

SATTVIK DIET AS A COMPLEMENTARY THERAPY IN ANXIETY AND DEPRESSION MANAGEMENT

Aparna Vishwash¹, Dr. Sarika Shukla²

Research Scholar, Department of Yogic Science, Mahakaushal University, Jabalpur,
Madhya Pradesh¹

Supervisor, Department of Yogic Science, Mahakaushal University, Jabalpur, