



Association Between B Vitamins, Anxiety And Stress (B-VITAAS): A Systematic Review

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ABSTRACT

Aims and objectives: The main aim and objective of the study is to conduct a systematic literature review on vitamin B complex deficiency and how it's linked with anxiety and stress, with recent findings.

Method: An extensive search strategy was done to systematically recognize the studies on the association of B vitamin deficiency with stress and anxiety by using a controlled keyword. An electronic search was conducted on 8th March 2022 by using the search engines Google Scholar and PubMed, reviewing all the published articles in English, and there was no limitation for searching the articles such as study design, area, and any period frame.

Result: In starting the search engine picked out 1217 articles, of which 765 articles were from Google Scholar, 310 from PubMed, and 142 records from additional sources. A total of 949 studies were originated after removing the 268 duplicates. Based on the proper title and abstract, a further 210 full-text articles were found. This further excluded 182 studies based on the inclusion-exclusion criteria and finally generated 28 full-text papers for the systematic review.

Conclusion: The literature search it concluded that vitamin B and its supplementation played an important role in improving the status of the deficient group. Its proper dosage and fortification improved the depression and anxiety symptoms. The B group vitamins especially biotin is linked to lowering the pervasiveness of anxiety, stress, and depression symptoms.

Keywords: Vitamin B deficiency, Anxiety, Stress, Depression, B-complex vitamin

1. INTRODUCTION

Anxiety, depression, and stress are general psychological disorders that will lead society to a huge burden of health care. Depression causes a person various emotional and physical problems like lack of confidence, feeling unwanted, headaches, worthless, overwhelmed, miserable life, and muscle pain (Julian, 2011). For the past 20 years, to prevent mood disorders, diet has been considered a modifiable risk factor because it influences brain health. Through studies, it has been proved that special nutrient interventions to enhance the quality of diet could reduce depression symptoms, and increase physical activity levels (Firth et al., 2020). Fish, lean meats, green leafy, vegetables, grains, and nuts, which are rich in vitamin B, are considered to enhance the diet quality. Intake of B-group vitamins will enhance brain health and mood (Kennedy, 2016), explained in Fig. 1 below. So, the deficiency of B vitamins, especially vitamin B12, and folate will cause depression and its symptoms. This results in increased recognition of the importance of vitamin B and finding the hidden reason for mood disturbances and psychiatric conditions. "B vitamin supplement evidence and mitigation are weaker than that of cognitive decline for B12 and B6 (Aisen et al., 2008). For physiological status, the homocysteine mirror decreases more than folic acid, B6, and B12 supplements, and explains why experiments that complement only one or other people do not show positive results. In addition, baseline homocysteine levels affect subpopulations (in a very heterogeneous disease group, such as depression, schizophrenia, and dementia) with the possibility of cognitive defects in the subject (Mitchell, et al., 2014). In addition to diet and genetics, vitamin B levels in plasma are affected by many factors, including age and environment, and can improve or exacerbate neuropathy in carriers of susceptible genotypes. Not surprisingly, the main challenge

for researchers is to analyze the genotypes and interactions of genes that affect the bioavailability and function of the B vitamins, while integrating individual nutrient profiles with information on health or pathology (Kennedy, 2016). Nevertheless, there is a growing view that B12, B6, folic acid, and related intermediates need to be monitored simultaneously to provide appropriate dietary recommendations to specific populations or individuals.

The function of the B vitamin as a coenzyme in cellular processes such as the folate cycle and methionine pave the way for hypotheses relating vitamin B and mood. It is found that vitamin B deficiency inhibits many pathological pathways and causes the deposition of homocysteine (Hanna, et al., 2022). Homocysteine is produced as a by-product of methionine metabolism and after this process, normally homocysteine is converted back to methionine or synthesizes creatin or any other substances. But if there is a deficiency of vitamin B6, B12, or folate, it will cause an increased level of homocysteine. Increased level of homocysteine, i.e., hyper-homocysteine anemia, is a factor for poor mood. Through studies, it has been proved that most depressive patients have an increased level of homocysteine. Multivitamin intake for a month will result in reduced stress, anxiety, and tiredness (Bremner et al., 2021). As the duration of vitamin intake increases, people will become more active and in good mental health, and also intake of B vitamin helps to reduce dementia. It has been seen that depressive patients tend to have a low response to anti-depression medication if they are low in vitamin B12 and folate. Through continuous observation and studies, it is found that intake of high dose vitamin B for 90 days in healthy adults, helps in reducing personal strain, depression, and confusion (Spielberg, 2013). Most vitamin deficiencies are detected through a blood test, usually done by health professionals, or by self-blood tests. Vitamin B12, vitamin B9 (folate), and vitamin C are the common vitamins that can be detected through blood testing. The count and structure of red blood cells (RBC) are checked by doctors and a lesser count than normal or abnormal structure indicates a vitamin deficiency". In vitamin folate and cyanocobalamin deficiency, the appearance of RBC is quite large and underdeveloped and in severe cases, even the white blood cells (WBC) and platelets will appear abnormal and with a lesser count. Methylated tests and antibody tests are also done for vitamin B12 deficiency (Sobczyńska-Malefora et al., 2021).

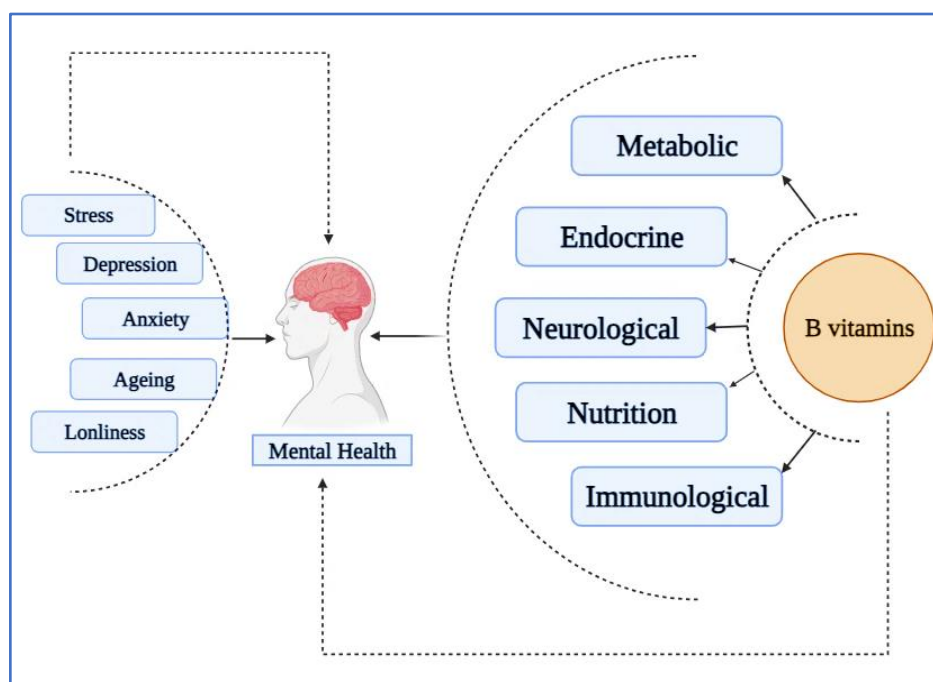


Fig 1. B Vitamins and Mental health

Very few or no direct studies have been present that show the association between vitamin B deficiency with anxiety and stress, so, the main aim of the study is to conduct a systematic literature review that shows the association between vitamin B deficiency and stress and anxiety, with recent findings.

2. MATERIALS AND METHODS

The systematic review was done as per the references administered by the preferred reporting items for systematic reviews and meta-analysis (Moher et al., 2009).

2.1. Search Strategy

An extensive search plan was done to systematically know the studies on the association of B vitamins deficiency with stress and anxiety by using a controlled keyword.

An electronic search was conducted on 8th March 2022 by using the search engines Google Scholar and PubMed, studying all the published articles in English, and there was no limitation for searching the articles such as study strategy, area, and any period frame.

Google Scholar and PubMed have searched for vitamin B related topics by combining terms relating to “vitamin B complex, or vitamin B1, or Vitamin B 12, or Riboflavin, or Niacin, or Pyridoxine” and terms related to mood outcomes “anxiety, depression, or stress, or mood disorder, or fatigue”.

