

Study links vitamin D-deficient older adults with greater risk of developing depression

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A new study by researchers from The Irish Longitudinal Study on Ageing (TILDA) at Trinity College Dublin has shown for the first time in Ireland that a deficiency in vitamin D was associated with a substantial increased risk of depression (+75%) over a four-year follow up period. The findings form part of the largest representative study of its kind and have just been published in the prestigious journal, *The Journal of Post-Acute and Long-Term Care Medicine (JAMDA)*.

Later life [depression](#) can significantly reduce quality of life and is a potent risk factor for functional decline, admission to residential care and early death. Given the complex nature of depression, including the fact that the majority of older adults are undiagnosed, prevention is a priority and the identification of important risk factors is crucial.

Vitamin D or the 'sunshine vitamin' is essential for bone [health](#) and deficiency, and has recently been linked with other non-bone health outcomes such as inflammation and diabetes. Small studies have found links between vitamin D and depression but few have followed up with the same affected people over time, while others have not taken into account other factors that can also affect depression. These findings are important as the TILDA team has previously reported that 1 in 8 older Irish adults are deficient in vitamin D.

The current study investigated the links between vitamin D and depression in older Irish adults and then re-examined the participants four years later to see if vitamin D status affected the risk of developing

depression.

The authors found that:

- Vitamin D deficiency was associated with a 75% increase in the risk of developing depression by 4 years
- This finding remained robust after controlling for a wide range of relevant factors including depressive symptoms, chronic disease burden, physical activity and cardiovascular disease
- Furthermore, excluding participants taking anti-depressant medication and vitamin D supplementation from the analyses did not alter the findings

The authors suggest that the findings could be due to the potential direct effect of vitamin D on the brain. Given the structural and functional brain changes seen in late life depression, vitamin D may have a protective effect in attenuating these changes. Similarly, other studies have shown that vitamin D status has also been linked with neurodegenerative conditions such as dementia, Parkinson's disease and Multiple Sclerosis.

These findings are important as vitamin D status is relatively easy and inexpensive to modify through supplementation or fortification. However, in Ireland, fortification of food products with vitamin D is voluntary and few manufacturers do this. This is compounded by the lack of any vitamin D guidelines from Government.

Commenting on the significance of the research, first author of the study and Specialist Registrar in Geriatric Medicine, St James' Hospital Dublin, Dr. Robert Briggs, said: "This is the largest representative and most comprehensive study of depression risk and vitamin D status in older adults ever conducted in Ireland. Our findings will provide useful information to help inform public health policy—particularly regarding

the proposition of the usefulness of vitamin D treatment/supplementation for depression."

Senior author of the study, and Research Fellow with TILDA, Dr. Eamon Laird, added: "This study shows that vitamin D is associated with a health condition other than bone health. What is surprising is the large effect on depression even after accounting for other control variables. This is highly relevant for Ireland as our previous research has shown that one in eight older adults are deficient in the summer and one in four during the winter. Moreover, only around 8% of older Irish adults report taking a vitamin D supplement."

"Given that vitamin D is safe in the recommended intakes and is relatively cheap, this study adds to the growing evidence on the benefits of vitamin D for health. It also helps to continue to impress the need on our public health bodies to develop Irish vitamin D recommendations for the general public. Up to this point, these are severely lacking."

Principal Investigator of TILDA, Professor Rose Anne Kenny, said: "The new finding that the development of depression could potentially be attenuated by having a higher vitamin D status could have significant policy and practice implications for Government and health services. TILDA has consistently assisted policy makers by providing strong evidence-based data on which to make recommendations but also by assisting with information of most vulnerable people and therefore those who should be targeted."

"It is our responsibility to now ascertain whether supplementation will influence depression. There are many reasons for [vitamin D](#) supplementation in Ireland. Benefits to something as disabling and often 'silent' as depression are therefore important for wellbeing as we age."

More information: Robert Briggs et al, Vitamin D Deficiency Is

Associated With an Increased Likelihood of Incident Depression in Community-Dwelling Older Adults, *Journal of the American Medical Directors Association* (2018). [DOI: 10.1016/j.jamda.2018.10.006](https://doi.org/10.1016/j.jamda.2018.10.006)

Provided by Trinity College Dublin

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