Maturitas 82 (2015) 387–393

Contents lists available at ScienceDirect

Maturitas

journal homepage: www.elsevier.com/locate/maturitas

The Mediterranean diet among British older adults: Its understanding, acceptability and the feasibility of a randomised brief intervention with two levels of dietary advice

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ARTICLE INFO

Article history:
Received 9 June 2015
Received in revised form 30 July 2015
Accepted 31 July 2015

Keywords:
Mediterranean diet
Food-based food guidelines graphical display
Understanding
Acceptability
Cost
Brief interventions

ABSTRACT

Objectives: To assess (i) understanding, acceptability and preference for two graphical displays of the Mediterranean diet (MD); and (ii) feasibility of a brief MD intervention and cost of adherence to this diet among British older adults.
Design: Two studies undertaken at the Human Nutrition Research Centre, Newcastle University are reported. In study-1, preference and understanding of the MD guidelines and two graphical displays, a plate and a pyramid, were evaluated in an educational group session (EGS). In study-2, we evaluated the feasibility of a three-week brief MD intervention with two levels of dietary advice: Group-1 (level 1) attended an EGS on the MD, and Group-2 (level 2) attended an EGS and received additional support. MD adherence using a 9-point score, and the cost of food intake during intervention, were assessed.
Results Study-1: No differences in preference for a MD plate or pyramid were observed. Both graphic displays were rated as acceptable and conveyed clearly these guidelines.
Study-2: The intervention was rated as acceptable. No significant differences were observed between groups 1 and 2. Analysis of the combined sample showed significant increases from baseline in fish intake ($P = 0.01$) and MD score ($P = 0.05$). The cost of food intake during intervention was not significantly different from baseline.
Conclusion: British older adults rated a MD as an acceptable model of healthy eating, and a plate and a pyramid as comprehensible graphic displays of these guidelines. A brief dietary intervention was also acceptable and revealed that greater adherence to the MD could be achieved without incurring significantly greater costs.

1. Introduction

A large body of evidence from epidemiological [1–4] and more recently from secondary [5,6] and primary prevention [7–10] studies demonstrate the substantial health benefits achieved by consuming a Mediterranean dietary pattern (MD). Importantly, results from the European Prospective Investigation into Cancer and Nutrition (EPIC) study indicate that such health benefits are not exclusive to people living in Mediterranean countries, but these can be achieved by adopting these dietary patterns in other latitudes [11,12]. To date, only a few small-scale interventions have tested the effectiveness of promoting a MD outside Mediterranean countries, including a study in Canadian women [13], an internet-based intervention promoting the MD among middle-age Scottish women [14], and an intervention in patients with coronary heart disease in Northern Ireland [15].

The growing proportion of the oldest-old population group, together with the increased rate of ageing-related diseases [16] emphasise the need to develop and implement effective lifestyle interventions to promote healthy ageing [17,18]. The well-established protective effect of MD against chronic disease, along with its palatability makes it a good choice for older people; however its acceptability as a model of healthy eating in a dietary intervention targeting older adults has not been previously evaluated.

Since the early 1990's the MD food guidelines have been depicted graphically in a pyramid shape [19,20]. Food-based dietary guidelines use graphical displays as simple tools to summarise the guidelines and to help the public put them into practice.

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http://dx.doi.org/10.1016/j.maturitas.2015.07.029
0378-5122/

However, the acceptability and understanding of the MD pyramid in countries where national dietary guidelines are portrayed in a different shape, such as the case of the Eatwell plate in the UK, has not been previously reported. Documenting these aspects in countries outside the Mediterranean should be valuable in informing the design of more effective MD interventions.

Here we report two studies among older adults in the Northeast of England. Study-1 evaluated the acceptability and understanding of two graphical displays of the MD, a pyramid and a plate. Study-2 evaluated the feasibility and acceptability of a brief intervention promoting the MD with two levels of dietary advice, and the cost of food in relation with MD adherence during the intervention.

2. Materials and methods

These studies were approved by the Newcastle University Human Psychology Ethics Committee (Registration numbers 256 for study-1, and 293 for study-2), and conform to the principles embodied in the Declaration of Helsinki. Written informed consent was obtained from all participants. These studies were carried out at Newcastle University, UK between February 2011 and February 2012.

2.1. Study 1

This study evaluated the acceptability and understanding of two graphical displays of the MD, a pyramid and a plate, among a group of older adults.

