



# The role of pyridoxine in HIV/AIDS

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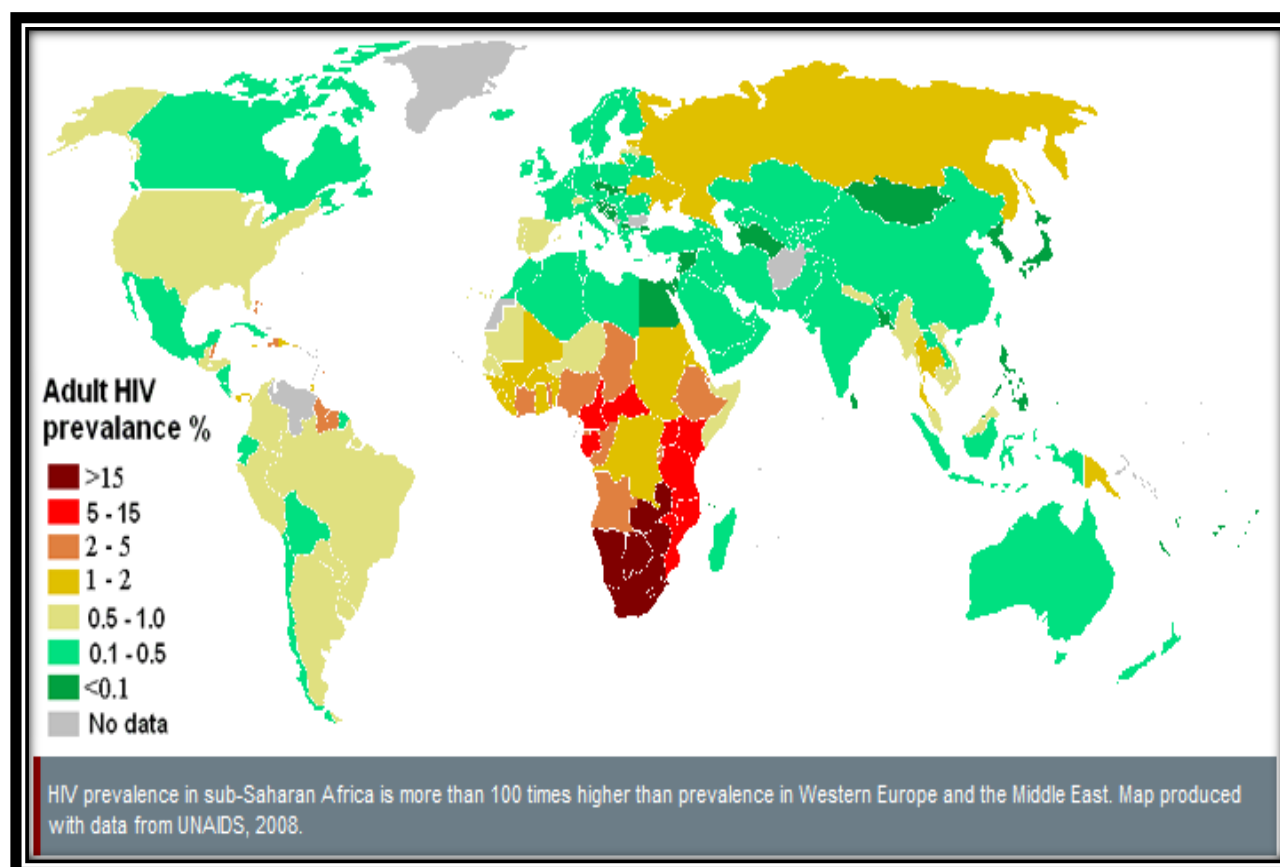
