

Vitamin D Supplementation and its Effects on Depression

Emily Luplow

Background & Purpose

Major Depressive Disorder (MDD) is a common psychiatric disease that significantly impacts both social and occupational functioning. MDD is the leading cause of disability worldwide.¹ Vitamin D is an essential fat-soluble vitamin that functions as a hormone. An individual's age, health conditions, body weight, dietary intake, supplementation, outdoor activity, and latitude of residence are among the elements that can alter vitamin D status.²

The goal of this research is to analyze the effect of vitamin D supplementation in those individuals who have been diagnosed with Major Depressive Disorder or have depressive symptoms. This research was aimed to see if there is a correlation between vitamin D deficiency and individuals with depression and to see if they possibly negatively impact one another.

PICOT

In patients with vitamin D insufficiency or deficiency, does vitamin D supplementation result in decreased occurrence of depression or depressive like symptoms when compared to the absence of vitamin D supplementation?

Design & Methods

Keywords: vitamin D deficiency, vitamin D insufficiency, depression, depressive symptoms, vitamin D supplementation, pathophysiology, 25 hydroxyvitamin D

Inclusion: Full-text articles, peer-reviewed, published between 2018-2023, and in the English language. Articles needed to include participants vitamin D serum levels.

Exclusion: Studies investigation individuals below the age of 13, did not have a depression rating scale such as the 8-item Patient Health Questionnaire depression scale, the 9-item Patient Health Questionnaire depression scale, or the Hamilton D-17 depression scoring systems.

Table 1: Summary of Evidence Search

Database	Yielded	Reviewed	Included in Analysis
Ebsco Host	43	29	6
Pub Med	21	13	4
Total:	64	42	10

Table 2: Synthesis of Evidence Search:

Type	Systemic Reviews	Cross Sectional Studies	Cohort Study	Meta-analyses	Randomized Controlled Trials
Total	3	2	1	2	2

Results:

The studies found that if individuals have lower levels of vitamin D, they are more likely to be diagnosed with depression or show signs of depression.³

When participants were given a daily supplement of vitamin D that was greater than 2,800 IU and was taken over a time period that was greater than or equal to 8 weeks duration, the supplement helped participants in both preventing and treating depression.⁴

Vitamin D supplementation versus the placebo displayed no significant differences in depression symptoms through the measurement of the PHQ-8.⁵

Best Practice

Discussion:

When individuals have lower levels of vitamin D, they are more likely to display clinical signs and symptoms of depression. It is important to identify the patient populations that are the most at risk for depression and see if they also have insufficient or deficient levels of vitamin D. If patient populations that are more at risk for certain diseases can be identified early on, then treatment can be more geared towards them to prevent further disease from manifesting.

Limitations/Further study:

Some studies did not provide documentation of simultaneous calcium supplementation, antidepressant use, and other psychosocial interventions which may impact the patient's vitamin D levels and depression symptoms rating.

Participants had to fill out surveys that scaled or rated their symptoms of depression. When information is self reported, there is potential for bias.

There is still research that needs to be done concerning the relationship between vitamin D supplementation and the impact that it has on depressive symptoms. There are gaps within the literature surrounding the benefits of supplementation of vitamin D in order to improve a patient's depressive symptoms. There is not enough evidence to suggest universal supplementation of vitamin D.⁶ Further research needs to explore different subgroups of individuals with different severities of depression and try to examine what dose of vitamin D supplement would best suit them and help their depressive symptoms.

Conclusion:

There is a correlation between having lower levels of vitamin D and having clinical signs and symptoms of depression. However, studies found that supplementation of vitamin D displayed minor improvement of clinical depression symptoms or no improvement at all.

References:

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