2.2. Inclusion and Exclusion Criteria

The study included if they reach the mentioned criteria:

- Inclusion was based on screening of the titles, keywords, and abstracts of the preliminary search.
- We encompassed all types of studies that showed the role of vitamin B and its deficiency, and its effect on patients suffering from anxiety and stress.
- Studies written in English and full texts were eligible.
- There is no restraint in the type of study.

The studies were excluded if they encountered the mentioned criteria:

- Studies written in languages other than English.
- We have excluded the data that represents or talks about lifestyle factors, other than vitamin B's effect on other diseases, and those that do not meet our requirement of title.

3. RESULTS

In starting the search engine picked out 1217 articles, of which 765 articles were from Google Scholar, 310 from PubMed, and 142 studies from additional sources. A total of 949 studies were originated after removing the 268 duplicates. On the basis of proper title and abstract, a further 210 full-text articles were found. This further excluded 182 studies based on the inclusion-exclusion criteria and finally generated 28 full-text articles for the systematic review, as depicted in the flowchart presented in Fig. 2. The quality assessment and rating of the included article described in Table 1, and the features of Included Studies elaborated in Table 2.

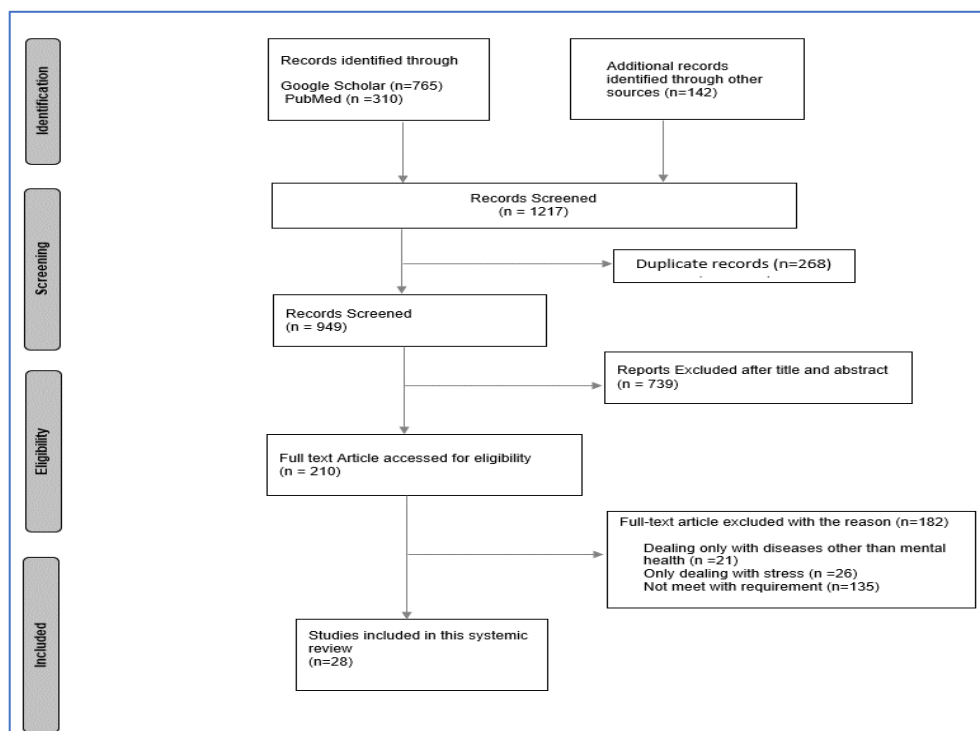


Fig 2. PRISMA flow chart diagram

Table 1: Quality assessment and rating of the included article

Rating	Category	Percentage/Ethnicity	Criteria of rating /percentage
*	Weak	20-40%	Many of the details are missing
**	Average	50-60%	About half of the points can be related
***	Strong	70-80%	Most of the topics are related
****	Very strong	90-100%	Really similar to the topics with all the needed points

From the result, it found that the included articles only 3 articles had missing details so that’s why we rated them only one star, 3 articles had half of the points be related average with two stars, 18 articles had most of

the topics very much related and rated strong with three stars, and only 4 articles had similar to the topics with all the needed points and rated very strong with four stars.