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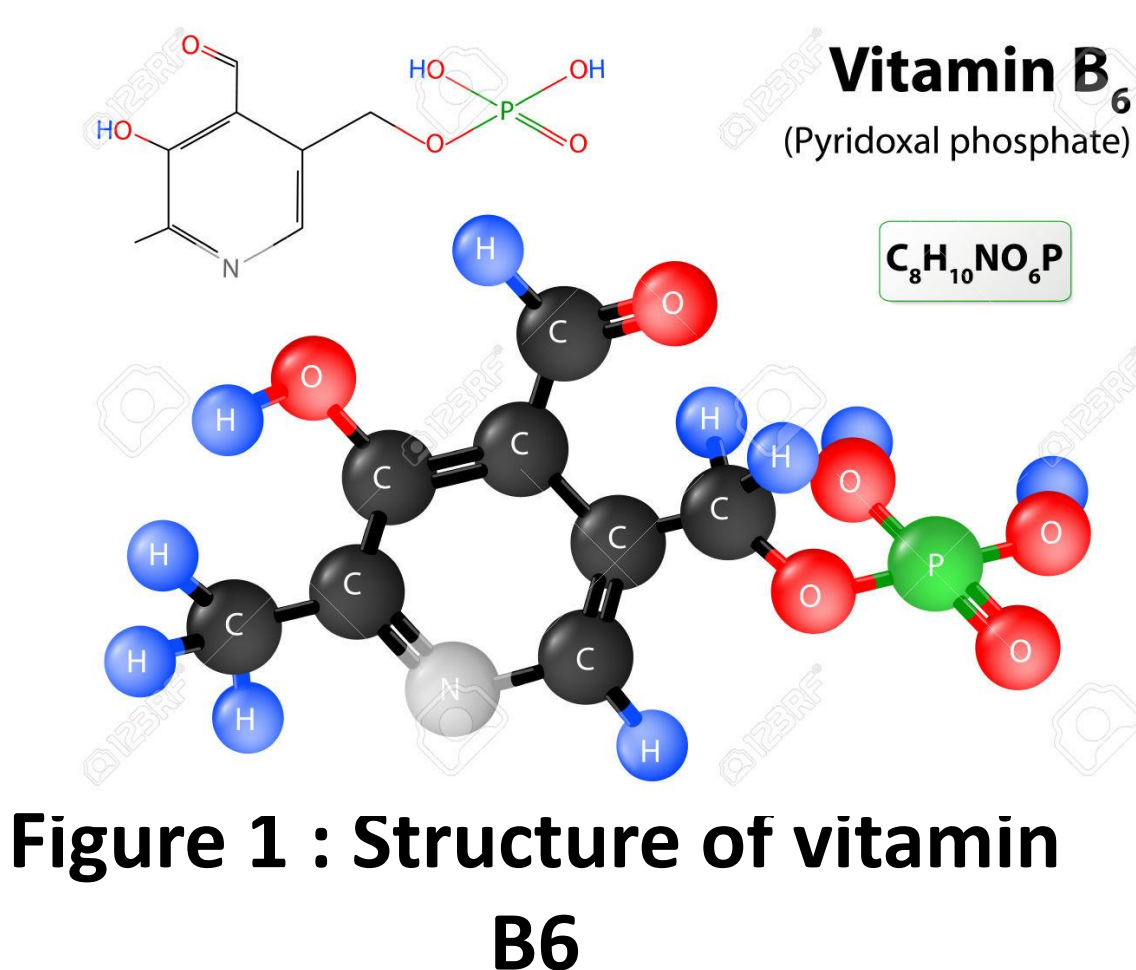
## INTRODUCTION

According to World Health Organization (WHO) and joint United Nations program on HIV/AIDS, UNAIDS, in the year 2005, approximately 40 million people worldwide were infected with HIV, 3.1 million died of AIDS, 4.9 million were newly infected.

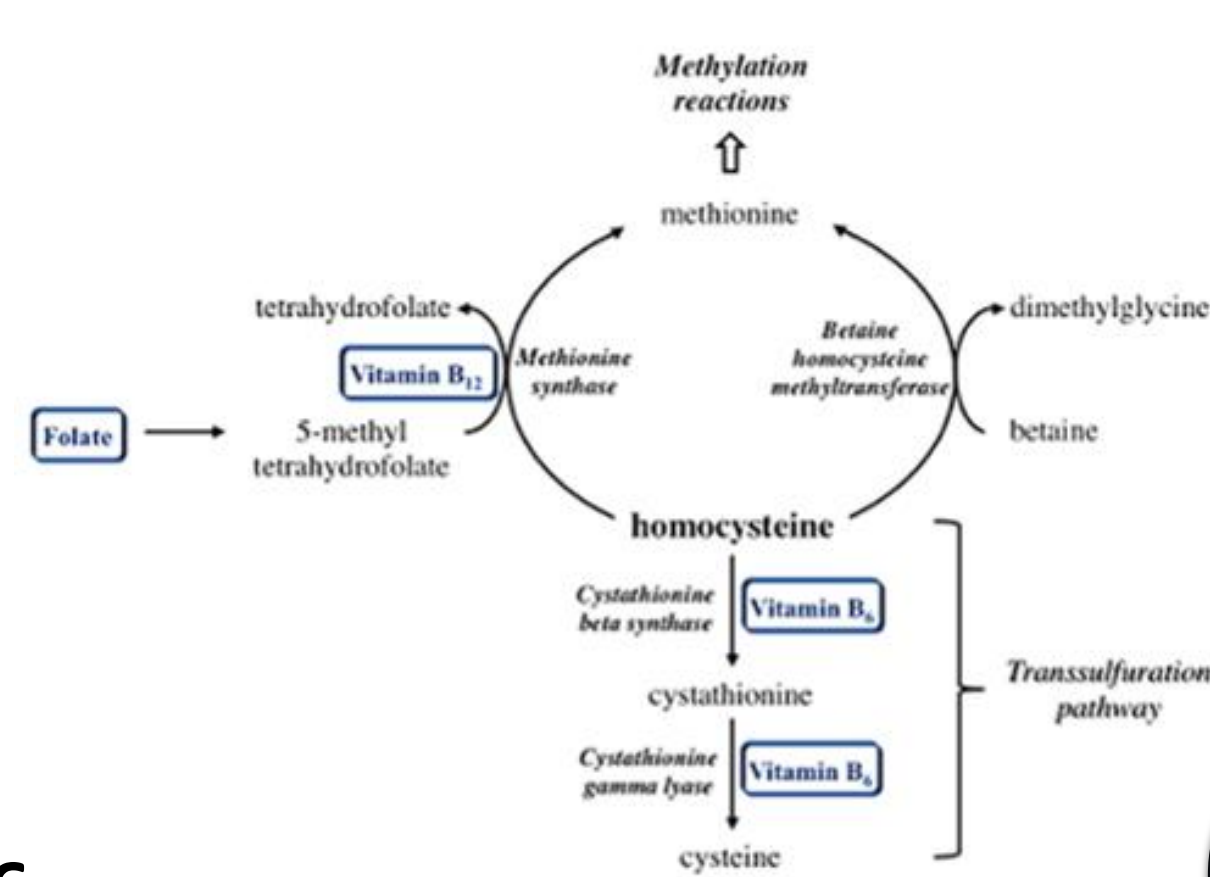


HIV infection rates vary internationally. A recent Center for Disease Control report on HIV incidence in the U.S., for example, shows that the rate of new infections for Black women is 14.7 times that for white women; Black men are also disproportionately affected.

**Pyridoxine:** Pyridoxine (also known as vitamin B6) is a water soluble vitamin and slightly or weakly soluble in ethanol. Vitamin B6 mainly converts carbohydrates into glucose. It is essential for maintaining immunity and in the formation of new cells.

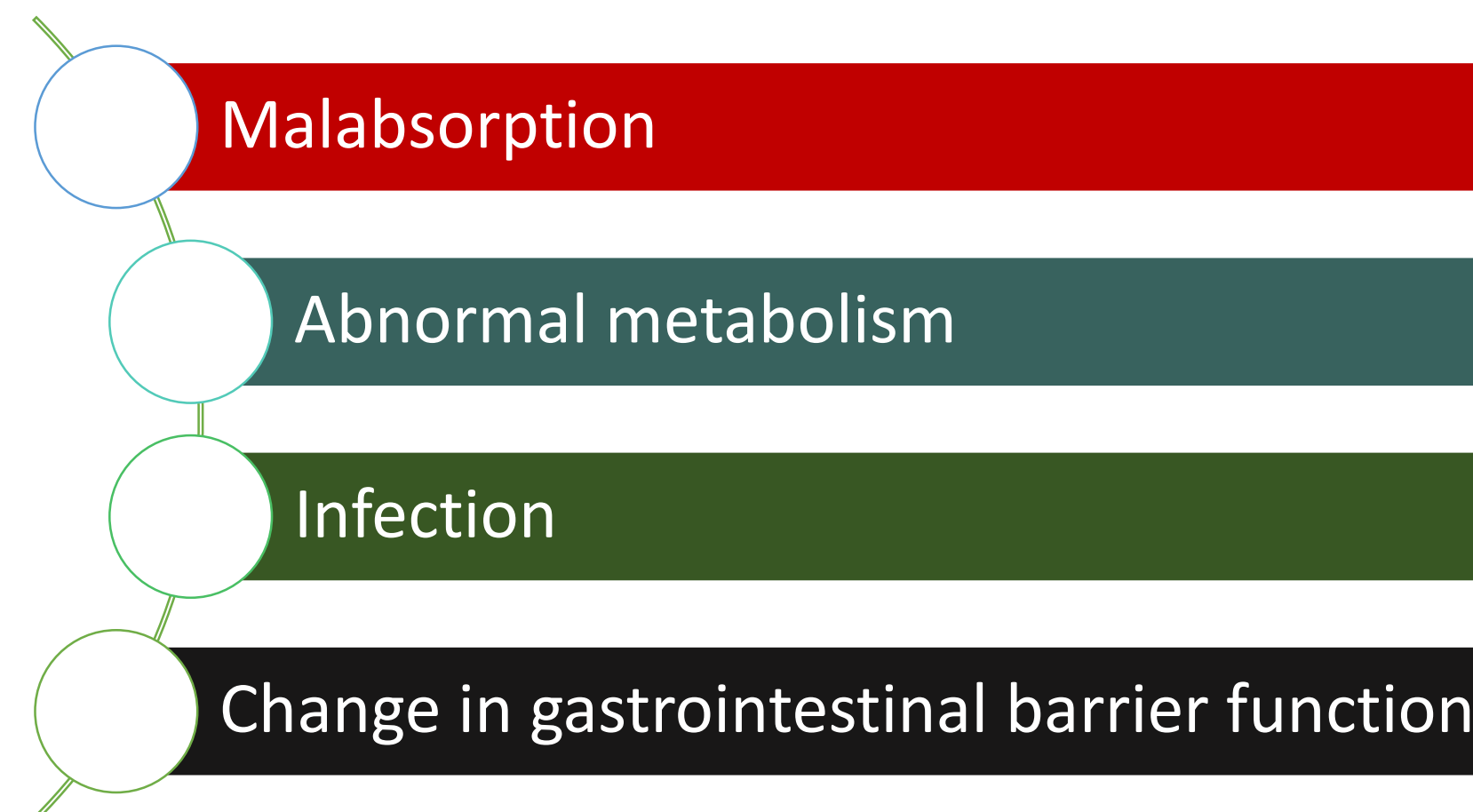


**Figure 2: Sources Of Vitamin B6**

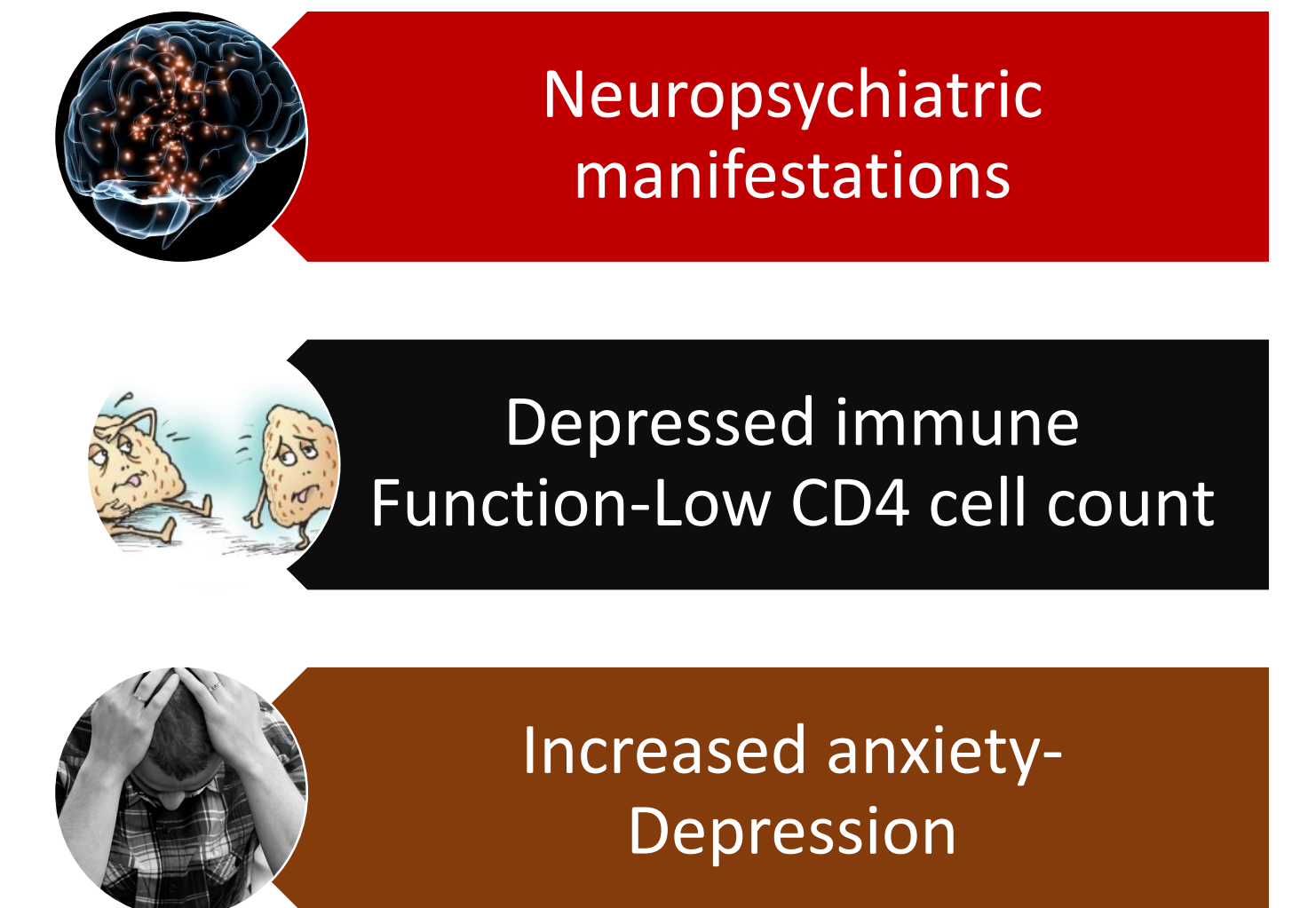


2000 HIV positive samples were collected and a detailed nutritional assessment for anaemia, vitamin deficiencies, and waist-hip ratio was performed.

