

# Dietary supplements, daily nutrient intake, and health-related quality of life among people with myalgic encephalomyelitis/chronic fatigue syndrome

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There remains ambiguity surrounding the role of dietary supplementation and nutrient intake on the health status of myalgic encephalomyelitis (ME)/chronic fatigue syndrome (CFS) patients<sup>(1–3)</sup>, yet supplement use and dietary modification appear to be common among people with the condition. This pilot cross-sectional study aimed to investigate if supplement use or nutrient intake was associated with self-reported health-related quality of life (HRQoL) scores among Australians with ME/CFS.

The eligibility criteria for this study included being a resident of Australia, being aged between 18 and 65 years, and having received a formal diagnosis of ME/CFS from a physician. Participants completed a series of self-administered questionnaires querying socio-demographic information, symptom presentation, HRQoL, routine supplement use, and nutrient intake. The 36-item Short-Form Health Survey version 2 (SF-36) was employed to assess participants' HRQoL. Daily nutrient intake was estimated from participants' responses to the Dietary Questionnaire for Epidemiological Studies (Cancer Council Victoria, Australia). Multiple linear regression analysis was performed for each of the eight SF-36 domains. Age, gender, body mass index, employment, education were controlled variables in each model, with supplement and nutrient variables entered in a stepwise manner.

Twenty-four Australians with ME/CFS, 54.2% of which met the International Consensus Criteria case definition for ME/CFS, participated in the study. Three of the eight regression models were statistically significant, being the 'role limitations due to physical health problems' (adjusted  $R^2 = 0.733$ ,  $P < 0.001$ ), 'bodily pain' (adjusted  $R^2 = 0.544$ ,  $P = 0.004$ ), and 'general health perceptions' (adjusted  $R^2 = 0.743$ ,  $P < 0.001$ ) SF-36 domains. Positive associations were observed between HRQoL and the routine use of vitamin C ( $\beta = 0.300$ ,  $P = 0.042$ ) and herbal supplements ( $\beta = 0.618$ ,  $P < 0.001$ ), as well as daily saturated fat ( $\beta = 0.860$ ,  $P < 0.001$ ), total folate ( $\beta = 0.710$ ,  $P < 0.001$ ), and calcium intake ( $\beta = 0.897$ ,  $P = 0.003$ ). However, the routine use of evening primrose oil supplements ( $\beta = -0.385$ ,  $P = 0.006$ ) and daily intakes of alpha-linolenic acid ( $\beta = -0.543$ ,  $P = 0.001$ ), long chain omega-3 fatty acids ( $\beta = -0.431$ ,  $P = 0.017$ ), and iodine ( $\beta = -0.602$ ,  $P = 0.034$ ) were negatively associated with HRQoL scores. None of the supplements or nutrients studied had consistent associations with HRQoL across the three significant regression models.

The findings of this pilot study suggest that there may be links between dietary supplementation and nutrient intake with HRQoL among people with ME/CFS. Future studies should investigate supplement use, daily nutrient intake, and their relationships with HRQoL and symptom presentation among people with ME/CFS longitudinally and compared with healthy controls to further elucidate the role of supplements and nutrient intake in the management of ME/CFS.

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