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ORIGINAL ARTICLE

Mediterranean diet adherence and body composition among Southern Italian adolescents



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KEYWORDS

Mediterranean diet;
Obesity;
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Summary

Introduction: Adherence to the traditional Mediterranean diet has been associated with health benefits in young populations. The aim of this study was to evaluate the association between adherence to the Mediterranean diet and cardio-metabolic parameters in adolescents living in Sicily, Southern Italy.

Methods: A cross-sectional study was conducted during two school years (2012–2013 and 2013–2014) on 1643 adolescents of 11–16 years attending 15 secondary schools. Socio-demographic, dietary, lifestyle, and anthropometric data were collected. The KIDMED score was used to evaluate the adherence to the Mediterranean diet. Linear and logistic regression models were used to test the association between the variable of interest and the outcomes.

Results: A higher percentage of boys compared with girls was overweight (30.8% vs. 25.4%) and obese (28.7% vs. 18.5%) and only 9.1% had high adherence to the Mediterranean diet. Vegetable intake was negatively associated with being overweight/obese whereas higher intake of sweets, sugar-sweetened beverages, and fast foods was associated with overweight and obesity. A good adherence to the Mediterranean diet resulted in 30% decreased odds of being overweight or obese (odds ratio 0.70, 95% confidence interval: 0.56–0.87) in both boys and girls. An inverse

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correlation was found between KIDMED score and BMI, waist circumference and fat mass. No relation with blood pressure was found.

Conclusions: Mediterranean dietary pattern resulted significantly associated with weight status in adolescents. These results underline the importance of providing lifestyle and dietary habits education to prevent overweight and obesity in adolescent.

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Introduction

Overweight and obesity in adolescents are major risk factors contributing to the development of cardiovascular disease (CVD) in adulthood [1]. Obesity has more than quadrupled in adolescents over the past 30 years, becoming one of the major public health issues of modern time [2]. It has been estimated that prevalence of overweight and obesity reached almost 30% of the young population living in the Mediterranean region (Spain, Greece, Cyprus, and southern Italy) [3]. These alarming trends seem to be associated with analogous increasing rates of hypertension among adolescents [4]. A metabolic impairment in young age has been considered a potential risk factor for alterations in weight and blood pressure in adulthood. Thus, it is of primary importance to identify lifestyle factors, including adoption of dietary patterns, that may affect weight and cardio-metabolic status, such as blood pressure, to prevent the development of CVD [5,6].

Current evidence suggest that adherence to the Mediterranean dietary pattern is associated with decreased risk of non-communicable chronic diseases [7,8]. Results of recent studies suggest that the main benefits of this dietary pattern may rely on its impact on body composition and metabolic status [9,10]. The Mediterranean diet refers to the traditional dietary pattern commonly consumed by individuals living in southern European regions (namely Greece, southern Spain and southern Italy) and other Mediterranean countries. Despite there is no homogeneous model among countries, this dietary pattern is characterised by some common features associated with overall decreased risk of mortality, such as high consumption of vegetables, fresh fruits, and legumes as main source of fibre and antioxidants [11,12]; high intake of fish, nuts, and olive oil ensures an adequate intake of mono- and polyunsaturated fatty acids (MUFA and PUFA) [13,14]; low intake of trans-fatty acids from meat and sweets [15]; and moderate intake of alcohol, preferably from wine, which has been reported to lower risk of CVD [16]. The beneficial role of this dietary pattern has been demonstrated in several studies by improving glycemic control,

ameliorating systolic and diastolic blood pressure, and protecting from fatal coronary heart disease events [6,17]. A meta-analysis of randomised controlled trials on Mediterranean diet and weight loss involving 3436 participants found in the Mediterranean diet group a significant effect on weight (−1.75 kg) and BMI (−0.57 kg/m²) [18]. Several studies assessing adherence to Mediterranean diet among young populations living in the Mediterranean area have been conducted [19–28], but only one tested the relationship with the body composition [27]. Recently, a surveillance at European level reported that higher adherence to a Mediterranean-like dietary pattern was not associated with living in a Mediterranean country [29]. The phenomenon of nutrition transition, defined as the shift from the traditional to a “Westernised” diet, has been hypothesised to explain the rise in cardio-metabolic risk among adults and, especially, adolescents living in those areas supposed to be characterised by healthier dietary habits [30]. Demographic transition has been already demonstrated to affect food choices in several countries of the Mediterranean area [31–33]. Regarding Sicily, an island in the Mediterranean area, we previously reported adherence rates to the dietary pattern among adults and adolescents [34], but there is no specific data indicating an association with cardio-metabolic parameters among the latter. The aim of this study was to assess the association between the adherence to the Mediterranean dietary pattern and cardio-metabolic parameters among adolescents living in Sicily. We observed whether a correlation between the adherence to the Mediterranean diet and metabolic parameters existed as well as whether higher adherence may decrease the odds of being obese or hypertensive.

Methods

Design, setting, participants

This study was a cross-sectional investigation conducted during two scholastic years (period October–May of 2012–2013 and 2013–2014) on

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