







## The effect of healthy nutrition on human psychology

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### Abstract

**Introduction:** Healthy nutrition not only protects our physical health but also profoundly influences our mental and emotional well-being. In today's rapidly developing world, the impact of our eating habits on our psychological state often remains overlooked. However, research clearly demonstrates how our food choices affect our mood, stress levels, attention span, and even self-esteem. Considering its influence on human activity and the mood of members of society within communication environments, a detailed study has been conducted on the psychological effects of healthy nutrition. **Objective:** This study aimed to explore in greater depth the scientific foundations of the relationship between nutrition and human psychology, to understand how this connection functions, and to examine how our daily dietary choices affect our mental health. **Methods:** It was realized a research and literature review, and was determined that healthy nutrition has a multifaceted and significant impact on human psychology. **Results:** The findings confirm that properly selected nutrients regulate not only the body's functions but also those of the brain and nervous system. Understanding the positive effects of healthy nutrition on mental and emotional well-being is crucial for leading a more balanced life, improving overall quality of life, and increasing work productivity through appropriate adjustments in the diet. **Conclusion:** The research findings confirm the existence of a mutual and complex relationship between nutrition and psychological health. The obtained data indicate that a diet rich in balanced and natural foods nourishes not only the

body but also the brain and soul. Establishing healthy eating habits to maintain psychological well-being is essential and significant for improving the mood of community members and enhancing work productivity.

**Keywords:** Healthy nutrition. Mental health. Neurotransmitters. Omega-3 fatty acids. Serotonin. Dopamine. Depression. Brain activity.

### Graphical Abstract



Source: Own authorship.

### Introduction

Psychological health is a term used to describe a certain level of mental and emotional well-being or the absence of psychological disorders. One of the main ways to maintain psychological health is to develop a proper lifestyle. In this regard, factors such as maintaining a regular sleep pattern, engaging in consistent physical activity, and eating a healthy diet play an important role. Although these factors are usually associated with physical health, recent scientific research has shown that they also have a significant impact on psychological well-being. In particular, the effects of dietary habits on brain functions, mood, and

overall emotional state are increasingly becoming a focus of attention [1,2].

Nutrition was once considered solely a physical health issue, and its impact on mental health was poorly understood. However, every nutrient we consume directly affects not only the functions of our body but also the functioning of our brain, our mood, and our overall psychological state. The saying "You are what you eat" actually reflects the truth from a psychological perspective. As more scientific evidence has emerged about the effects of nutrition on the brain and its functioning, opinions regarding the influence of nutrition on psychological health have begun to change [3].

Healthy nutrition is the foundation not only of physical but also of psychological well-being. Understanding how the foods we eat affect our psychology helps us make more conscious dietary choices. Through proper eating habits, it is possible to reduce the risk of psychological problems such as depression and anxiety, improve mood, enhance mental clarity, and overall lead a more balanced lifestyle. Let us not forget that a healthy mind resides in a healthy body - and the key to that health lies right on our plate [4].

The first need that arises when a person is born is food. During the process of initial feeding through breast milk, the newborn experiences the first positive emotions - pleasure, comfort, and a sense of security. Nutrition is one of the most fundamental physiological needs of human beings. Adequate and balanced nutrition is essential for maintaining health. The foods we consume affect both our physical and mental well-being. Research has shown that healthy nutrition is a key requirement for mental health [5].

The need for food, the ways in which it is satisfied, as well as the types and quality of food consumed and its impact on human health and lifestyle, can be examined from a variety of perspectives, representing a unique combination of biological, medical, anthropological, social, psychological, historical, economic, political, and cultural aspects. To address modern issues related to nutrition and its effects on human health and psychological well-being, it is necessary to look back into the past - because the entire history of human civilization has essentially revolved around humankind's desire to meet the vital need for "daily bread" [6].

