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REVIEW

Challenges to the Mediterranean diet at a time of economic crisis

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Abstract *Aims:* The traditional Mediterranean diet (MD) is reportedly associated with lower risk of major chronic diseases and long considered to contribute to the reduced rates of cardiovascular and cerebrovascular events and to the highest life expectancy in adults who lived near the Mediterranean Sea. But despite its widely documented health benefits, adherence to this dietary pattern has been rapidly declining over the last decades due to a clear socioeconomic influence. The present review provides an overview of the evidence on the current major determinants of adherence to the Mediterranean diet, with a particular emphasis on Mediterranean Countries at a time of economic crisis; second it explores emerging socioeconomic inequalities in other domains of healthy dietary behaviours such as dietary variety, access to organic foods and food purchasing behaviour.
Data synthesis: According to ecological evidence, the Mediterranean Countries that used to have the highest adherence to the Mediterranean pattern in the Sixties, more recently experienced the greatest decrease, while Countries in Northern Europe and some other Countries around the world are currently embracing a Mediterranean-like dietary pattern. A potential cause of this downward trend could be the increasing prices of some food items of the Mediterranean diet pyramid. Recent evidence has shown a possible involvement of the economic crisis, material resources becoming strong determinants of the adherence to the MD just after the recession started in 2007-2008. Beyond intake, the MD also encourages increasing dietary diversity, while international dietary recommendations suggest replacing regular foods with healthier ones.
Conclusions: Socioeconomic factors appear to be major determinants of the adherence to MD and disparities also hold for other indices of diet quality closely related to this dietary pattern.

Introduction

Recently added by UNESCO to the Representative List of the Intangible Cultural Heritage of Humanity [1], the traditional Mediterranean diet (MD) is an eating pattern typical of the Mediterranean basin that encourages large intakes of vegetables, legumes, fruits and nuts, cereals, low-to-moderate intake of dairy products (mostly in the form of cheese or yogurt), low consumption of meat and poultry, moderately high intake of fish, olive oil as main fat source and moderate alcohol intake during meals [2,3].

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Originally defined by the pioneering American physiologist Ancel Keys, this dietary model has been reportedly associated with lower risk of major chronic diseases and long considered as responsible of the reduced rates of cardiovascular and cerebrovascular events and of the highest life expectancies in adults who lived near the Mediterranean Sea [4,5].

But despite its widely documented health benefits, adherence to the traditional MD has been rapidly declining over the last decades [6]. Data from Central-Southern Italy showed that the percentage of people following a Mediterranean dietary pattern in 2009 was equal to lowest rates of adherence recorded in Nicotera and Pollica studies during the 60s [7].

Ecological studies reported a substantial shifting from this eating pattern all over Europe but more evident in countries of the Mediterranean area that have experienced a 'westernisation' process of food habits, and sharing increasingly similar patterns of food availability, especially of non-Mediterranean food groups [8].

Among possible causes, the increasing cost of many key-foods of the Mediterranean diet has been proposed as a major factor driving people to give up this eating pattern in favour of less expensive, energy-dense foods that typically have lower nutritional quality [9].

Previous studies suggested that diet quality follows a socioeconomic gradient showing a linear relationship between food cost, eating patterns and obesity [10]. In addition, recent evidence has discussed a possible involvement of the economic crisis in the decline of the MD by showing how material resources have become strong determinants of the adherence to the MD just after the recession started in 2007–2008 ([11], Fig. 1).

However, food cost is only one major drivers of consumption patterns which are also determined by environmental, social and technological factors.

The purpose of this review article is to provide an overview of the evidence on the socioeconomic determinants of adherence to the MD with a particular emphasis on data from the Mediterranean Countries, at a time of economic crisis. We also discuss more extensively the role of food cost as a potential barrier to comply with this dietary pattern and to healthy dietary models closely related to the MD.

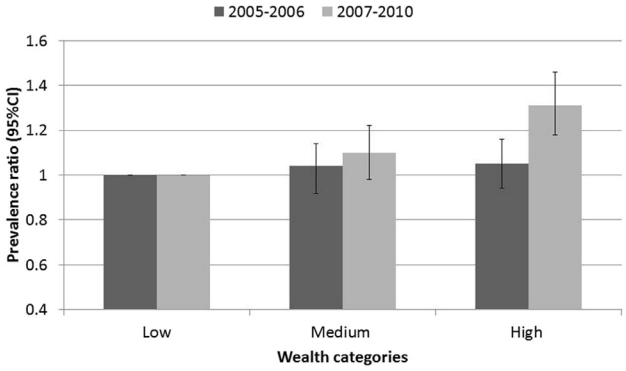

Figure 1 Prevalence ratio in the MOLI-SANI study cohort of high adherence to the Mediterranean diet according to wealth levels before (2005–2006) and after (2007–2010) the start of the economic crisis (data modified from Bonaccio et al, 2014; 24: 853–60).

The Mediterranean diet is no longer the diet of the poorest Mediterranean people

The traditional MD used to be the eating pattern of the countrymen of the rural Southern Italy [12] but one of the main issues emerged during the last decades is that a Mediterranean-like dietary pattern is no longer either a prerogative of Mediterranean countries or of the poorest strata of society.

According to ecological evidence [13], the Mediterranean countries that had the highest adherence in the 60s experienced the greatest decreases in the MD adherence as measured by the Mediterranean adequacy index. At variance, countries in Northern Europe and some other countries around the world are embracing a Mediterranean-like dietary pattern possibly due to increased availability of Mediterranean food products such as fruits and vegetables [13].

Similar findings were obtained for children, with kids from Southern Europe countries reporting even lower adherence than their peers living in other geographical areas [14].

Possible explanations for the downward trend of the MD recorded in Mediterranean countries might be ascribed to a Westernization of lifestyle in general [8], with people moving to less time-consuming meals and more energy-density foods.

More recent studies conducted in Mediterranean settings have provided evidence that a Mediterranean-like pattern is strictly linked to socioeconomic status (SES) both in adults and children.

Researchers from Greece found that belonging to the highest SES was associated with a higher adherence to the MD among the elderly [15]; similarly, the ATTICA study showed that low SES groups had less adherence to the Mediterranean diet compared with high SES groups thus likely explaining, at least in part, the higher CVD risk factors profile observed among low SES participants [16,17].

A clear socioeconomic gradient in adhering to the MD was observed also in Italy with people at higher income reporting greater odds of adherence to the traditional MD independently of other SES indicators [18]. Within the same population, a dramatic shifting from the MD over the last few years was documented: in the period between 2007 and 2010 the higher socioeconomic indicators were strongly associated with higher adherence to the MD, whereas before 2007 no association was detected, a fact likely linked to the economic crisis (Fig. 1 and ref. [11]).

Sicilian scholars aged 13–16 years had 53% increased chances of reporting higher adherence to the MD if they were in the high socioeconomic status, whereas lower adherence was associated with living in an urban environment [19]. Socioeconomic factors were closely linked to a Mediterranean eating style also in non-Mediterranean countries for which health benefits of the MD have been widely demonstrated [20–23].

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