



Nutrition knowledge and Mediterranean diet adherence in the southeast United States: Validation of a field-based survey instrument



Mary Rose Bottcher^a, Patricia Z. Marincic^a, Katie L. Nahay^a, Brittany E. Baerlocher^a, Amy W. Willis^a, Jieun Park^b, Philippe Gaillard^b, Michael W. Greene^{a,*}

^a Department of Nutrition, Dietetics, and Hospitality Management, Auburn University, Auburn, AL 36849, USA

^b College of Sciences and Mathematics, Auburn University, Auburn, AL 36849, USA

ARTICLE INFO

Article history:

Received 22 April 2016

Received in revised form

27 October 2016

Accepted 21 December 2016

Available online 23 December 2016

Keywords:

Mediterranean diet
Nutrition knowledge
Diet adherence
Survey instrument

ABSTRACT

The Mediterranean diet (MD) can reduce chronic disease risk and is a recommended diet for prevention and management of diabetes. Adherence to the MD in the southeast United States where obesity and diabetes are highly prevalent is unknown. The purpose of the present study was to: 1) construct a survey instrument relevant to the general population integrating both MD related nutrition knowledge and adherence questions from previously validated instruments, and 2) assess MD related nutrition knowledge and adherence in a sample population in the southeast United States. Adherence was assessed using the validated short MD Adherence Screener (MEDAS). A MD nutrition knowledge (MDNK) questionnaire was developed from previously validated general nutrition knowledge questionnaires and was validated using 127 university students enrolled in three courses with varying levels of nutrition education. Cronbach's α for internal validity of MDNK was acceptable for a short questionnaire (0.653). Test-retest reliability was established ($r = 0.853$). Field validation of the three-part survey instrument (MEDAS, MDNK and demographic questions) was subsequently performed in 230 adults shopping at supermarkets and farmers markets in eastern Alabama. Total MDNK and MEDAS scores were significantly higher in students with formal nutrition education and in patrons of farmers markets. Greater MD adherence, assessed by dividing MEDAS scores into thirds, was found with increasing formal nutrition education in university students ($p = 0.002$) and in farmers market participants ($p < 0.001$). There was a weak but significant association between MDNK and MEDAS scores within university students and participants in the field. Together, the MDNK-MEDAS survey instrument is an effective tool for assessing baseline knowledge and adherence and can be used to target nutritional interventions to improve MD adherence for prevention and management of diabetes and other chronic disease.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The traditional Mediterranean diet originated in the regions surrounding the Mediterranean Sea. Consumption primarily of fruits, vegetables, olive oil, whole grains, nuts and legumes with wine in moderation, some fish and very little meat, processed foods and sweets represents an eating pattern consistent with adherence to a Mediterranean diet pattern (Ferro-Luzzi & Branca, 1995; Martinez-Gonzalez & Gea, 2012; Simopoulos, 2001). The foods

that are a rich part of the Mediterranean diet are high in vitamins, minerals, antioxidants, omega 3-fatty acids, monounsaturated fatty acids and fiber (Henriquez Sanchez et al., 2012) all of which possess a wide range of health benefits. Accordingly, greater adherence to a Mediterranean diet pattern shows a significant inverse association with metabolic syndrome, LDL-cholesterol and higher HDL-cholesterol (Yang, Farioli, Korre, & Kales, 2014). Greater adherence is also positively associated with a reduction in overall mortality, cardiovascular disease risk, and neoplastic disease (Sofi, Macchi, Abbate, Gensini, & Casini, 2014). In addition, self-reported mental and physical quality of life has been directly associated with adherence to a Mediterranean style diet (Henriquez Sanchez et al., 2012).

Nearly 30 million people in the United States currently have diabetes (CDC, 2014). The southeast United States has been labeled

* Corresponding author. AU Metabolic Phenotyping Laboratory, Department of Nutrition, Dietetics, and Hospitality Management, 260 Lem Morrison Dr, 101C PSB Auburn University, Auburn, AL, USA.

E-mail address: mwgreene@auburn.edu (M.W. Greene).

as the “diabetes belt” because a greater percentage of residents (11.7%) have been diagnosed with type 2 diabetes compared to those residing outside of the diabetes belt (8.5%) (Barker, Kirtland, Gregg, Geiss, & Thompson, 2011). The American Diabetes Association has recently recommended adhering to a Mediterranean-style diet as a nutritional pattern option for the treatment and prevention of diabetes (American Diabetes Association, 2016; Evert et al., 2014). This recommendation is based in part on the observation that a reduction in the occurrence of new-onset diabetes was observed in the PREDIMED study, a randomized clinical trial studying the impact of the Mediterranean diet on disease risk (Salas-Salvado et al., 2014). If adherence to a Mediterranean-style diet can aid in the prevention and management of diabetes and reduce cardiovascular events, then promoting adherence to a Mediterranean-style diet may be a dietary means of addressing the high incidence of diabetes in the southeast United States.

