



Received: 02-12-2024
Accepted: 12-12-2024

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Letter to the Editor

Sleep Deprivation is Unusual in Vitamin-B12 Deficiency and is Probably due to other Causes

Josef Finsterer

Neurology & Neurophysiology Center, Vienna, Austria

DOI: <https://doi.org/10.62225/2583049X.2024.4.6.3572>

Corresponding Author: **Josef Finsterer**

We were interested to read the article by Wang *et al.* on a cross-sectional study of the effects of vitamin B12 deficiency on sleep quality as assessed by the Pittsburgh Sleep Quality Index (PSQI) in 52 patients with obsessive-compulsive disorder (OCD) ^[1]. Vitamin B12 levels were reduced in OCD patients and sleep disturbance scores were elevated in OCD patients ^[1]. Vitamin B12 deficiency has been associated with severe OCD symptoms and poor sleep quality ^[1]. The study is appealing, but some points should be discussed.

The first point is that sleep quality depends not only on vitamin B12 serum levels and the severity of OCD, but on a host of intrinsic and extrinsic causal factors ^[2]. The intrinsic factors that determine sleep quality include personality type, personal ability to relax, the level of acute and chronic stress, the balance between sympathetic and parasympathetic tone, hormonal balance, the type and intensity of social interactions, strategies for processing daily experiences, the level of physical activity, genetic background and comorbidities (e.g. central nervous system disorders). e.g. diseases of the central nervous system (e.g. epilepsy, headaches, pituitary dysfunction, Parkinson's disease, restless legs syndrome, sleep apnoea syndrome, psychiatric illnesses), lung diseases (e.g. asthma, infections, chronic bronchitis, COPD), cardiac diseases (e.g. heart failure, malignant ventricular arrhythmias, high blood pressure), chronic or acute gastrointestinal diseases (e.g. nausea, gastritis, reflux, diarrhoea, constipation, flatulence), chronic or acute infectious diseases (e.g. dental foci, urinary infections), orthopaedic diseases (e.g. pain in the musculoskeletal system), metabolic diseases (e.g. hypoglycaemia), immunological diseases (e.g. arthritis, colitis, Crohn's disease), occult malignancies, and a number of non-specific abnormalities such as pain, fever, acidosis/alkalosis, or autonomic disturbances. External factors that affect sleep quality include noise in the bedroom (e.g. partner's snoring, pets, air conditioning, refrigerator, telephone) or outside the bedroom (e.g. animals, bells, cars, garbage collection, neighbours, airplanes, emergency vehicle horns), the brightness of the bedroom, the temperature, the humidity, the level of electrosmog in the immediate area, the air quality, vibrations, the presence or absence of insects or other animals in the bedroom, the relationship with neighbours in the apartment next door, eating habits (e.g. quantity, timing and quality of food and liquids), current medication (e.g. anti-seizure medication), hypnotics, sedatives, neuroleptics, antidepressants, illegal drugs, alcohol, coffee, cola, black tea or Red Bull ^[2]. It is therefore essential to rule out all these possible causes of sleep deprivation before attributing it to vitamin B12 deficiency or OCD.

The second point is that vitamin B12 deficiency is more often manifested by other symptoms and signs than sleep deprivation, which were not reported in the 52 patients included. Common manifestations of vitamin B12 deficiency include macrocytic anaemia, sensory disturbances, muscle weakness, memory problems, cognitive changes, depression, anxiety, confusion, impaired comprehension and judgment, dementia, dizziness and impaired coordination ^[3]. Macrocytic anaemia itself manifests as headaches, visual disturbances, rapid breathing or shortness of breath, palpitations, loss of appetite, a sore or red tongue, sometimes with mouth ulcers, indigestion, diarrhoea, and feeling weak or tired ^[3].

In summary, this interesting study has limitations that put the results and their interpretation into perspective. Removing these limitations could strengthen the conclusions and reinforce the message of the study. All outstanding questions must be clarified before readers can uncritically accept the study's conclusions. Before sleep deprivation can be attributed to low serum levels of vitamin B12, all other causes of sleep disorders must be thoroughly ruled out.

Declarations

Ethical approval: Not applicable.

Consent to participation: Not applicable.

Consent for publication: Not applicable.

Funding: None received.

Availability of data and material: All data are available from the corresponding author.

Completing interests: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contribution: JF was responsible for the design and conception, discussed available data with coauthors, wrote the first draft, and gave final approval.

Acknowledgements: None.

Keywords: Sleep Disorder, Obsessive Compulsive Disorder, PSQI, Cognitive Impairment, Vitamin-B12 Deficiency

References

1. Wang S, Zhang X, Ding Y, Wang Y, Wu C, Lu S, *et al.* From OCD Symptoms to Sleep Disorders: The Crucial Role of Vitamin B12. *Neuropsychiatr Dis Treat.* 2024; 20:2193-2201. Doi: 10.2147/NDT.S489021.
2. Finsterer J. Prevalence of sleep disorders and daytime sleepiness depends on many influencing factors that should be taken into account. *Rev Assoc Med Bras (1992).* 2024; 70(8):e20240635. Doi: 10.1590/1806-9282.20240635.
3. Shipton MJ, Thachil J. Vitamin B12 deficiency - A 21st century perspective. *Clin Med (Lond).* 2015; 15(2):145-50. Doi: 10.7861/clinmedicine.15-2-145.