



The Role of Fruit and Vegetable Consumption in Mental Health

Fahimeh Haghighatdoost^{1,2}, Leila Azadbakht^{1,3*}

1-Food Security Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

2-Department of Community Nutrition, School of Nutrition and Food Science, Isfahan University of Medical Sciences, Isfahan, Iran

3-Department of Community Nutrition, School of Nutritional Sciences and Dietetics & Diabetes Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

Received: February 2016

Accepted: March 2016

ental disorders cause a large number of years of life lost due to disability (YLDs) (1). Dietary risks are known as a top risk factor for various non-communicable diseases, and by increasing life-expectancy, dietary risks and mental disorders would be one of the main sources of nonfatal health burden (2).

The inverse association between healthy dietary intakes and several chronic diseases (3, 4) as well as inflammation has been well established. Because of the causative role of inflammation in the etiology of mental disorders (5), foods with anti-inflammatory properties may effectively decrease the risk of mental disorders. Fruits and vegetables (FVs) rich in essential nutrients for mental health such as cobalamine, folate, pyridoxine and magnesium may be more healthful than other food groups. In spite of suggested neuro-protective effects for FVs by several investigators (6-10), the literature is still inconsistent regarding the effectiveness of either total FVs or fruits or vegetables when considered separately. Some investigators suggest that the diversity of FVs is more important than their quantity (6, 11). Overall, green leafy vegetables, vitamin C-rich and βcarotene-rich FVs play a stronger role in mental health, whilst vitamin E-rich FVs may not have considerable role in this regard because FVs are not considered as the main source of vitamin E (6). In addition, consuming greater FVs could be associated with lower dietary glycemic index (GI), which is known as an independent risk factor for depression and anxiety (12).

In spite of all the benefits mentioned above, FVs may have no favorable effect in psychological function that might be explained by the pesticide content of fruits and vegetables, in particular because toxins increase the susceptibility to neurodegenerative diseases and cognitive dysfunction (13). Moreover, cooking may destroy antioxidant content of FVs; therefore, it needs to be taken into account in clinical practice and future research works. Other reasons for inconsistent results among different studies might be related to the amount of FVs intake and the serum concentration of nutrients. On the other hand, it is possible that nutrient deficiency in a population does not allow finding significant association between specific types of FVs and mental disorders (6). Finally, it should be considered that most of evidence in this context comes from observational studies, and further longitudinal and clinical trials are needed to explore the exact role of FVs in mental health.

Financial disclosure

The authors declare no financial interest.

Funding/Support

This study was funded by the School of Nutrition and Food Science, Isfahan University of Medical Sciences, Isfahan, Iran.

References

- 1. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet (London, England). 2012 Dec 15; 380(9859):2163-96.
- 2. Forouzanfar MH, Sepanlou SG, Shahraz S, Dicker D, Naghavi P, Pourmalek F, et al. Evaluating causes of death and morbidity in Iran, global burden of diseases,

Downloaded from nfsr.sbmu.ac.ir on 2025-05-17]

injuries, and risk factors study 2010. Archives of Iranian Medicine. 2014 May; 17(5):304-20.

- 3. Haghighatdoost F, Shokouh O, Azadbakht L. Dietary Approaches to Stop Hypertension (DASH) Eating Plan: Beyond the Hypertension. Nutr Food Sci Res. 2015; 2 (1):3-10
- Asghari Hanjani N, Vafa MR. Calorie Restriction, Longevity and Cognitive Function. Nutr Food Sci Res. 2016; 3 (1):1-4
- Kivimaki M, Shipley MJ, Batty GD, Hamer M, Akbaraly TN, Kumari M, et al. Long-term inflammation increases risk of common mental disorder: A cohort study. Molecular Psychiatry. 2014 Feb;19(2):149-50.
- 6. Peneau S, Galan P, Jeandel C, Ferry M, Andreeva V, Hercberg S, et al. Fruit and vegetable intake and cognitive function in the SU.VI.MAX 2 prospective study. The American Journal of Clinical Nutrition. 2011 Nov; 94(5):1295-303.
- McMartin SE, Jacka FN, Colman I. The association between fruit and vegetable consumption and mental health disorders: Evidence from five waves of a national survey of Canadians. Preventive Medicine. 2013 Mar; 56(3-4):225-30.
- 8. Liu X, Yan Y, Li F, Zhang D. Fruit and vegetable consumption and the risk of depression: A metaanalysis. Nutrition (Burbank, Los Angeles County, Calif). 2016 Mar; 32(3):296-302.

- Sabia S, Nabi H, Kivimaki M, Shipley MJ, Marmot MG, Singh-Manoux A. Health behaviors from early to late midlife as predictors of cognitive function: The Whitehall II study. American Journal of Epidemiology. 2009 Aug 15;170(4):428-37.
- 10. Hughes TF, Andel R, Small BJ, Borenstein AR, Mortimer JA, Wolk A, et al. Midlife fruit and vegetable consumption and risk of dementia in later life in Swedish twins. The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry. 2010 May; 18(5):413-20.
- 11. Nooyens AC, Bueno-de-Mesquita HB, van Boxtel MP, van Gelder BM, Verhagen H, Verschuren WM. Fruit and vegetable intake and cognitive decline in middleaged men and women: The Doetinchem Cohort Study. The British Journal of Nutrition. 2011 Sep; 106(5):752-61.
- 12. Haghighatdoost F, Azadbakht L, Keshteli AH, Feinle-Bisset C, Daghaghzadeh H, Afshar H, et al., Glycemic index, glycemic load, and common psychological disorders. The American Journal of Clinical Nutrition. 2016 Jan; 103(1):201-9.
- Chin-Chan M, Navarro-Yepes J, Quintanilla-Vega B. Environmental pollutants as risk factors for neurodegenerative disorders: Alzheimer and Parkinson diseases. Frontiers in Cellular Neuroscience. 2015; 9:124.