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The impact of essential fatty acid, B vitamins, vitamin C, magnesium and zinc supplementation on stress levels in women: a systematic review

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Abstract

Background: Women juggling multiple roles in our complex society are increasingly experiencing psychological stress. Dietary supplementation to manage stress is widespread despite limited supporting evidence. A systematic review of the available literature was undertaken to investigate the efficacy of specific dietary supplements in managing female stress and anxiety.

Objectives: To identify the impact of essential fatty acids (EFAs), B vitamins, vitamin C, magnesium and/or zinc, consumed as dietary supplements to the daily diet, on female stress and anxiety levels.

Inclusion criteria types of participants: Women aged 18 years and over, who had participated in a study where stress and/or anxiety were assessed.

Types of intervention(s): Dietary supplementation with EFAs, B vitamins, vitamin C, magnesium and/or zinc.

Types of comparators: Supplements, either alone or combined, were compared with either no intervention or placebo.

Types of studies: Randomized controlled and pseudo-randomized trials were included.

Outcomes: Stress and anxiety were assessed using self-report or physiological outcome measures.

Search strategy: Published and unpublished studies were sought via MEDLINE (via PubMed), Embase, Scopus, CINAHL, PsycINFO, PsycARTICLES, MedNar, National Institute of Mental Health and the International Association for Women's Mental Health.

Methodological quality: Methodological quality was evaluated using standardized critical appraisal instruments from the Joanna Briggs Institute.

Data extraction: Data were extracted using the standardized data extraction instruments from the Joanna Briggs Institute.

Data synthesis: Due to heterogeneity of the included studies, narrative synthesis was performed.

Results: Fourteen studies were included in this review. Essential fatty acids were effective in reducing perceived stress and salivary cortisol levels during pregnancy and anxiety in premenstrual women, and

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anxiety during menopause in the absence of depression, but were ineffective when depression was disregarded. Disregarding the hormonal phase, EFAs were ineffective in reducing stress or anxiety in four groups of women. Combined magnesium and vitamin B6 supplementation reduced premenstrual anxiety but had no effect when used in isolation and did not affect stress in women suffering from dysmenorrhea when combined or used in isolation. Older women experienced anxiety reduction using vitamin B6, but not folate or vitamin B12. High-dose sustained-release vitamin C was effective in reducing anxiety and blood pressure in response to stress.

Conclusion: The current review suggests that EFAs may be effective in reducing prenatal stress and salivary cortisol and may reduce anxiety during premenstrual syndrome and during menopause in the absence of depression. Magnesium and vitamin B6 may be effective in combination in reducing premenstrual stress, and vitamin B6 alone may reduce anxiety effectively in older women. High-dose sustained-release vitamin C may reduce anxiety and mitigate increased blood pressure in response to stress.

Implications for practice: Essential fatty acids may be effective in reducing prenatal stress and salivary cortisol levels, and premenstrual or menopausal anxiety in the absence of depression. Combining magnesium and vitamin B6 may reduce premenstrual anxiety and vitamin B6 may reduce anxiety in older women. High-dose sustained-release vitamin C may reduce anxiety and mitigate increased blood pressure in response to stress.

Implications for research: Investigating supplementation in longer term studies is warranted and should include compliance testing, the use of inert substances as controls and reliable outcome measures.

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