Features of Included Studies

Table 2: Characteristics of the included articles

Study	Aim of the study	Quality rating	Limitation	Percentage	Description of study
Allen, (2009)	To study the cause of B12 vitamin deficiency and the fortification to improve the deficient section of the population.	*	Not mentioned	40%	The article reviewed the prevalences and causes of vitamin B12 deficiency, and its fortification would improve the level of vitamin B12.
Blaise et.al., (2007)	To determine the influence of hyperhomocysteinemia as a determinant on rat brain when fed with a standard diet during gestation and lactation.	*	Not mentioned	45%	In several neurological and psychological disorders, it has been noticed elevated homocysteinemia and reduced B vitamins mainly folate and B12. Homocysteinemia is linked with cognitive dysfunction in both down syndrome and elderly and is known for a predictor of Alzheimer's disease.
Chorpita et al., (1998)	To find out the anxiety, depression, helplessness, and childhood stress on a model of environmental influence on being anxious.	***	Not mentioned	80	A cognitive style can be recognized by increased probability of interpreting subsequent events that may increase the susceptibility to anxiety.
Cioni & Ferraroni, (2014)	Role of vitamin D and other nutrients (vitamin B6) in reducing the risk of premenstrual syndrome with psychological disturbance.	***	Not mentioned	80	A balanced diet rich in vitamins and minerals with proper physical activity plays a beneficial role in premenstrual syndrome with psychological disturbance.
Cook et al., 1998	In alcohol misuse patients, the neuropsychiatric syndrome and deficiency of B vitamins.	***	Not mentioned	70	The supplementation of B vitamin plays a significant role in prophylaxis and treatment.
Depeint et al., 2006	To assess the mitochondrial function and their interrelation with deficiency of B vitamins.	***	Not mentioned	70	The B vitamins are found good antioxidant properties and help prevent oxidative stress toxicity.
Douaud et al., (2013)	To prevent the atrophy of the brain region by modifying the non-genetic risk factors and lowering homocysteine using B vitamins for cognitive and Alzheimer's disease.	**	Larger and extended trials would be needed to understand the optimal tHcy threshold that warrants B vitamin supplementation to monitor the incidence of dementia.	50%	The study showed the high supplementation of B-vitamins (0.8 mg folic acid, 0.5 mg B12, and 20 mg B6) helps in the shrinkage of whole brain volume over 2 years.
Duthie et al., (2002)	The aim is to test an association between the cognitive performance of B12 vitamins, folate, and	***	Not mentioned	80	The result showed a significant association of B vitamins and homocysteine with

	homocysteine concentration in the elderly.				cognitive variation in the elderly. The cognitive performance of about 7-8% accounted for the homocysteine level in ABC21 but ABC36.
Ford et al., (2018)	The high dose supplementation of B-vitamin for over 6 months on neural and blood biomarkers of metabolism.	**	A minimum sample size can lead to several subthreshold differences.	60%	The supplementation of B6 and B12 was found effective in reducing homocysteine where there was no change found in folate level. Also found no significant relation between n-acetyl aspartate and B6 vitamin.
Julian, 2011	To cover commonly used measures of anxiety.	***	Not mentioned	70	In the rheumatological population and their evidence of anxiety and related symptoms for adequate psychometric data.
Kennedy (2016)	To explore the closely interrelated functions of the eight B vitamins and marshal evidence.	***	Not mentioned	80%	The supplementation of B vitamin deficiency inexorably reduces the homocysteine.
Kulsoom & Afsar, (2015)	To plan a study on the traits of depression, anxiety, and stress among students.	***	Not mentioned	80%	The students had high "baseline traits of depression, anxiety, and stress, and these were higher if an examination was near, especially among Saudis and those who had attended UPP. Smoking and female sex predicted higher levels of "baseline" depression, anxiety, or stress. Students suggested that study burden and a busy schedule were the major reasons for their high DASS-21 scores".
Levitt, 2015	To Evaluate the theory and research on anxiety.	***	Not mentioned	80	Advances in empirical knowledge and new theoretical insights
Lewis et al., (2013)	To show the modest utility of B vitamin nutritional supplements to improve mood symptoms and mental health in adults with depression.	***	Not mentioned	80%	The study suggests that B vitamin nutritional supplement increases the efficacy for the improvement in anxiety, depression and related symptoms.
Lindschinger et al., (2019)	To conduct a pilot study to compare the bioavailability, antioxidant, homocysteine level and oxidative stress of natural and synthetic B vitamins.	****	Not mentioned	90%	The result showed the increased bioavailability of the natural B vitamins and significantly decreased homocysteine and oxidative stress levels.
Mahdavifar et al.,	To comprehend the link between dietary intake of vitamin B with anxiety, stress and depression.	****	The cross-sectional nature of the data averts underlying associations.	90%	The consumption of dietary B vitamins such as biotin is linked with a lesser risk of depression, anxiety, and stress-related symptoms.

