



Association of Dietary Habits with Psychosocial Outcomes in Women with Fibromyalgia: The al-Ándalus Project



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ABSTRACT

Background Fibromyalgia (FM) is a complex multidimensional disorder with pain as its main symptom. Fibromyalgia imposes a psychosocial burden on individuals that negatively impacts quality of life. The relationship of dietary habits with these psychosocial aspects is still unclear.

Objective The purpose of this cross-sectional study was to assess dietary habits in a representative sample of women with FM and to explore their association with mental health, depression, and optimism in this population.

Design A cross-sectional study was conducted between November 2011 and January 2013.

Participants The study sample comprised 486 women (ages 35 to 65 years) with FM from Andalucía (southern Spain).

Main outcome measures Mental health, depression, and optimism were evaluated by means of the mental component scale of the 36-item Short-Form Health Survey, the Beck Depression Inventory (BDI-II), and the Life Orientation Test Revised, respectively. A short form of a validated food frequency questionnaire was used to assess dietary habits.

Statistical analyses performed Analysis of covariance was used to assess associations between dietary habits and mental health, depression, and optimism. The presence of severe depression (BDI-II ≥ 29) as a function of dietary habits was examined with logistic regression.

Results A daily or almost-daily consumption of fruit and vegetables and a moderate consumption of fish (2 to 5 servings per week) were associated with higher scores in mental health ($P < 0.001$, $P < 0.05$, and $P < 0.001$, respectively) and lower levels of depression ($P < 0.001$, $P < 0.01$, and $P < 0.01$, respectively). A daily or almost-daily consumption of vegetables and a moderate consumption of dairy products and fish were associated with higher levels of optimism ($P < 0.05$, $P < 0.05$, and $P < 0.001$, respectively). A daily or almost-daily consumption of cured meats and sweetened beverages were associated with higher levels of depression and lower levels of optimism, respectively (both $P < 0.05$).

Conclusion The results this study suggest that a daily or almost-daily intake of fruit and vegetables and a moderate intake of fish may be associated with more favorable psychosocial outcomes in women with FM. Conversely, excessive intake of cured meats and sweetened beverages was related to worse scores in optimism and depression outcomes. Future research analyzing dietary patterns as well as intervention studies evaluating the effects of healthy dietary patterns on psychosocial and physical outcomes in individuals with FM are warranted.

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FIBROMYALGIA (FM) IS A DISEASE CHARACTERIZED BY widespread pain¹ and a constellation of other symptoms and comorbidities² that cause a marked deterioration of Health Related Quality of Life (HRQoL), mental well-being, and depression.³ Consequently, FM represents an important public health issue.³ Individuals with FM have a remarkably consistent pattern of health status impairment marked by deterioration in physical and

psychosocial well-being.³⁻⁵ Moreover, a greater prevalence of overweight and obesity has also been observed,⁶ and this finding has been found to be associated with the concurrence of FM symptoms and severity.^{2,7,8}

Because no cure is available for FM,^{5,9} recent guidelines suggest that the optimal treatment consists of a multidisciplinary approach^{5,7,9} with a combination of pharmacological and nonpharmacological treatment modalities.⁵ Among

nonpharmacological treatments, dietary intervention is a promising approach.⁷ Several studies have demonstrated the importance of specific dietary habits on the mental well-being of the general population.¹⁰⁻¹² A recent review suggests that a treatment program including weight-loss strategies, nutritional education, specific dietary interventions, and the use of targeted nutritional supplements is recommended for individuals with FM.⁷ However, little evidence-based information is available to provide nutritional advice for this specific population.¹³ Furthermore, the scientific community is concerned about anecdotal nonscientific information related to the potential benefits of some products based on nutritional ingredients or botanicals¹⁴ as well as specific diets with either no conclusive or contradictory results.^{7,15-17}

Although most studies have focused on pain, little information is available about the association of dietary habits with psychosocial outcomes. Although pain is the main FM symptom, the disease has been defined as a complex multidimensional disorder, with other important psychosocial symptoms that have a massive impact on the individual's illness perception and quality of life.¹⁸

Therefore, the aims of this cross-sectional study were (1) to assess the dietary habits in a representative sample of women with FM from southern Spain, and (2) to examine the associations of dietary habits with mental health, depression, and optimism in this population.