The psychology of healthy nutrition is a concept that has a positive impact on both the body and mental health. This approach is aimed not only at improving physical well-being but also at enhancing emotional and psychological states [7]. The psychology of healthy nutrition encompasses the following principles:

- **Mindful eating.** It is important to focus full attention on the food while eating - to notice its taste, smell, and texture. This can help prevent overeating and increase enjoyment of the meal.
- **The connection between food and emotions.** People sometimes turn to food during moments of stress, sadness, or happiness. The psychology of healthy nutrition recognizes that food is not merely fuel for the body but also has emotional effects, and it teaches how to manage this relationship.
- **Listening to the body.** Developing the habit of eating when hungry and stopping when full helps maintain balance between body and mind.
- **Making healthy choices.** By choosing foods rich in vitamins, minerals, and antioxidants, it is possible to meet both physical and psychological needs of the body. For example, omega-3 fatty acids support brain function, while B-group vitamins help combat stress [8].
- **Avoiding food guilt.** Instead of completely prohibiting sweets or other "unhealthy" foods, adopting a balanced approach helps form a healthier relationship with food.

The psychology of healthy nutrition aims to establish a proper relationship with food and to support both physical and mental health.

Recent scientific studies show that not only the composition of food but also the timing of eating has a significant impact on a person's mental health. In particular, skipping breakfast and eating late at night can exacerbate psychological problems. Symptoms of anxiety and depression are observed more frequently in individuals who eat during late hours compared to those who eat during the day. Researchers report that when eating patterns disrupt biorhythms, the balance of hormones in the brain - such as serotonin and melatonin, which affect mood - also changes [9].

According to psychologists, eating at the right time creates a "sense of order and safety" in the brain. This is important for emotional stability and resilience to stress [10]. Especially individuals who maintain a daily routine tend to have more stable moods and energy levels. Experts emphasize that skipping breakfast is harmful for both mental and physical health and recommend that the main meals of the day be consumed before the afternoon hours.

The objective of this study was to explore the scientific foundations of the relationship between nutrition and human psychology, to analyze how dietary habits influence mental health, and to evaluate the effects of nutrients on mood, stress, and cognitive functions.

## Materials and Methods

In this study, various scientific sources and academic research were analyzed to examine the impact of healthy nutrition on human psychology. Reports from the World Health Organization (WHO), the European Nutrition Society, and other reputable institutions were reviewed. Theoretical and methodological research methods were applied during the study. The results were compared to determine how healthy nutrition affects human mood, stress levels, the risk of depression, and overall mental functions. In this process, findings from both clinical and epidemiological studies were analyzed. Data were collected from international scientific databases such as PubMed, Scopus, and Google Scholar.

As this study was based on a literature review, no specific sample size was determined. The analysis included multiple studies with varying sample sizes to ensure a comprehensive and balanced evaluation of the topic.

### The relationship between metabolism and brain activity during nutrition

The brain, which weighs approximately 1.5 kilograms, makes up about one-fortieth of an adult's body weight. However, it consumes around 25% of the substances circulating in the blood - primarily oxygen and glucose. This amount is 12.5 times higher than that of normal tissues. If the brain does not receive the nutrients it needs, its biochemistry changes and its functioning becomes impaired. This leads to various symptoms such as anxiety, fatigue, and depression [11].

Neurotransmitters such as serotonin, dopamine, and noradrenaline regulate psychological functions such as mood, motivation, sleep, and attention. Neurotransmitters depend directly on our nutrition, as the brain constantly requires nutrients. For the synthesis of these neurotransmitters, proteins, complex carbohydrates, healthy fats (especially omega-3 fatty acids), vitamins (B-group vitamins and vitamin D), and minerals (magnesium, zinc, and iron) are essential. For example, the amino acid tryptophan plays a key role in the synthesis of serotonin.

Tryptophan is an essential amino acid for humans, and only about 1% of it is used in protein biosynthesis. Most of the tryptophan is converted through two important biochemical pathways into molecules that significantly affect neuroimmunological signaling processes. These are the production of 5-hydroxytryptophan (5-HTP) by tryptophan 5-hydroxylase (T5H) and the kynurenine pathway, whose final product is nicotinamide adenine dinucleotide (NAD). 5-hydroxytryptophan is then converted into 5-

hydroxytryptamine (5-HT, serotonin), mainly in platelets, the brain, and the gastrointestinal tract.

Serotonin, often called the "happiness hormone," plays an essential role in regulating mood, sleep, appetite, and the digestive system. A large portion of serotonin (about 90%) is synthesized in the intestines and is derived from the amino acid tryptophan. Tryptophan is abundant in foods such as poultry, fish, eggs, dairy products, and nuts. A deficiency of these nutrients in the diet can disrupt neurotransmitter balance, leading to depression, anxiety, and sleep disorders.

The synthesis of serotonin in the brain depends on the availability of tryptophan. The consumption of protein-rich foods increases the levels of various amino acids in the blood. Tryptophan is one of the most abundant amino acids found in dietary proteins. However, protein-rich meals increase the ratio of neutral amino acids more than that of tryptophan. This reduces the uptake of tryptophan into the brain, thereby decreasing serotonin synthesis. A protein-rich diet lowers serotonin production in the brain, while a carbohydrate-rich but protein-poor diet increases serotonin synthesis.

The intake of high-carbohydrate foods can also alter the ratio of amino acids in the blood. When blood sugar levels rise, insulin is secreted. Insulin allows muscle tissues to absorb most amino acids - except for tryptophan, which is bound to albumin. As a result, the relative concentration of tryptophan in the blood increases compared to other amino acids. Many people who consume large amounts of carbohydrate-rich foods, including those with depressive disorders such as seasonal affective disorder, premenstrual syndrome, or nicotine withdrawal, experience noticeable improvements in mood.

Dopamine, which is associated with reward, motivation, and pleasure, is essential for focus and movement [12]. Dopamine and norepinephrine are neurotransmitters involved in processes such as memory, attention, and decision-making. A deficiency of dopamine can lead to a lack of motivation, loss of energy, and an inability to feel pleasure. The amino acid tyrosine is fundamental for dopamine synthesis. Tyrosine is a non-essential amino acid (meaning it can be synthesized in the body) that is derived from phenylalanine, and it can be obtained in sufficient quantities through a balanced and healthy diet [13], according to Figure 1.

However, in modern times, due to people's inefficient and unhealthy eating habits, some companies have started producing and selling supplements (tablets and capsules) containing tyrosine. Uncontrolled use of such supplements may

lead to an increase in tyrosine levels in the body, which can reduce the bioavailability of certain medications.

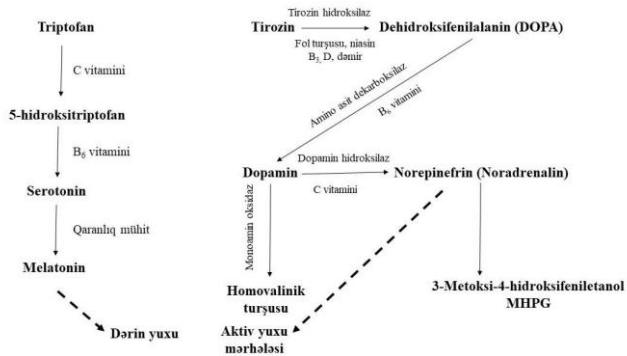


Figure 1. The relationship between the brain and mental health. Source: Own authorship.

When there is an iron deficiency in the diet, the synthesis of these neurotransmitters decreases; conversely, when a protein-rich diet is applied, the synthesis levels increase. Overall, calcium also plays an important role in the transmission of neurotransmitters between neurons. Adequate calcium intake, especially in elderly individuals, is considered effective in preventing memory loss. For this reason, it is essential to consume an average of three daily servings of calcium-rich foods such as milk, yogurt, and cheese [14].

Gamma-aminobutyric acid (GABA) is the primary inhibitory neurotransmitter that calms brain activity and reduces anxiety. Magnesium, found in foods such as whole grains, oats, broccoli, and spinach, supports GABA synthesis. Magnesium deficiency can lead to anxiety, stress, and sleep disturbances [15-17].

For the synthesis of these neurotransmitters, not only amino acids but also B-group vitamins (B6, B9, B12), vitamin C, vitamin D, zinc, and iron are indispensable. For example, vitamin B12 is critical for energy production and neuronal functions, and its deficiency is associated with fatigue and depression.

It should not be forgotten that body and brain health are also closely linked to gut health. Excessive consumption of fatty, sugary, and salty foods disrupts the gut microbiota. Meanwhile, the gut microbiota performs a number of essential functions in the body. These functions include the synthesis of vitamins and fatty acids, detoxification of harmful substances, prevention of colonization by pathogenic bacteria, and activation of the immune system. Healthy nutrition positively affects not only mood but also concentration, memory, and learning ability. The brain is an organ that derives its energy from glucose. Stable blood sugar levels ensure a continuous flow of energy to the brain, preventing mental fatigue and optimizing cognitive functions [18]. The importance of breakfast

stems from this; children who skip breakfast show decreased school performance.