Mandler et al., (1952)	To examine the influence of anxiety on the performance of typical intelligence test items.	***	Not mentioned	70	It has been seen as the optimal condition of intelligence performance test in the high anxiety group and good result seen in the low anxiety group.
McCabe et al., (2017)	“To identify the impact of essential fatty acids, B vitamins, vitamin C, magnesium, and or zinc, consumed as dietary supplements to the daily diet, on female stress and anxiety levels”.	***	Not mentioned	80%	The supplementation of B6 vitamin and magnesium was effective in the stress of the premenstrual group, whereas the supplementation of vitamin C could also reduce anxiety and mitigate the blood pressure in retort to stress.
Nagalski & Bryla, (2007)	To check the beneficial function of B3 against hyperphosphatemia and migraine with renal failure and diabetes.	***	Not mentioned	80%	Niacin therapy must be accompanied by control of the choice of niacin preparation and adjust its limit to minimize the side effects.
Noah et al., (2021)	To analyze the effect of magnesium and B6 vitamin on depression, anxiety, and quality of life.	***	Not mentioned	80%	A meaningful clinical benefit was observed when supplemented with magnesium and B6 vitamin in individual with stress and depression.
Calderón-Ospina, & Nava-Mesa (2020)	The review focused on the most important mechanism and their linking with neurological functions.	***	Not mentioned	70%	The neurotropic B vitamins (thiamine, pyridoxine, and cyanocobalamin) exert an important role in the formation of many co-enzymes and in various neurological conditions.
Pearlin, (1989)	To focus on the current concept and analytical practices in stress management.	***	Not mentioned	70	Sociological study of stress.
Pinto & Zemleni, (2016)	To explore about B2 vitamin.	*	Not mentioned	40%	The study showed that this vitamin capable of conducting reduction and oxidation reaction and participates in isomerase, lyase, ligase, and transferase reaction as well as in cell signaling and protein folding.
Pouteau et al., (2018)	To examine the effect among the low magnesia population and the combined effect of B6 vitamin and, magneemia.	***	Not mentioned	80%	The oral magnesium supplementation reduces stress among low-magneemia patients.
Scrimin et al., (2009)	To examine the three levels of severity of pediatric surgery on the anxiety and stress among their parent and also the factors that contribute to the stress and anxiety.	**	Not mentioned	50	The level of acute stress was predicted by parental trait anxiety.
Stough et al., (2011)	To examine the effectiveness of high doses	****	Not mentioned	90	The study showed that B vitamin

	of B vitamins on the mood and psychological strain linked with work stress.				supplementation for 12 weeks significantly reduced the confusion, anxiety and depression.
Weigner et al., (2015)	To explore to what degree the group perceives stress, depression, and anxiety.	****	Not mentioned	90	The study revealed that the working-age population perceived more stress, depression, and anxiety than men.
Young et al., (2019)	To study the quantify effect of B vitamin supplement on mood in both healthy and risk patients.	***	Not mentioned	80	The study provided evidence for the benefits of B vitamin supplement in both healthy and risk populations for stress, depression, and anxiety.

4. DISCUSSION

4.1 Vitamin B complex in various treatments

Kennedy (2016) studied the close interrelation between all B vitamins and an adequate amount of all these vitamins helps in the physiological and neurological functioning of a body. Usually, all the vitamins will get from a healthy diet but it is reported that most people in developed countries suffer from a deficiency in any of the vitamins, which gradually leads to diseases including brain dysfunction. It had found through various research that, supplements of folate, cyanocobalamin, and pyridoxin help in lowering the homocysteine level in the brain and enhance brain functions. As a result, reliable studies suggests that amino acid concentration are associated with biochemical concentration in this slender band of these three vitamins and homocysteine has a positive or negative correlation with brain function. The rate of homocysteine will reduce when the treatment is done with all B vitamins. The inclusion of this small subset of B vitamins, which lower homocysteine, has often led to countermeasures.