2.1.1. Participants

Thirty men and women aged 50 years and over were recruited from among the general public in the area of Newcastle upon Tyne, United Kingdom. Participants were recruited via Voice North (Valuing Our Intellectual Capital and Experience), the regional research and engagement panel established by the Institute for Ageing at Newcastle University (http://www.ncl.ac.uk/ageing/innovation/engagement/voicenorth/), which involves a large and diverse set of members of the public. Participants not seeking advice to lose weight, with a self-reported good health and not following a special diet were recruited.

2.1.2. Study design

Participants were invited to attend a 2 h interactive educational group session (EGS). In advance to the session, participants completed a short questionnaire on demographics and health-related information. One week before and one week after the EGS, participants' food intake and physical activity levels were assessed by completion of three-day (2 weekdays and 1 weekend day) food intake and physical activity diaries. Participants were instructed on how to record such information. Diaries were screened for completeness and quality of reported information as well as to enquire about participants' experience with this task, and the representativeness of their diet during the recording period. Nutritional intakes from food diaries was analysed using the research version of the software package WinDiets 2008 (Robert Gordon University, Aberdeen, 2008). Physical activity diaries were analysed using the compendium of physical activities [21]. Body weight and height were measured after removing shoes, heavy garments, and emptying their pockets using a spring balance (Salter Abbey Weighing Machines Ltd., UK) and a Leicester height measure.

A PowerPoint slide presentation delivered by two nutritionists was the main activity during the first hour of the EGS. This presentation highlighted the underlying principles of the MD and its associated health benefits. The presentation was run in an informal way, so that participants could intervene and ask questions or share their own experiences. Topics such as the recent inclusion of the MD by UNESCO (http://www.unesco.org/culture/ich/RL/00884) in the list of the Intangible Cultural Heritage of Humanity, and personal experiences when travelling to, working or living in Mediterranean countries, were central to the discussion.

After a refreshment break, the second hour of the EGS included the completion of questionnaires and three tasks designed to evaluate the acceptability, recollection and understanding of the principles of the MD, as well as to evaluate two graphical displays conveying the MD guidelines. In task one, participants were provided with a short-form to be completed after being presented with a series of slides showing pairs of images of meals fulfilling, or not, the MD guidelines ("meal A" vs "meal B"). Meal images corresponded to breakfast, lunch and an evening meal. Participants were asked to choose between meal A or B as the "more Mediterranean" one (i.e. fulfilling the Mediterranean guidelines) and to write down their reasons for their choice. Next, participants were asked to suggest ways to "Mediterraneanise" the meal not complying with MD guidelines.

In task two, we assessed the recollection and understanding of the MD guidelines. Participants were asked to report any three MD principles learned during the first hour of the EGS.

In task three, we assessed awareness and exposure to the MD and the UK national dietary guidelines. The group was presented with images of the UK Eatwell plate (Department of Health in association with the Welsh Assembly Government, the Scottish Government and the Food Standards Agency in Northern Ireland). Next, the group was presented with a MD pyramid developed by the Oldways organisation in the USA (http://oldwayspt.org/resources/heritage-pyramids/mediterranean-pyramid/overview). If participants were aware of the UK Eatwell plate and/or the MD pyramid, participants were asked for a brief description of places, and level of familiarity with these dietary guidelines. Afterwards, participants were introduced with a MD mock-up plate model displaying the same food groups in the same proportions displayed in the MD Pyramid; understanding and preference for and MD pyramid or plate was evaluated.

2.1.3. Outcome measures

To assess preference for, and acceptability of, the MD plate/pyramid graphical representation, participants responded to the following questions:

"Which model, plate or pyramid, do you feel best conveys the message that plant foods make up an important part of the Mediterranean diet? (a) Pyramid, (b) plate, (c) the message is conveyed the same"

"Do you find one model easier to understand than the other? Yes/No. Please give further details to support your decision";

"What is your preferred model? Plate/Pyramid. Please give details of why you prefer one more that the other".

Using 100 mm visual analogue scales, participants were also asked to rate "how confident they were of being able to plan Mediterranean meals using the guidelines illustrated in the MD pyramid?" The same question enquired about the MD plate.

Participants' food intake and physical activity levels were assessed by completion of three-day food intake and physical activity diaries as described above.

2.2. Study 2

2.2.1. Study design

This study was designed as a 3-week, two-arm trial and it is reported according to the CONSORT guidelines (Fig. S2 and Table S1-Supplementary material) [22]. The two arms were: group-1 attended an EGS on the MD and were encouraged to adopt it for