

obtained based on a validated 168-item semi-quantitative food frequency questionnaire. Anthropometric and demographic information was collected. To calculating odds of NMOSD, dietary intake of animal fat plus hydrogenated fat classified into quartiles and logistic regression was run.

Dietary consumption of animal fat plus hydrogenated fat in case group was significantly higher than control group (30.29g vs. 20.70g; Pvalue: 0.02). After adjustment for age and gender a non-significant direct association between higher intake of animal fat plus hydrogenated fat with NMOSD odds was founded in the second (OR: 1.09) and, the third (OR: 1.60) quartiles compared with the first quartile. This association was significant in the fourth quartile with OR: 2.48 and, CI: 1.05-5.81 (p-trend: 0.00).

The present study suggests higher intake of animal fat and hydrogenated fat as a potential factor for NMOSD odds.

doi: [10.1016/j.msard.2019.11.036](https://doi.org/10.1016/j.msard.2019.11.036)

Multiple Sclerosis and Related Disorders 37 (2020) 101562

Potential Role of High Omega6 to Omega3 Fatty Acids Ratio in Increasing Odds of Neuromyelitis Optica Spectrum Disorder

Nasim Rezaeimanesh, Soodeh Razeghi Jahromi, Abdorreza Naser Moghadasi, Zeinab Ghorbani, Sharareh Eskandarieh, Mohammad Ali Sahraian

Multiple Sclerosis Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran

High omega6 to omega3 fatty acids ratio (w6. w3 ratio) is known as an inflammatory factor in diet. This study designed to investigate the effects of dietary w6. w3 ratio on Neuromyelitis Optica Spectrum Disorder (NMOSD) odds.

A case-control study was conducted in a referral specialist clinic for NMOSD patients, Sina hospital, Tehran, Iran. Seventy NMOSD patients with definite diagnosis based on 2015 international consensus criteria in case group and 164 hospital-based controls were enrolled in this study. A semi-quantitative validated food frequency questionnaire with 168 item was completed for all participants according to usual dietary consumption of one last year of study enrollment. In order to running two logistic regression models, dietary w6. w3 ratio was stratified into quartiles and ORs was computed.

The mean ratio of w6. w3 intake increased from 14.57 in the first quartile to 51.95 in the fourth quartile of w6. w3 ratio. A direct association between higher w6. w3 ratio and increased odds of NMOSD was found in both models. By adjustment for age and gender in the first model, the fourth quartile showed a significant 2.94-fold increase in NMOSD odds compared with the first quartile (95%CI: 1.23-7.03; P-trend: 0.77). Further adjustment for total energy intake, BMI, cigarette smoking and alcohol consumption status in the second model, also resulted in a significant OR of 2.58 in the fourth quartile compared with the first quartile (95%CI: 1.01-6.60; P-trend: 0.21).

Our results underline a possible role of high omega6/ omega3 fatty acids ratio as a risk factor for NMOSD. Due to modifiable property of this ratio, our finding is valuable for reducing risk of NMOSD which has unknown risk factor. More investigations are needed to approve our results.

doi: [10.1016/j.msard.2019.11.037](https://doi.org/10.1016/j.msard.2019.11.037)

Multiple Sclerosis and Related Disorders 37 (2020) 101563

Economic Burden of Multiple Sclerosis in Egypt: A Societal Perspective

Magd Zakaria¹, Mai Sharawy², Islam Anan³

¹*Ain-Shams University, Cairo, Egypt*

²*MS Care (Patients Association Group), Cairo, Egypt*

³*Accsight, Cairo, Egypt*

Egypt got the highest number of multiple sclerosis (MS) patients in the Middle East region with estimated number of 25,000 subjects. In 2018 there were 7,000 patients diagnosed and treated with high burden due to delay in both diagnosis and treatment initiation adding to that financial burden.

Bottom-up cost of illness model was built based on a face to face patient reported outcome study conducted with 142 patients nationwide, 75% were relapsing remitting multiple sclerosis (RRMS) and 25% Progressive phase (primary progressive and secondary progressive) stating both direct, and indirect costs, indirect cost was calculated based on Human Capital Method. Exchange rate used through – out the report is (EGP 1) = (USD 0.17808) as per the published exchange rate on currency converter for year 2018.

The total cost of MS including RRMS and Progressive phase was 20.038 Million USD in 2018 from patient's perspective and excluding governmental expenditure on MS. Direct medical costs were 64%, 8% direct non-medical and 28% indirect cost. Results showed that average age is 33 years yet 56% are unemployed and 46% of MS patients lost their jobs after diagnosis. Patients with progressive phase of MS showed higher level of unemployment with 22% versus 16% for the RRMS patients. Progressive phase patients spend average of 3 years till confirming diagnosis versus 1 year for RRMS. The total cost per patient per month was estimated to be 240 USD given the average wage in Egypt is 235 USD per month.

Although the financial burden on RRMS patients compared to an earlier cost of RRMS study conducted in 2015 decreased by almost 40% in terms of direct spending however the burden is still relatively high given the low-income level of MS patients and unemployment status, for progressive phase (PPMS and SPMS patients) burden is much higher due to incomplete coverage for the treatment at public sectors.

doi: [10.1016/j.msard.2019.11.038](https://doi.org/10.1016/j.msard.2019.11.038)

Multiple Sclerosis and Related Disorders 37 (2020) 101564

Correlation between Central Nervous System Damage and Clinical Disability in a Sample of Egyptian Multiple Sclerosis Patients

Mohammad Aboulwafa, Fathi Mahmoud Afifi Nasra¹, Mohamed Aly M. Abboud, Mohamed Hamed Rashad, Mahros Ibrahim Seddik

Al-Azhar University, Cairo, Egypt

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system that causes inflammatory as well as degenerative changes in the central nervous system. We aimed to study the correlation between clinical disability of the disease and advanced volumetric magnetic resonance imaging (MRI) parameter in a sample of Egyptian MS patients.

Sixty MS patients and 63 age- and sex- matched healthy controls were recruited for the study. Clinical measures including Expanded Disability Status Scale (EDSS), 9-Hole Peg Test (9HPT), 25-Timed Foot Walking Test (25FWT), and Paced Auditory Serial Addition Test (PASAT) were used. 3D T1 MRI brain was acquired for measurement global as well as regional brain atrophy using FSL software; FLAIR sequence was used for brain lesion load estimation and STIR sequence was used for cervical spinal cord.

Brain volume was significantly lower in MS patients compared to healthy controls. Progressive phenotypes showed lowest values compared to clinically isolated syndrome and relapsing remitting MS. High brain lesion load correlated with EDSS in Early-MS subgroup and no correlation to EDSS was found at Later-MS subgroup. High cervical lesion count was detected in the study group and cervical