A diet high in processed foods, red meat, hydrogenated fats, and sugar can increase inflammation levels. Conversely, fruits, vegetables, whole grains, fish rich in Omega-3 fatty acids (such as salmon and sardines), nuts, and olive oil exert anti-inflammatory effects, supporting brain health [19]. Water balance is also crucial - dehydration can cause headaches, fatigue, difficulty concentrating, and mood deterioration. Drinking sufficient water throughout the day is essential for maintaining optimal brain function. Insufficient, unbalanced, and unhealthy nutrition, smoking, alcohol consumption, and chronic stress are the main factors negatively affecting gut microbiota. As a result of these effects, the gut may react with diarrhea or constipation. If either condition persists for a long time and remains untreated, it can lead to a deterioration of overall health.

The impact of dietary habits on mood. When shaping our eating habits, it is extremely important to distinguish between emotional and physical hunger. Emotional hunger arises suddenly, creating cravings for certain comfort foods and leading to the consumption of unhealthy foods beyond the point of satiety. Sometimes it manifests through signs not related to physical hunger, such as stomach growling. This occurs under the influence of emotions and can create feelings of shame in individuals. Physical hunger, on the other hand, develops gradually over time, disappears once we are satisfied, and is observed with physical symptoms (stomach growling, loss of strength, irritability) [20].

The relationship between food and mood is supported by research: what we eat affects our mental health. Studies show that certain dietary patterns can have either positive or negative effects on psychological well-being. Positive effects of a healthy diet on mental health include enhanced brain function and mood regulation, increased energy levels, and support for serotonin production. Negative effects may include blood sugar imbalance, increased stress, gut problems, and inflammation [21].

We often reach for certain foods without realizing that they can influence our mood when we feel down. High-sugar foods and refined carbohydrates can cause a temporary mood boost due to a rise in blood sugar. This short-term spike is usually followed by a sharp drop, which can lead to feelings of anxiety. This phenomenon, known as a "sugar crash," is accompanied by fatigue, irritability, and difficulty concentrating [22]. Over the long term, such dietary habits can lead to brain insulin resistance and even impair cognitive functions. Complex carbohydrates

(whole grains, legumes, vegetables) help maintain stable blood sugar levels, ensuring a continuous supply of energy to the brain. Prolonged consumption of sugary and processed foods, however, increases inflammatory processes, raising the risk of depression.

Nutrients affecting mental health. Many foods and food components influence mental health, including carbohydrates, proteins, fats, vitamins, and minerals. Foods rich in tryptophan can boost serotonin production, positively contributing to mood. For example, turkey, fish, eggs, and dairy products are rich sources of tryptophan. Turkey, with its content of tryptophan, B vitamins, protein, and minerals, can positively influence balanced brain function and support mental well-being.

Omega-3 fatty acids further promote more effective dopamine and serotonin receptor function. Foods rich in these fatty acids, such as salmon, walnuts, and flaxseeds, have a positive effect on mood. The influence of foods on brain chemicals allows individuals to better manage their mental health through diet.

Omega-3 fatty acids (EPA and DHA), which are essential components of brain cell membranes, play a crucial role in signal transmission between nerve cells. Their deficiency is associated with depression, anxiety, and attention deficits [23]. Omega-3 fatty acids, abundant in foods like salmon, sardines, chia seeds, flaxseeds, and walnuts, are essential for brain function. In addition to reducing inflammation, they help alleviate symptoms of depression and anxiety. Fatty fish such as salmon, sardines, and mackerel, along with chia seeds, flaxseeds, and walnuts, are rich in Omega-3.

Antioxidants are essential compounds that combat free radicals in the body, preventing cellular damage. Their impact on mental health has become more widely recognized in recent years. Antioxidants, in particular, help reduce oxidative stress in the brain, thereby lowering the risk of mental disorders such as depression and anxiety. Dark green leafy vegetables, fruits, nuts, and seeds are rich sources of antioxidants. Additionally, foods high in polyphenols can exert anti-inflammatory effects in the brain, strengthening mental health. Beverages like green tea are also highly beneficial in this regard. A diet rich in antioxidants plays an important role not only for physical health but also for mental well-being.

