




Abstract

High Adherence to Mediterranean Diet and Fish Intake Are Inversely Associated with Depressive Symptoms in Older Women: Findings from the Cross-Sectional NutBrain Study[†]

Federica Prinelli^{1,2,*}, Silvia Conti^{1,2}, Nithiya Jesuthasan¹, Elena Perdixi^{2,3}, Matteo Cotta Ramusino^{4,5}, Alfredo Costa^{4,5} and Sara Bernini^{2,5}

¹ Institute of Biomedical Technologies—National Research Council, 20054 Segrate, MI, Italy; silvia.conti@itb.cnr.it (S.C.); nithiya.jesuthasan@itb.cnr.it (N.J.)

² Neuropsychology Lab/Center for Cognitive Disorders and Dementia, IRCCS Mondino Foundation, Via Mondino 2, 27100 Pavia, PV, Italy; elena.perdixi@humanitas.it (E.P.); sara.bernini@mondino.it (S.B.)

³ Department of Neurology, IRCCS Humanitas Clinical and Research Center, Via Alessandro Manzoni, 56, 20089 Rozzano, MI, Italy

⁴ Unit of Behavioral Neurology, IRCCS Mondino Foundation, Via Mondino 2, 27100 Pavia, PV, Italy; matteo.cottaramusino@mondino.it (M.C.R.); alfredo.costa@mondino.it (A.C.)

⁵ Clinical Neuroscience Unit of Dementia, Dementia Research Center, IRCCS Mondino Foundation, Via Mondino 2, 27100 Pavia, PV, Italy

* Correspondence: federica.prinelli@itb.cnr.it

[†] Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: Background and objectives: Data on the association of Mediterranean diet and food groups with depressive symptoms in older men and women, are scarce. The aim of this study was to examine the cross-sectional association of adherence to the Mediterranean diet and its food components with depressive symptoms in an Italian cohort of older men and women. Methods: We included individuals aged ≥ 65 years from the cross-sectional NutBrain study, recruited in 2019–2023, who answered a 102-item semi-quantitative food frequency questionnaire (SFFQ), which was used to calculate the Mediterranean diet score (MDS) proposed by Trichopoulou. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D). The main outcome measure was a CES-D score of 16 or more. Statistical analyses were performed using a logistic regression model controlling for potential confounders. Results: A total of 325 men and 473 women (mean age 73.5 ± 6.2 years, 50.1% low socioeconomic status, 23.9% lived alone) were analysed. The frequency of depressive symptoms was 19.8% (8.0% in men and 27.9% in women). Women with depressive symptoms were less compliant with the MDS and consumed fewer vegetables and fish compared to women without depressive symptoms ($p < 0.05$). No differences were observed in men. Multivariate logistic regression shows that high adherence to the MDS (highest tertile) significantly reduced the odds of having depressive symptoms by 54.6% (OR 0.454, 95%CI 0.266–0.776) in the whole sample, independent of covariates. When we stratified the analysis by sex, we found an inverse association between high adherence to the MDS and depressive symptoms in women (OR 0.385, 95%CI 0.206–0.719) but not in men (OR 0.828, 95%CI 0.254–2.705). Among the MDS components, fish consumption (OR 0.444, 95%CI 0.283–0.697) and MUFA/SFA ratio (OR 0.579, 95%CI 0.345–0.971) above the median were inversely associated with CES-D only in women. Women who ate fresh fish (not canned) 2–3 times/day and ≥ 3 times/week had 43.4% and 70.0% lower odds of depressive symptoms, respectively, than those who ate fish < 2 times/week. Fish consumption was not associated with depression in men. Discussion: This study confirms that older women have higher depressive symptoms than men. Furthermore, high adherence to the Mediterranean diet and high fish consumption were associated with lower depressive symptoms in women but not in men. Our findings provide further evidence that improved advice on healthy eating can benefit mental health, especially in older women.



Citation: Prinelli, F.; Conti, S.; Jesuthasan, N.; Perdixi, E.; Cotta Ramusino, M.; Costa, A.; Bernini, S. High Adherence to Mediterranean Diet and Fish Intake Are Inversely Associated with Depressive Symptoms in Older Women: Findings from the Cross-Sectional NutBrain Study. *Proceedings* **2023**, *91*, 350. <https://doi.org/10.3390/proceedings2023091350>

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 20 February 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: depressive symptoms; older adults; Mediterranean diet; fish intake; cross-sectional study

Author Contributions: Conceptualization, All authors; methodology, F.P., S.C., N.J., E.P., M.C.R., A.C. and S.B.; formal analysis, F.P.; investigation, F.P., S.C., N.J., E.P., M.C.R., A.C. and S.B.; writing—original draft preparation, F.P.; writing—review and editing, S.C., N.J., E.P., M.C.R., A.C. and S.B.; project administration, F.P.; funding acquisition, F.P. and S.B. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Italian Ministry of Health (GR-2016-02361730). The study funders had no involvement in the design and conduct of the study, collection, management, analysis and interpretation of data; preparation, review, or approval of the manuscript; and the decision to submit the manuscript for publication.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Medical Ethics Committee Area of Pavia (protocol code 20180036036, April 9, 2018 and further amendments).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data are available under request.

Conflicts of Interest: The authors declare no conflict of interest.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.