

# Vitamin D deficiency raises risk of schizophrenia diagnosis

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Vitamin D-deficient individuals are twice as likely to be diagnosed with schizophrenia as people who have sufficient levels of the vitamin, according to a new study published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism*.

Vitamin D helps the body absorb calcium and is needed for bone and muscle health. The skin naturally produces this vitamin after exposure to sunlight. People also obtain smaller amounts of the vitamin through foods, such as milk fortified with vitamin D. More than 1 billion people worldwide are estimated to have deficient levels of vitamin D due to limited sunshine exposure.

Schizophrenia is a mental illness with symptoms that can include delusions and hallucinations. Since schizophrenia is more prevalent in high latitudes and cold climates, researchers have theorized vitamin D

may be connected to the disorder.

"This is the first comprehensive meta-analysis to study the relationship between the two conditions," said one of the study's authors, Ahmad Esmailzadeh, PhD, of the Isfahan University of Medical Sciences in Isfahan, Iran. "When we examined the findings of several observational studies on vitamin D and schizophrenia, we found people with schizophrenia have lower vitamin D levels than healthy people. Vitamin D deficiency is quite common among people with schizophrenia."

The researchers reviewed the findings of 19 observational studies that assessed the link between vitamin D and schizophrenia. Combined, the studies looked at vitamin D levels and the mental health of 2,804 adult participants. The studies used blood tests to determine each participant's vitamin D levels.

The meta-analysis found that people with schizophrenia had significantly lower levels of vitamin D in the blood compared to the control groups. The average difference in vitamin D levels between schizophrenic patients and control participants was -5.91 ng/ml. People with vitamin D deficiency were 2.16 times more likely to have schizophrenia than those with sufficient vitamin D in their bloodstreams. In addition, 65 percent of the participants who had [schizophrenia](#) also were vitamin D deficient.

"There is a growing trend in the nutrition science field to consider vitamin D and its relationship to conditions such as diabetes, cancer, heart disease and depression," Esmailzadeh said. "Our findings support the theory that vitamin D may have a significant impact on psychiatric health. More research is needed to determine how the growing problem of [vitamin](#) D deficiency may be affecting our overall health."

**More information:** The study, "Serum Vitamin D Levels in Relation to Schizophrenia: A Systematic Review and Meta-analysis of

Observational Studies," was published online, ahead of print.

Provided by The Endocrine Society

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