Vitamins and minerals are crucial for optimal brain function. Deficiencies can lead to mood disturbances and even serious psychiatric disorders. B vitamins, especially B6 and B12, are vital for energy production and neurotransmitter synthesis; their deficiency can

contribute to depressive symptoms. Magnesium lowers levels of the stress hormone cortisol and promotes a sense of calm. Vitamin C plays a role in serotonin production, which is important for mental health, and studies show that vitamin C deficiency is associated with higher rates of depression. Iron supports mood by enhancing mental focus and overall well-being. Therefore, it is possible to strengthen mental health through a balanced diet that includes a variety of vitamins and minerals. Consumption of fruits, vegetables, whole grains, and fish helps supply these essential micronutrients.

Psychological problems related to nutrition and their causes. Mental health problems associated with nutrition arise from inadequate, unbalanced, or unhealthy eating habits. These conditions lead to insufficient neurotransmitter production in the brain, resulting in difficulties with concentration, depression, anxiety, and general mental confusion [24]. Inadequate nutrition negatively affects brain function by failing to provide the body with the energy and building materials it needs. Overeating can also contribute to mental disorders. Nutrient deficiencies, exposure to toxic substances, and imbalances of certain micronutrients can have serious effects on brain functions and behavior [25].

Recent studies have shown that some psychological and neurological disorders are closely linked to nutrition. These disorders include neurotic anorexia, bulimia, pica, hyperactivity, autism, obsessive-compulsive disorder, bipolar disorder, schizophrenia, and epilepsy [26,27].

In neurotic anorexia, an individual develops excessive concern about body weight and perceives themselves as overweight. They punish themselves through self-imposed starvation. Due to advanced weight loss, they fail to eat properly, leading to severe deficiencies in nutrients and energy in the body.

Bulimia nervosa, or simply bulimia, is a disorder characterized by uncontrolled, excessive eating and difficulty in regulating this behavior. After episodes of overeating, compensatory behaviors are employed to control weight, such as vomiting, taking laxatives to accelerate bowel movements, skipping meals, or engaging in intense and continuous physical activity. These abnormal eating behaviors can lead to electrolyte imbalances and hormonal disruptions in the body.

Pica syndrome is an eating disorder characterized by the craving for non-food substances (such as soil, paper, or metal) and is often associated with deficiencies in iron and other minerals. The body attempts to obtain the needed substances through

alternative means. Hyperactivity disorder is described in medicine and psychology as “excessive and impulsive activity, perceptual disturbances, inability to concentrate, and behavioral dysfunction.” Some studies have identified that food additives and colorants may contribute to the development of this disorder and can also exacerbate its severity. Individuals with autism spectrum disorder often exhibit difficulties in social interaction and communication, along with repetitive behaviors. Some research has suggested a potential link to exposure to mercury and other toxic chemicals, particularly those transmitted through breast milk [28].

Obsessive-compulsive disorder (OCD) is characterized by the emergence of recurrent, intrusive thoughts (obsessions) that cause distress and the compulsive, repetitive behaviors (compulsions) performed to reduce the tension brought on by these thoughts. Some studies suggest that imbalances of elements such as copper (Cu) and manganese (Mn) in the body may play a role. Bipolar disorder (bipolar affective disorder) is a condition in which mood fluctuates between poles - manic, hypomanic, and depressive phases - manifesting as sudden mood elevations or depression. Disruption of copper balance in the body may affect the activity of neurotransmitters in the brain, particularly dopamine and serotonin. In patients with schizophrenia, detachment from reality, hallucinations, and disorganized thoughts and behaviors are observed. Toxic accumulation of heavy metals such as mercury, copper, manganese, and cadmium can negatively impact brain function. Epilepsy is a disorder characterized by recurrent seizures resulting from abnormal, excessive neuronal discharge in the brain. Poor nutrition, particularly deficiencies in magnesium, calcium, and B vitamins, can trigger epileptic seizures or worsen the existing condition [29].

In conclusion, the relationship between nutrition and mental health is complex and reciprocal. Healthy and balanced nutrition is important not only for the body but also for the mind. A person with a positive mood tends to work creatively and productively, approaches tasks with enthusiasm, and motivates others in their work environment [30,31].

Therefore, every individual should pay careful attention to their dietary habits and make conscious food choices to protect both physical and psychological health. Since the healthy nutrition of each individual also has social significance, it is recommended that this issue be taken seriously, and that informative discussions be conducted among the public in mass media with the participation of qualified specialists.