Ford et al., (2018) investigated the direct effects of high-dose B vitamins multivitamins for 6 months on 1H-MRS (Proton Magnetic Resonance Spectroscopy) metabolites and blood biomarkers in dietary supplements and their relationship biomarkers for healthy adults. As they expected they got an elevated blood plasma of pyridoxin and cyanocobalamin and a reduction in homocysteine concentration. Post-intervention pyridoxin concentration were linked with improved levels of choline and creatine, whereas increased levels of cyanocobalamin were only associated with improved levels of creatine. The results provide preliminary studies of the benefits of B vitamin supplement in plummeting irritation and oxidative stress and endorsing neural metabolic progressions. Choline levels are only linked with elevated pyridoxin levels and cell membrane turnover may be more directly connected. It is the complete elimination of homocysteine, not a monitoring demethylation-remethylation cycle that relies on cyanocobalamin and folic acid.

A greater-dose of B vitamins such as folic acid 0.8 mg, pyridoxin 20 mg, cyanocobalamin 0.5 mg) has been shown to delay the reduction of total brain volume for 2 years, (Dauoud et al., 2013). By demonstrating that B vitamin action reduces cerebral atrophy by a factor of 7 in the gray matter (GM) region, which is most vulnerable to Alzheimer's disease processes, counting the medial temporal lobe. Therefore, areas that significantly benefit from treatment have less atrophy (0.5% vs. 1.4%) compared to total GM volume loss in the B vitamins, and the same area in the placebo group has faster atrophy equated to total GM. (3.7% vs 1.4%), signifying that the area of this group is highly susceptible to potentially causal pathological processes.

Vitamin B12 may help maintain adults because one of the significant purposes of vitamin cyanocobalamin in the brain is methylation, and B12 deficiency can also damage nerve cell proliferation neurogenesis in the target area of Alzheimer's. Through this study, they were able to reveal that, GM structure measurements are used to reliably assess the effects of B vitamin supplement and characterize the association between atrophy and cognitive decline in specific GM regions for this management in elderly patients with high tHcy levels. Treatment with high-dose B vitamins may change key components of the disease process leading to Alzheimer's.

Lindschinger et al., (2019) compare the natural and synthetic B vitamins of healthy volunteers concerning the bioavailability of individual ingredients and their effects on homocysteine and oxidative stress. The study showed comparable bioavailability of the natural and synthetic B vitamins and did not record a statistically significant difference between the two groups at any given time. Serum concentration of each B vitamin by supplementing with B vitamins significantly raised in both groups. Proper intake of vitamin B6 leads to improved mental health, as the biosynthesis of the neurotransmitter's serotonin, dopamine, and, epinephrine depends on vitamin B6-dependent enzymes. For the natural vitamin B complex, serum TAC (tacrolimus) levels were observed to increase at the end of the supplement (T5) and continue to decrease during the washout period.

Pouteau et al., (2018) conducted the first randomized clinical trial (Mg) stress and low serum magnesium concentration of stress and low serum magnesium levels for the effects of magnesium and vitamin pyridoxin using an anomotropic measure. Both treatments were managed according to the suggested PS (perceived

stress) system, which managed and treated magnesium deficiency and related symptoms, including smoking symptoms such as negligence and tension. The 300 mg of elemental particle magnesium given by treatment covers 75 to 100% of the suggested daily consumption, and the administration plan extending to the two tape entrances per day generally improves magnesium fort. It is recommended for magnetic B6, articulated as magnesium salts of organic acid (lactate), have better solubility as magnesium salts of inorganic acids and thus have better absorption and increased magnesium biomarkers. It is connected to the previous originates from experimental clinical trials, but was treated due to the advantageous result of the specific combination of magnesium lactate and pyridoxin at a ratio of 10: 1 to the subjective mood after several weeks, with randomized clinical trials, has ever examined such prescriptions for perceived stresses in healthy adults. The predominance of magnesium vitamin B6 over Mg was not established in the population, but a statistically noteworthy interface between DASS42 (Depression, Anxiety, and Stress Scales) loadings at baseline was identified. Subscale evaluation and processing.

4.2 Deficiency of B Vitamins

Allen (2009) find out about the present state of information about the pervasiveness and causes of vitamin B12 deficiency and whether dietary supplements progress the condition of the deficient subgroup of the population. Vitamin B12 deficiency and deficiency are general in wealthy countries, especially the elderly, and are the most common in the poor around the world.

