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**RELATIONSHIP BETWEEN VITAMIN D DEFICIENCY AND HIGH RISK  
OF PSYCHIATRIC ILLNESSES IN IMMIGRANT POPULATION,  
A LITERATURE REVIEW**

***Introduction***

Vitamins in public are considered supplementary but not essential. However, in the field of medicine, vitamins are given a lot more importance. As the medical field advances different roles the vitamins play has been identified, including Vitamin D. Benefits of Vitamin D has been studied and the medical consequences of vitamin D deficiency have been discussed in different research papers in the medical community. However, the relationship between vitamin D deficiency and psychiatric conditions are yet not very widely researched. The literature also suggests that the prevalence of vitamin D deficiency among those who move from warm countries to colder countries are higher especially those with darker skin tone. This population includes a very large group of students who leave their native countries and reside in cold countries and suffer from different psychiatric problems. Therefore, this review aims to focus on high prevalence of Vitamin D deficiency and high risk of psychiatric conditions in this population.

***Objective***

The objective of this article is to analyze scientific data related to vitamin D deficiency and immigration as risk factors for the development of mental disorders.

***Material and research methods***

This literature review was done using articles searched by using google scholar and PubMed. Relevant articles were chosen from time period of 5 years (2019 to 2025). Key words: Vitamin D deficiency, psychiatric illness, immigrants, foreigners, mental illnesses were used. Among the searched many the 5 literature articles were chosen based on the time frame and relevance to the objective of this current article.

***Research results and their discussion***

An article published in 2024 by James Greenblatt indicated that increasing number of research indicates that vitamin D deficiency may have clinical implications for depression, suicide prevention, attention-deficit/hyperactivity disorder (ADHD), and anxiety treatment as this vitamin is known to be a neuroprotective agent that reduces neuroinflammation, supports serotonin synthesis, and improves brain plasticity[3]. This article strengthens the previous studies done in the area stating vitamin D deficiency in fact increases risk of psychiatric illnesses. A study that was published in 2023, done to evaluate the relationship between Vitamin D levels and psychosis in admitted patients showed that patients who had vitamin D levels lower than 30ng/ml had 1.5 times higher chances of having psychotic symptoms. Additionally, this research done using 1456 patient record also showed that patients who were from other ethnic groups such as Asian, Hispanic, African American, or even biracial had lower level of vitamin D compared to the white patient population. [4]. Albiñana et al., 2021 strengthens the above findings by their publication, “Developmental exposure to

vitamin D deficiency and subsequent risk of schizophrenia”, this paper noted that those who have lower level of vitamin D deficiency in the early life can have higher chances of having neurodevelopmental disorders including schizophrenia. This hypothesis was based on the prior research that showed link between increased risk of schizophrenia in children who were born in cold seasons (winter and spring) as during these seasons vitamin D deficiency are more prevalent due to lack of sunlight exposure. Additionally, this research also summarized that dark-skinned migrants who are in cold climates had higher rate of development of vitamin D deficiency and psychiatric conditions such as schizophrenia. [2]. This research builds on the evidence on relationship with vitamin D deficiency and psychiatric problems including psychosis and also it increases to the evidence on how the darker skin tone population are more prone to the vitamin D deficiency and to the psychiatric conditions.

In addition to risk of increase in psychosis and schizophrenia vitamin D deficiency has been linked to increase in risk of suicidal tendency, depression and other mood related disorders. [1, 3]. Mood disorders such as depression and anxiety impact health and, consequently, quality of life, contributing to the worldwide burden of disease. According to several reports, inflammation and oxidative stress are two potential pathways in the pathogenesis of various mood disorders. Given this information, it is critical to ascertain how antioxidant nutrients, such vitamin D, relate to various illnesses. There are areas of the brain where vitamin D metabolism and the pathophysiology of anxiety and depression cross paths. [1]. A lot of research done in the area exploring vitamin D deficiency and various psychiatric conditions may have limitations however despite these limitations, most of the recent meta-analysis shows low vitamin D levels is connected with depression and that treating with vitamin D shows significant improvements in symptoms of depression.[3]. It has been noted that there improvement of psychiatric disorders including significant improvement in anxiety symptoms when patients were supplemented with Vitamin D along with the standard treatment and reduction of suicide risk by 64 % in the dark skinned individuals.[3]. Indicating that the darker skinned population which is a highest of the immigrant population and student population in western and cold countries have more threat to their health in regard to vitamin D deficiency. In addition to higher prevalence of vitamin D deficiency leading to various psychiatric conditions in immigrant population they also have higher risk of psychiatric illnesses due to past stress and present stress faced during adaptation to a new environment. [5]. Particularly this would be higher cross-cultural migrations especially those who are being students as the social support is absent during the early stages of migrating despite the reason of migration.

In the light of these, it is clear how important it is to routinely check vitamin D levels, particularly in patients who present with symptoms associated with psychiatry. More significantly, this is more important for students from warmer nations who live in colder countries are part of the immigrant community.

### ***Conclusion***

Even though, the research is limited in relation to Vitamin D deficiency and individuals residing in cold countries from eastern countries as well as relationship between Vitamin D deficiency and psychiatric disorders, the current review warrants enough evidence to take Vitamin D into consideration in the treatment of psychiatric disorders including depression, anxiety related disorders and psychosis. Often students who come to European countries including Belarus are dark skinned and move from warmer countries. Since the reviewed literature has been established that combination of vitamin D deficiency and moving from a

warmer country to a colder one can be associated with an increased risk of developing mental disorders it is recommended to include routine annual checkup of vitamin D levels of students (from foreign countries) in their professional checkup and include psychological support to them to decrease the psychiatric problems as well as to improve their mental wellbeing and general adaptation.

#### **LITERATURE**

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