## Limitations

This study is based on previously published research and literature review; therefore, it does not include primary experimental data. In addition, variability in study designs and sample sizes across different sources may affect the generalizability of the findings.

## Conclusion

This research demonstrates that nutrition has a direct and significant impact not only on physical health but also on psychological well-being. Proteins, vitamins, minerals, omega-3 fatty acids, and antioxidants in the diet are vital for proper brain function, mood stability, and overall emotional balance. In particular, deficiencies in nutrients required for the synthesis of neurotransmitters such as serotonin, dopamine, and noradrenaline can lead to depression, anxiety, sleep disturbances, and other mental health problems. Research also shows that the timing of meals is important for mental health. Skipping breakfast and consuming food late at night can disrupt biorhythms, negatively affecting hormone balance and mood. Principles of healthy eating psychology - mindful eating, listening to body signals, and understanding emotional eating habits - are considered important tools for achieving more balanced and sustainable mental well-being. At the same time, certain eating disorders and micronutrient deficiencies can contribute to the development of various psychological and neurological conditions or exacerbate existing ones. For this reason, forming balanced and mindful eating habits is essential for maintaining psychological health.

## CRedit

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Not applicable.

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## Data Sharing Statement

The data used in this study are available from the corresponding author upon reasonable request.

## Conflict of Interest

The authors declare no conflict of interest.

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It was applied by Ithenticate@.

## Application of Artificial Intelligence (AI)

Not applicable.

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It was performed.

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## References

1. Aliye Ozenoglu. Mood, Food, and Nutrition. Ondokuz Mayıs University, Nutrition and Dietetics, Samsun, Turkey, 21 July 2018. doi: 10.31067/0.2018.56.
2. Sarris, J., Logan, A. C., Akbaraly, T. N., et al. Nutritional medicine as mainstream in psychiatry. *The Lancet Psychiatry*. 2015. Doi:10.1016/S2215-0366(14)00051-0.
3. Hasan Fatih Akgoz, Burcu Yeshilkaya. The relationship between psychiatric disorders and nutrition. *Sag Aka Derg*. 2021; 8(4): 330-336 Doi: 10.52880/sagakaderg.849741.
4. Owen, L., Corfe, B. The role of diet and nutrition on mental health and wellbeing. *Proceedings of the Nutrition Society*. 2017. doi: 10.1017/S0029665117001057.
5. Jacka, F. N., & Berk, M. Food for Thought: How Nutrition Impacts Mental Health and Wellbeing. *Journal of Public Mental Health*. 2013. doi: 10.1111/j.1601-5215.2007.00246.x.
6. Hasil Fataliyev. Nutrition and Health. Textbook. Baku, "Elm". 2023. 384 pages. ISBN 978-9952556-60-5.
7. Karagul, H., & Gurbuz, H. The Relationship Between Healthy Nutrition and Mental Health. *Journal of Social and Humanities Sciences Research*. 2021. doi: 10.58830/ozgur.pub566.c2289.
8. Katsudzo Nishi. Energetic Nutrition: Macrobiotics [translation]. Saint Petersburg: Krylov. 2019. 122 pages.
9. Ulusoy M., Shahin N., Erkmen H. Turkish version of the Beck Anxiety Inventory; psychometric properties. *Journal of Cognitive Psychotherapy*. 1998; 12: 163-72.
10. Meshkova T. A. Food, Stress and Health. Moscow. AMM-Press. 2018. doi: 10.13140/RG.2.2.12334.74561.
11. Chiftchi H., Yildiz E., Merjanligil S. M. Depression and nutrition therapy. *Turkiye Klinikleri Journal of Medical Sciences*. 2008;28(3):369-377. doi: 10.52880/SAGAKADERG.849741.
12. Kazim Aliyev. Athlete's Victory Psychology. Baku, "Ozan". 2008. 200 pages.
13. Aytaj Hafizova. The effect of sport, nutrition, and sleep on mental health. *International Scientific Journal of Scientific Research*. 2025; 5/5: 207-210 doi: 10.36719/2789-6919/45/207-210.
14. Nevzat Tarhan. Nutrition Neuropsychology. File: Healthy nutrition and dietary supplements. 2022. pp. 92-95.
15. Awad, R., Levac D., Cybulska P., Merali Z., Trudeau V. L. & Arnason J. T. Effects of traditionally used anxiolytic botanicals on enzymes of the gamma-aminobutyric acid (GABA) system. *Can J Physiol Pharmacol*. 2007;85(9):933-42. doi: 10.1139/Y07-083.
16. Boonstra E., de Kleijn R., Colzato L. S., Alkemade A., Forstmann B. U. & Nieuwenhuis S. Neurotransmitters as food supplements: the effects of GABA on brain and behavior. *Front Psychol*. 2015;6:1520. doi: 10.3389/fpsyg.2015.01520.
17. Daud Ali, Swati Verma, Rishabha Malviya, Shuchita Mishra, Sonali Sundram. Implications of Herbal Components in the Treatment of Neurological Disorders. *Current Nutrition & Food Science*. 2024;20/6:677-686. doi: 10.2174/1573401319666230821102546.
18. Naismith S. L., Mowszowski L. Sleep disturbance in mild cognitive impairment: A systematic review of recent findings. *Current Opinion in Psychiatry*, 2018;31(2):153-159. doi: 10.1097/YCO.0000000000000397.
19. Selhub E. M., & Logan A. C. Your Brain on Nature. Wiley. Chapter 8. The Brain on Nature's Nutrients: Nutri Ecopsychology. 2012. ISBN 978-118-10674-7.
20. Walker M. P. The role of sleep in cognition and emotion. *Annals of the New York Academy of Sciences*, 2008;1156(1):168-197. doi: 10.1111/j.1749-6632.2009.04416.x.
21. Gozde Eminoglu, Mehmet Goktug Gunel, Muhammed Yasin Akchakoja, Shengul Cangur,