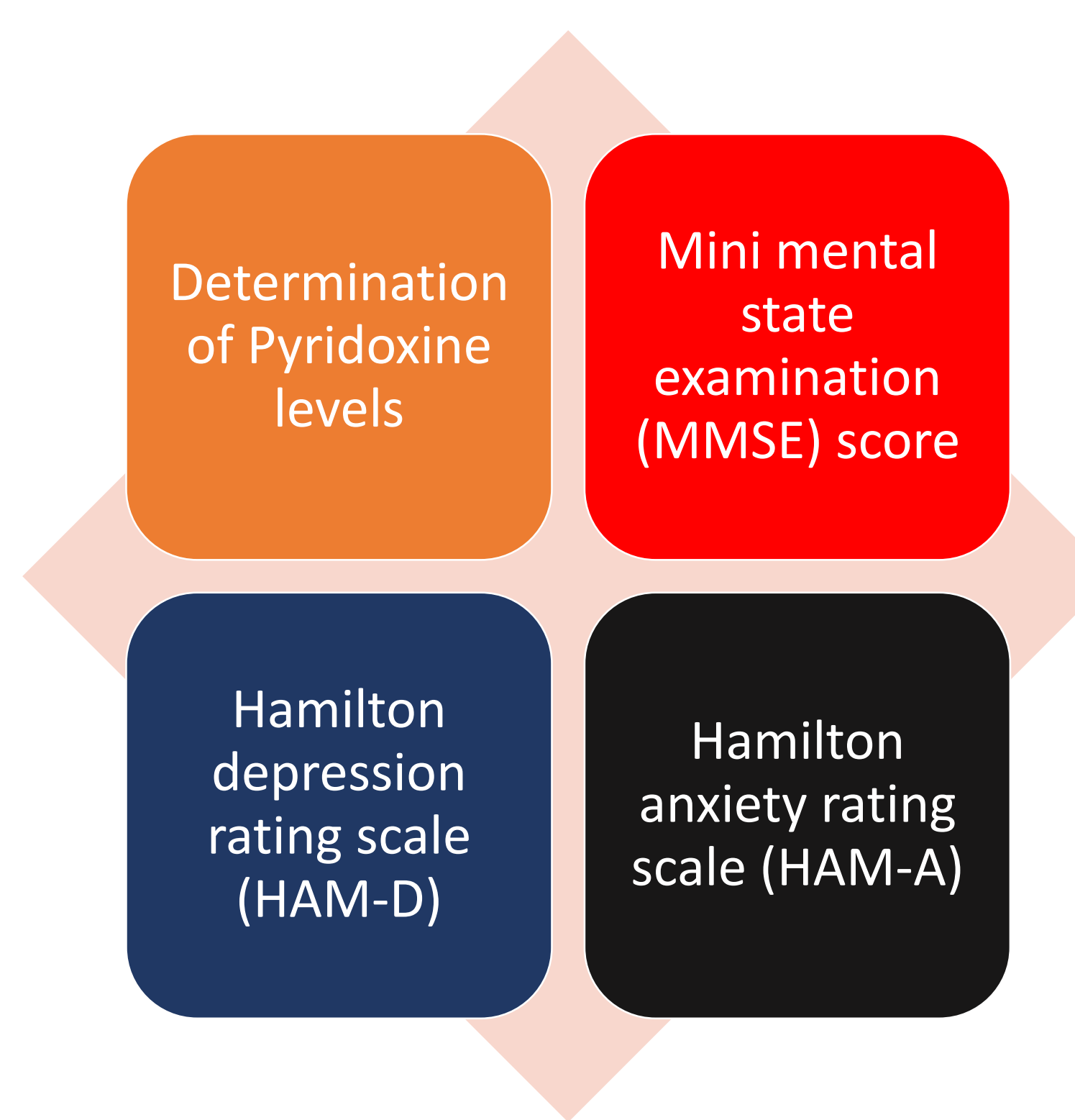
## CAUSE OF PYRIDOXINE DEFICIENCY IN HIV PATIENTS



## PYRIDOXINE DEFICIENCY CONSEQUENCES



## AIMS AND OBJECTIVES



## STATISTICAL ANALYSIS

- Analysis of data was done using statistical package SPSS 11.0 version
- Continuous variables were expressed as mean ± standard deviation or median
- Proportion of pyridoxine deficiency was expressed as percentage of the particular group
- Chi-square test was done to analyse the association between pyridoxine deficiency and the different groups of HIV patients and the neuropsychiatric manifestations
- $P < 0.05$  was considered statistically significant.