Adherence to a Mediterranean-style diet in southeast United States has not been directly assessed. It may be that nutrition knowledge is acting as an impediment to adherence (Bonaccio et al., 2013; Dickson-Spillmann & Siegrist, 2011). According to the Social Cognitive Theory (Bandura, 1986) as it relates to healthy food choices, an individual must possess nutrition knowledge in order to perform the behavior of choosing to consume a healthy diet. Significant positive but weak associations between nutrition knowledge and diet quality, likely mediated by socioeconomic status and gender, have been reported (Beydoun & Wang, 2008; Bonaccio et al., 2013; Parmenter, Waller, & Wardle, 2000; Spronk, Kullen, Burdon, & O'Connor, 2014; Worsley, Wang, Byrne, & Yeatman, 2014). Although other behavioral models support that additional factors are involved in food choice (Ajzen, 1991; Brunso & Grunert, 1995), small or medium correlations ($r < 0.5$) between nutrition knowledge and diet quality may have a significant impact on public health when considered from a population perspective (Wardle, Parmenter, & Waller, 2000).

If adherence to a Mediterranean style diet can reduce the risk of chronic disease and nutrition knowledge plays a role in diet quality, it is important to assess the relationship between nutrition knowledge and adherence to a Mediterranean style diet in both countries bordering the Mediterranean Sea and other areas of the world in which the Mediterranean style diet is being promoted as a healthy diet. Recently in Italy, nutrition knowledge was shown to be significantly associated with adherence to a Mediterranean diet pattern in adults (Bonaccio et al., 2013). However, the relationship between nutrition knowledge and adherence to a Mediterranean style diet in other areas of the world in which the Mediterranean style diet is being promoted as a healthy diet is lacking. In addition, a short questionnaire based on procedural and general nutrition knowledge that parallels the components of the Mediterranean diet does not exist. The purpose of the present study was to: (1) construct a survey instrument relevant to the general population of the United States, integrating both nutrition knowledge and MD adherence questions from previously validated instruments, and (s2) assess nutrition knowledge and MD adherence in a sample population in the southeast United States.

2. Methods

2.1. Study setting

The present study was conducted in Lee County, Alabama, USA (population estimate = 156,993). Auburn is the largest urban center in eastern Alabama with a population of 60,258 and is home to a large public university, Auburn University. With a population of 29,171, neighboring Opelika is the county seat and has population demographics more representative of the state of Alabama (US

Census Bureau, 2015). In Lee County, 70.7% of the population is white, 23.8% is African American, 3.9% are Hispanic, 3.4% are Asian, and 0.5% are “other” (Native Hawaiian, American Indian and Alaska Native); 50.8% of the population is female and 49.2% is male; 10.6% of the population is 65 years old and over while 21.5% are under the age of 18; and 33% of population holds a bachelor's degree or higher (US Census Bureau, 2015). According to the U.S. Department of Agriculture (USDA) Food Environment Atlas, 32% of adults in Lee County are currently obese. Aside from obesity, 31% of the population has low access to a grocery store and 11% has both low access to a store and low income. There are 0.8 fast food restaurants per 1000 people (USDA, 2016).

2.2. Study population

Surveys were distributed to a total of 129 students at Auburn University enrolled in 3 courses representing different levels of formal nutrition education exposure: none, Political Science ($n = 30$); intermediate, Introductory Nutrition ($n = 56$); and high, Human Nutrient Metabolism (upper division nutrition major course) ($n = 43$). The Political Science and Human Nutrient Metabolism course surveys were completed at the end of the spring 2015 semester while Introductory Nutrition course surveys were completed within the first month of the fall 2015 semester.

Convenience sampling was used in the field to obtain completed surveys from patrons of a farmers market and a supermarket in both Auburn and Opelika, Alabama in the summer of 2015. The farmers markets were open for only one day a week, while the supermarkets were open seven days a week. A total of 287 surveys were collected. The response rate at the supermarkets in Auburn and Opelika was 52.2% and 37.7%, respectively. The response rate at the farmers markets in Auburn and Opelika was 72.0% and 70.9%, respectively. Collectively, the response rate was 45.2% at supermarkets compared to 71.5% at farmers markets.

Incomplete surveys and those from students and shoppers under age 18 were excluded. Two student surveys and fifty-seven field surveys were excluded. Full statistical analysis was performed on 129 student surveys and 230 field surveys.

2.3. Survey instrument development

Development of a Mediterranean Diet Nutrition Knowledge (MDNK) questionnaire began with a pool of questions from three previously validated questionnaires (Dickson-Spillmann & Siegrist, 2011; Dickson-Spillmann, Siegrist, & Keller, 2011; Yoo, Saliba, MacDonald, Prenzler, & Ryan, 2013) (Supplemental Table 1). The questions were chosen based on their correlation with parameters of the Mediterranean diet, as outlined in a previously validated screener used to score adherence to the Mediterranean diet (Schroder et al., 2011). This screener was created for the Spanish PREDIMED study which was the first randomized controlled trial conducted to test Mediterranean diet adherence in the primary prevention of major chronic diseases and was validated for an adult Spanish population (Schroder et al., 2011). The initial pool contained twenty-two questions. A qualitative assessment of the pool of questions was conducted by administering the questionnaire to undergraduate nutrition majors enrolled in a Mediterranean diet seminar course ($n = 12$). Upon completing the questionnaire, each question was analyzed and discussed with the students. Questions that were repetitive or poorly understood were eliminated in an effort to develop a concise set of questions which paralleled the 14-Point Mediterranean diet screener (Schroder et al., 2011). From this qualitative assessment, a 15-question MDNK questionnaire (Supplemental Table 2) was established. The final 3-part survey instrument consisted of a 14-Point Mediterranean Diet Adherence

Download English Version:

<https://daneshyari.com/en/article/5044259>

Download Persian Version:

<https://daneshyari.com/article/5044259>

[Daneshyari.com](https://daneshyari.com)