- Cihadiye Elif Ozturk. Investigation of the Positive or Negative Effects of Nutrition on Depression and Anxiety: A Survey Study among University Students. *Duzce University Journal of Health Sciences* 2020;10(3):369-376. doi: 10.33631/duzcesbed.762252.
22. Aleksandrova R. V., Meshkova T. A. Features of intrafamily relationships of adolescent girls at risk of eating disorders [Electronic resource] // *Clinical and Special Psychology*. 2016;5(2):33–45. doi: 10.17759/cpse.2016050203.
  23. Monacelli F., Acquarone E., Giannotti C., et al. Vitamin C, Aging and Alzheimer's disease. *Nutrients*. 2017;9:670. doi: 10.3390/nu9070670.
  24. Choi K. W., Chen C.-Y., Stein M. B., Klimentidis Y. C., Wang M.-J., Koenen K. C. & Smoller J. W. Assessment of bidirectional relationships between physical activity and depression among adults: A 2-sample Mendelian randomization study. *JAMA Psychiatry*. 2019;76(4):399–408. doi: 10.1001/jamapsychiatry.2018.4175.
  25. Skripacheva E. N., Nazarova P. K. Modern psychological approach to the problem of nutrition. *Vestnik MASI № 1/2022*;61-67. doi: 10.52210/2224669X\_2022\_1\_61.
  26. Thomas B. *Mental illness. Manual of Dietetic Practice*. 3rd ed. Oxford: Blackwell Publishing. 2001;571-579.
  27. Yasemin Beyhan, Vahide Tas. *Mental Health and Nutrition*. *Zeugma Health Research Journal*. 2019;1(1):30-35.
  28. Ahmet Mehmet Atik, Natavan Yadulla Keremova. Research methods for psychological stress and attention levels in children with autism. *Proceedings of the International Conference "Current Problems of Psychology: New Perspectives, New Considerations and New Ideas,"* Baku, 19-20 June 2021. pp. 39-45.
  29. WHO (World Health Organization) – Healthy Diet and Nutrition and Mental Health sections. *Global official recommendations*.
  30. Firth J, Solmi M, Wootton RE, Vancampfort D, Schuch FB, Hoare E, et al. A meta-review of "lifestyle psychiatry": the role of exercise, smoking, diet and sleep in the prevention and treatment of mental disorders. *World Psychiatry*. 2020;19(3):360–380. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC9441951/>
  31. Marx W, Moseley G, Berk M, Jacka F. Nutritional psychiatry: the present state of the evidence. *Proc Nutr Soc*. 2017;76(4):427–436. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC8880234/>