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Chairman Weisz and members of the House Human Services Committee,

Thank you for the opportunity to express my enthusiastic support for the proposed House Concurrent Resolution No. 3014 introduced by: Representatives Rohr, K. Anderson, Dobovich, Frellich, McLeod, Meier, M. Ruby and Senators Dwyer, Hogue and Myrdal. This resolution urges the state legislature to encourage primary prevention in addressing Vitamin D deficiency as a state priority for its people. As a board certified Psychiatric Mental Health Nurse Practitioner, I am passionate about cognitive and mental health and would like to share with you some of the benefits of vitamin D and mental health.

Research increasingly points to the vital role Vitamin D plays in brain function and mental wellbeing, influencing mood regulation, cognitive development, and wide range of neurodegenerative disorders, cognitive decline, and mental health conditions (Alghamdi, 2024). These include:

- **Alzheimer's Disease & Dementia**
- **Cognitive Decline**
- **Parkinson's Disease**
- **Depression/Anxiety/Seasonal Affective Disorder**
- **Schizophrenia**
- **Autism & ADHD**
- **Migraines**
- **Multiple Sclerosis**
- **Impulsive & Addictive Behaviors**
- **Sleep Disorders**
- **Suicide**

Research on the impact of Vitamin D on dementia and Alzheimer's disease outcomes has yielded consistent results since 2010. Notably, a 2019 study by Chai et al. found a 25% reduction in the risk of Alzheimer's disease and dementia for individuals with Vitamin D levels above 20 ng/ml. This finding reinforces the growing body of evidence that adequate Vitamin D levels may play a significant role in reducing the onset and progression of dementia and Alzheimer's disease. Ensuring that North Dakotans maintain sufficient Vitamin D levels could therefore be a vital strategy for preventing or slowing cognitive decline as they age

In addition to its known impact on cognitive health, emerging research highlights the potential of Vitamin D in addressing the opioid crisis. Data from the National Health and Nutrition Examination Survey (NHANES, 2003-2004) analyzed by Kemeny et al. (2021) revealed an inverse, dose-dependent relationship between Vitamin D levels and opioid use, independent of pain. The study found that individuals with higher Vitamin D levels had a significantly lower frequency of opioid use. Specifically, individuals with a Vitamin D level of 20 ng/ml (50 nmol/L) or higher had a 47% lower risk of opioid use compared to those with levels below 12 ng/ml (30 nmol/L). This finding underscores the broader health benefits of Vitamin D, not only for physical and cognitive health but also in potentially reducing reliance on opioid medications and their associated risks.

There is also compelling evidence linking low Vitamin D levels to increased suicide risk, a particularly urgent concern for veterans and service members. Studies show that 30-50% of veterans and service members have Vitamin D levels below 20 ng/ml (50 nmol/L), a threshold associated with a higher risk of suicide and self-harm. A 2023 study among U.S. Veterans found that Vitamin D supplementation was associated with a 45-48% lower risk of suicide attempts and self-harm. This research also revealed that the higher the dose of Vitamin D, the greater the reduction in risk, with a more significant benefit observed among Black veterans compared to White veterans. Further analysis based on baseline Vitamin D levels showed that veterans with initial Vitamin D levels between 0-19 ng/ml who were prescribed Vitamin D3 had a 64.1% reduced risk of suicide attempts compared to those who were not prescribed Vitamin D3. Additionally, for every percentage point increase in the average daily dose of Vitamin D3, a 13.8% reduction in risk was observed, demonstrating a clear, dose-dependent relationship. These findings suggest that Vitamin D supplementation could play a critical role in reducing suicide risk and improving mental health outcomes among veterans, a particularly vulnerable population (Lavigne & Gibbons, 2023).

Addressing Vitamin D deficiency through supplementation may help reduce the incidence or severity of these conditions, providing a preventive measure for cognitive decline and mental health challenges.

In a region like North Dakota, where prolonged winters and limited sunlight create natural barriers to adequate Vitamin D synthesis, the need for proactive supplementation and sensible sun exposure education is essential. As our understanding of Vitamin D's role in brain health grows, it becomes clear that public health initiatives targeting its deficiency will have far-reaching benefits, particularly in reducing mental health disorders, supporting cognitive function, and improving overall quality of life.

In light of this, prioritizing a primary prevention strategy that includes Vitamin D education among healthcare professionals and the public regarding strategies to maintain healthy Vitamin D levels, encouraging appropriate supplementation, and fostering ongoing research into its effects on cognitive health are essential for improving mental health outcomes in our state. Therefore, I strongly support the passage of this resolution.

Thank you again for the opportunity to support this crucial initiative. By addressing Vitamin D deficiency from a primary health perspective, we have the potential to positively impact the lives of countless North Dakotans and enhance both their cognitive and mental wellbeing.

Warm regards,
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