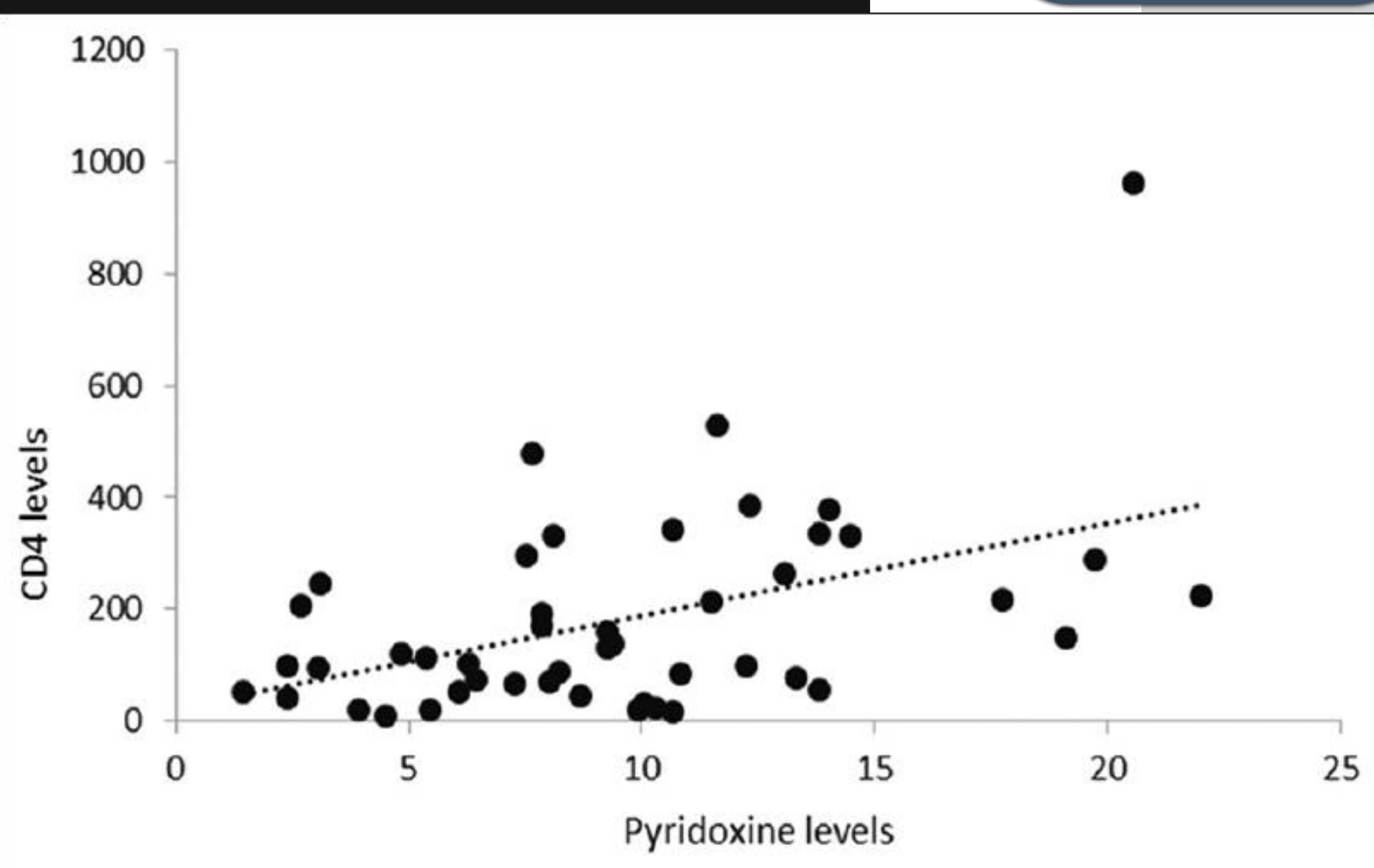
## METHODOLOGY

Samples were divided into 3 groups:  
 Group I: HIV + patients with coexistent TB infection.  
 Group II: HIV+ patients with Neuropsychiatric symptoms.  
 Group III: HIV+ patients without Neuropsychiatric symptoms or TB

Diagnosis of HIV infection was made by two HIV ELISA tests and a mono spot test  
 Coexistent tuberculosis was confirmed by any one of the following: sputum analysis, radiological evidence.

Vitamin B6 estimation was done by high-performance liquid chromatography for all patients in all groups.  
 Neurological assessment using MMSE, HAM-D, and HAM-A

## RESULTS



**Figure 4: Correlation between CD4 count and Vitamin B6 in HIV patients with tuberculosis**

**Table 1: Comparative analysis of the groups**

| Characteristics                         | Group I                           | Group II                       | Group III                     |
|-----------------------------------------|-----------------------------------|--------------------------------|-------------------------------|
| Male: female ratio                      | 40:10                             | 35:15                          | 33:17                         |
| Age (years), mean±SD                    | 36.28±5.94                        | 39.22±9.03                     | 38.52±8.9                     |
| BMI (kg/m <sup>2</sup> ), mean±SD       | 17.42±2.89                        | 17.46±2.3                      | 18.82±3.18                    |
| Waist circumference (cm), mean±SD       | 69.93±7.84                        | 68.71±9.84                     | 72.61±10.97                   |