Hyperhomocysteinemia became one of the major reasons of neurological disorders, Blaise et al., (2007). This study was conducted on adult female Wistar rats with the permission of the NIH Guide for the care and use of laboratory rats. This study was to find out whether Gestational vitamin B deficiency can cause to homocysteine-associated brain apoptosis and alters neurobehavioral developments in rats. It gives additional knowledge about brain response to early deprivation in methyl donors and causes a decrease in homocysteine metabolism. Before one month of pregnancy, rats were fed either standard food or food lacking riboflavin, cyanocobalamin, folate, and choline. Rats with deficiency show a desirable amount of homocysteine in their brain and the concentration of brain of S-adenosylhomocysteine (SAH) gradually increases and S-adenosylmethionine (SAM) remains unaffected.

4.3 Anxiety and Stress

Kulsoom and Afsar's (2015), study, which included both Saudi and expatriate students, was the largest in the kingdom. Furthermore, we looked at sadness, anxiety, and stress features, while most of the others just reported a handful. We also looked at the DASS-21 scores at two separate times to examine how they differed between medical students. When an exam was coming, they discovered that pupils were extremely agitated, apprehensive, and unhappy. This is in line with several prior research on the issue conducted elsewhere.

Scrimin et al., (2009), studied that most parents of children who had surgery within the previous 24 hours reported normal levels of anxiety and tension. However, more than a quarter of our participants had clinically significant state anxiety, and 16 percent fulfilled ASD criteria. The type of surgery performed on children was linked to parental anxiety and suffering. When their children underwent major surgery, both moms and fathers showed more anxiety and suffering than when their children received day surgery. Mothers, on the other hand, had much higher levels of anxiety than fathers.

Infertility is regarded as a disaster for a Pakistani couple due to cultural and familial difficulties. Every couple's ambition is to have children, and for some families, this is of paramount importance. Being childless can be terrible for a married woman, especially because it provides males an excuse to seek a second (or more) marriage, which is not unusual in today's culture and is a nightmare for a woman. The research found that 70% of infertile females had some level of worry, with 58 percent having moderate to severe anxiety. Patients undergoing infertility therapy also had greater rates of anxiety. One intriguing conclusion from the study was that sadness, anxiety, and stress ratings were greater among infertile females regardless of their educational level ($p < 0.05$). In contrast, the findings showed that infertile women with limited or no formal education had a greater incidence of psychiatric problems.

Weigner et al., (2015), stated that more than half of the primary care population in this study experienced some stress, with women reporting it more frequently than men, according to the QPS (Quality and Patient Safety) Nordic single item criteria. One-third of women said they were under a lot of stress, whereas only one out of every four men said they were under a lot of stress.

4.4 Influence of B vitamin on anxiety and stress

Young et al., (2019) shows evidence for the positive effect of vitamin B on one's mood outcomes and its elements of depressive symptoms. Through the meta-analysis they find out that intake of vitamin supplements helps in reduction in stress. They stated that no other studies concentrate on at-risk participants and in this study more than half of people are at-risk participants. But the study also states that benefits for depression failed to reach a significant statistical value and also there is no benefit for anxiety. Also, the trials used were heterogeneous in the study which include sample population, administered dosage of B vitamin, supplementation periods and it gets affected the heterogeneousness detected in the meta-analysis. Most of the studies concentrate on multivitamins and this particular one concentrate only on the B vitamin which causes difficulty in isolating the benefits. Through this study, they help to increase the understanding of how the micronutrients and dietary

habits impact the effects of supplement to provide commendations on the advantage of B vitamins for mood. Mahdavi et al., (2021) conducted a population-based survey among Iranian people and find out that vitamin B's dietary intake influences mood. They also stated the fact that more intake of B vitamins are more linked with the reduction of mood especially in women. The dietary intake of vitamin B6 helps deeply in the reduction of stress in the whole population and vitamin B12 helps in the reduction of anxiety in men. Women with greater vitamin B5 consumption showed a lower prevalence of depression, but no statistically noteworthy linear association of riboflavin was found in either gender. In addition, various confounding factors affected the psychological state treated in this study. The study shows that dietary consumption of pyridoxin is strongly linked with the pervasiveness of stress in the entire population and that cyanocobalamin is associated with anxiety symptoms in men. Pyridoxin, folate, and cyanocobalamin are indispensable for the appropriate functioning of the methylation cycle, and the making of monoamine oxidases involved in the combination of serotonin and other monoamine neurotransmitters.