METHODS

Study Sample and Design

The study assessments were carried out between November 2011 and January 2013. Briefly, a total of 617 women with FM were recruited through local associations of people with FM (via e-mail, letters, telephone, and University press) from Andalusia (southern Spain). After receiving detailed information about the aims and study procedures, participants signed informed consents before taking part in the study. Inclusion criteria for women with FM were: (1) to be previously diagnosed by a rheumatologist, (2) to meet the 1990 American College of Rheumatology fibromyalgia classification criteria,¹ and (3) to not have acute or terminal illness, or a severe dementia (Mini-Mental State Examination score <10).¹⁹ Thirty-eight women with FM were not previously diagnosed, 92 did not meet the 1990 American College of Rheumatology criteria, and one had severe cognitive impairment. The final sample resulted in a sample size of 486 women with an age range from 35 to 65 years. The study was reviewed and approved by the local Ethics Committee ('Hospital Virgen de las Nieves,' Granada, Spain).

PATIENTS AND PROCEDURES

Sociodemographic Data

Sociodemographic information was recorded using a self-report questionnaire that included date of birth, marital status, educational level, current occupational status, and time since FM diagnosis, among other questions such as smoking status, household members, menstrual status, use of contraceptives, use of hormone replacement therapy, number of children, number of miscarriages, household tasks, and the use of nutritional supplements such as naturalistic

(eg, *Plantago ovata*, omega-3 capsules, and so forth) or homeopathic products (eg, *Aconitum* 7CH, *Arnica* 6CH, 20CH, and so forth).

Anthropometry and Body Composition

A portable eight-polar tactile-electrode bioelectrical impedance device (InBody R20; Biospace) was used to measure weight (kg), body fat (%), and skeletal muscle mass (kg). Height (cm) was measured using a stadiometer (Seca 22). Body mass index was calculated as weight (in kilograms) divided by height squared (in meters) and categorized following the World Health Organization criteria.²⁰ Waist circumference (cm) was measured, with the participant standing, at the middle point between the ribs and iliac crest (Harpender anthropometric tape, Holtain Ltd). All measurements were conducted by trained researchers.

Dietary Habits

Dietary habits for the previous year were self-reported through completion of a short form of a validated food frequency questionnaire,²¹ in which participants indicated the frequency of consumption (number of times per day, week, month, or year) of 34 foods divided by food groups: fruit, vegetables, dairy products, fish, cereals, pulses, eggs, meat, fats, sweets, beverages, and nuts. Questionnaires were reviewed by research staff, and study participants were asked to fill in any missing responses. Based on this food frequency questionnaire (see Figure 1, available at www.andjrn.org), the answers were categorized to create three levels of food consumption: a *low-consumption group* for frequencies from never up to 1 serving per week, a *moderate-consumption group* for frequencies from 2 up to 5 servings per week, and a *high-consumption group* for a daily or almost-daily frequency (from 6 servings per week to daily consumption of at least 1 serving).

Mental Health

Mental health was self-reported with the Mental Component of the 36-Item Short-Form Health Survey (SF-36),²² which has been validated in Spanish populations²³ for the evaluation of HRQoL. The Mental Component is measured by the following dimensions: vitality, mental health, social functioning, and emotional role. The final score for each dimension ranges from 0 to 100, with higher scores corresponding to better mental health.

Depression

The Beck Depression Inventory-II (BDI-II) is a 21-item questionnaire used to assess (self-reported) depressive symptomatology.²⁴ Participants rated each item from 0 ("not present") up to 3 ("severe") in the context of the past 2 weeks. Thus, the BDI-II score ranges from 0 to 63, with a higher score indicating greater depression. Clinical cutoff scores have been described as follows: a score from 0 to 13 represents none or minimal depression, from 14 to 19 represents mild depression, 20 to 28 represents moderate depression, and ≥ 29 represents severe depression.²⁵

Optimism

The Life Orientation Test Revised (LOT-R)²⁶ assessed the participants' expectations about their future and their

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