| Hemoglobin (g/dL), mean±SD              | 9.86±2.34 <sup>a</sup>            | 9.81±2.69 <sup>a</sup>         | 11.65±2.18 <sup>a</sup>       |
| MMSE (mean±SD)                          | 26.98±2.64                        | 24.72±4.49 <sup>b</sup>        | 27.96±2.02 <sup>b</sup>       |
| HAM-A, median (IQR)                     | 4 (3-8)                           | 4 (4-8)                        | 4 (2-6)                       |
| HAM-D, median (IQR)                     | 8 (5.75-10)                       | 8 (6-14)                       | 6 (4-10)                      |
| CD4 count (cells/μL), median (IQR)      | 125.5 (62.25-271.25) <sup>a</sup> | 84 (46.75-177.75) <sup>a</sup> | 282 (135-611.75) <sup>a</sup> |
| Vitamin B6 levels (ng/mL), median (IQR) | 8.23 (6.14-12.06)                 | 8.56 (4.18-12.82)              | 11.13 (8.04-14.01)            |

<sup>a</sup>Statistically significant difference between Group III and Group I, Group II; <sup>b</sup>Statistically significant difference between Group III and Group II. SD: Standard deviation; MMSE: Mini mental state examination; HAM-D: Hamilton Depression; HAM-A: Hamilton Anxiety; IQR: Interquartile range; BMI: Body mass index

## REFERENCES

1. Beach RS, Mantero-Atienza E, Shor-Posner G, Javier JJ, Szapocznik J, Morgan R, et al. Specific nutrient abnormalities in asymptomatic HIV-1 infection. AIDS 1992;6:701-8.
2. ShorPosner G et al. Anxiety and depression in early HIV1 infection and its association with vitamin B6 status. Eighth International Conference on AIDS, Amsterdam, abstract PoB 3711,1992
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