Depression becomes a prominent problem nowadays (Lewis et al., 2013). This study was conducted on 60 adult Americans who were diagnosed with depression or any of its symptoms, to identify the effectiveness of a vitamin B complex nutritional supplementation for improving anxiety and depressive symptoms within 30-60 days. This research shows the influence of Max stress B in reducing depressive symptoms, improving the mental health quality of life, and mood symptoms in adults. When Max stress B and placebo model are compared, Max stress B is more beneficial in the reduction of depression and the placebo shows little or no reduction in 60 days. Max stress also shows some significant effects on the mental health scale rendering to SF-36. Their searches were reliable with another study showing improvement in mood, memory, and fatigue in return to ginkgo tuberculosis consumption.

Women can maintain multiple things at the same time and have more chances of having psychological stress as stress and anxiety are the general mental health challenges, (McCabe et al., 2017). This study was conducted to categorize the influence of essential fatty acids, B vitamins, ascorbic acid, zinc, and magnesium, consumed as dietary elements in the regular diet on female stress and anxiety levels. Randomized controlled and pseudo-randomized trials were tried on women above 18 years who have depression or any of its symptoms. Most parts of the study focused on supplementation and mental well-being and also focused on the association between nutrient supplement and mood state.

As occupational stress is rising tremendously in western countries, this current study focused on the effectiveness of 3 months' management of two forms of high dose vitamin B complex on mood and psychological strain due to chronic stress work, (Stough et al., 2011). The selected 60 individuals (19 men and 41 women) from the community (75 % individuals are full-time workers and the remaining 25% are part-time or casual) participated in research. After the primary analysis, within 4-12 weeks, combined B vitamin shows a tremendous reduction in personal strain and the placebo remains constant. They state that when the personal strain measure is compared with the placebo trial method, there is a 19% improvement than the placebo method (Pearlin, 1989). Through the continuous 90 days treatment with B vitamins and workplace personal strain helps in reduced depression-dejection and anger-hostility. Improvement in work stress also helps to increase personal health, organizational, and societal outcomes. It helps in increased workplace productivity and reduces the work stress claims due to work pressure.

Noah et al., (2021) present a secondary analysis of the effects of magnesium that have not been reported pyridoxin for bad mood, and quality of life. This secondary analysis shows that magnesium (with or without pyridoxin) improved mood and anxiety and associated quality of life in stressed but healthy adults. Magnesium (or Vitamin B6 (without vitamin B6) significantly improved the DASS-42 scale depression and anxiety score to normal or near-normal by week 8, with the largest changes observed in the first month.

A consistent trend to support the combination of magnesium and vitamin B6 was observed in the area of physical role and function of SF36. This is significant at week 4 and is involved in increasing the physical capacity of vitamin B6 and performing more activities. It expands the effect of magnesium alone, suggesting a decline in cognitive ability. This represents interesting clinical insights and further investigation of this discovery that may help elucidate the underlying mechanism. The effect of the combination is guaranteed (Koolhaas et al., 2011). A greater improvement was observed in the SF36 region of general health with magnesium alone compared to weeks of magnesium + vitamin B6. The differences between the groups were small and probably not clinically significant. This is a post-mortem analysis of studies that are not primarily designed to analyze subjective anxiety, depression, and quality of life. The selection of study samples and the fact that the data collected in the SF-36 and DASS-42 questionnaires are self-reported requires that results be interpreted with some care increase.

5. CONCLUSION

B vitamin supplementation thus plays a significant part in prophylaxis and treatment, as antioxidants prevent oxidative stress toxicity. Cyanocobalamin deficiency and reflects whether fortification would progress the status of lacking subcategories of the population. B vitamins deficiency and homocysteine are linked with intellectual variation in old age. Vitamin B complex nutritional supplementation for refining depressive and anxiety symptoms. A higher consumption of dietary B vitamins, particularly biotin, was linked with a lesser

prevalence of anxiety, depression, and stress symptoms. B vitamin supplement in hale and hearty and at-risk populations for stress, but not for anxiety symptoms or depressive.

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