the most important persons in their lives); and PBC (Perceived Behavioral Control) contained items that expected to reveal the consumers' perceptions of the ease or difficulty related to shifting towards the Mediterranean Diet (e.g., availability and affordability of the Mediterranean Diet).

Key results to understand the young consumers behaviour toward the Mediterranean Diet

¹⁰ Azjen, 1985.

¹¹ Important people's definition differs from one person to another, depending on their personal

relationships it could be family, friends or any other person whose opinion the consumer respects.

According to the survey results, young consumers are mostly influenced by their perception of the easiness/difficulty of the Mediterranean diet, which means they are influenced by their beliefs about the presence of factors that may facilitate or impede the adoption. For example, if they believe that the Mediterranean Diet is rather an “easy” diet to adopt, which means there are no major constraints making the transition difficult, they will adopt it under the motive of climate change prevention. Constraints can take various shapes, such as financial constraints, the availability of products, or personal beliefs.

Furthermore, young consumers are influenced by their attitudes, which means that those who have a strong attitude towards shifting to the Mediterranean Diet for climate issues are more likely to have a greater intention compared to consumers with a weak attitude. It implies that the young Greek consumers who evaluate the shift as a positive action will likely have a greater intention than those who evaluate it as a negative action. Many factors can influence attitude, such as personal values in food shopping, perceived barriers, and confidence in information.

On the other hand, the social norms have shown no influence on the intention, thus, it is a non-significant predictor. Young Greek consumers feel that the support and approval of “important people” is not a crucial factor that would impact their behavior of shifting their diets towards the Mediterranean Diet. To investigate this further, we divided the respondents into two age groups, early adults aged between 18 and 24, and later adults aged between 24 and 30. The purpose is to highlight the age's role in the influence of social norms. Our results suggest a significant difference, social norms have a stronger effect on early adults than later ones. Consumers aged between 18 and 24 have shown to be more influenced by their “referents/important people in

relationships it could be family, friends or any other person whose opinion the consumer respects.

life”, which can be explained by the presence of an attachment to their surroundings, to the family heritage and the need for their support when making decisions. Hence, an environmentally conscious surrounding for early adults can lead to a higher intention to shift towards the Mediterranean Diet.

Suggestions for policy actions to promote traditional Mediterranean dietary Habits among young consumers

This research aimed to identify the factors that influence young consumers’ intention to shift towards the Mediterranean Diet to prevent climate change. Using the Theory of Planned Behavior, a quantitative and qualitative analysis has been conducted on the basis of a survey done in Chania, Greece. It can be concluded that young consumers’ perceived behavioral control and attitudes are important factors that impact their intention to shift their dietary plan towards a Mediterranean-style one for climate issues. The social norms are not very influential in this case. However, as a factor, the social norms are highly influenced by the age of the consumer. According to our results, there is a significant difference between the influence of social norms on the intention for early adults (18-24) and later adults (24-30). The early adults have shown a higher influence by this factor. This can be explained by the presence of an attachment of the early adults to their surroundings, and the need for their support when making decisions.

These findings are important to consider when designing and targeting campaigns that promote the Mediterranean Diet as a sustainable diet, which contributes to climate change prevention. Public authorities, policy makers and communicators should increase consumers’ awareness about the presence of such diets, which can benefit their health, as well as the environment. Results from our case study provide

useful suggestions for policy actions to promote traditional Mediterranean dietary habits, especially among young consumers. For example, the Mediterranean Diet can be adopted by school canteens to encourage kids and young population to familiarize themselves with its components and help them create a healthy lifestyle¹². Furthermore, there is an important need for information regarding food products by environmentally conscious consumers, which can be satisfied by food labeling that highlights the main content and nutritional quality of the product. Local production, which is the essence of the Mediterranean Diet, can be more encouraged as it shortens the time between harvest and consumption which results in higher contents and quality of micronutrients, and has very low environmental impact. Moreover, promoting this diet ensures the continuity of certain cultural landscapes instead of being replaced with agro-industrial landscapes exclusively at the service of production¹³, which allows the security of small-scale farmers’ livelihoods. Such policies can bring the Mediterranean Diet back to life since it has been affected by the quit abandoned. The adoption of the Mediterranean Diet on a country level will allow the fulfillment of important Sustainable Development Goals such as ‘responsible consumption and production’, ‘good health and well-being’ and ‘climate action’.



This study has been conducted in Crete, Greece, an area that is globally known for the Mediterranean Diet. The young consumers were already familiar with the concept, and most of them knew what this diet advocates. However, in

¹² Cardillo, 2017.

¹³ homé, 2021

other areas, it might be different, since the young consumers' awareness regarding the Mediterranean Diet will be much lower. Moreover, no one can deny that a true Mediterranean diet can be produced only in a region with a Mediterranean climate. However, modern transportation and food preservation methods can permit it to be consumed everywhere in the world throughout the whole year.

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Full article can be found at:

<https://newmedit.iamb.it/bup/wp-content/uploads/2021/10/f-Youths-potential-of-adopting-the-Mediterranean-diet-lifestyle-in-response-to-climate-change-Empirical-study-in-Crete-Greece.pdf?fbclid=IwAR2gWURN5tL-3QkvN5fxo4J4cbWGW6mZd-BSKM9VL1DL5X3PQh2sElp9u8A>

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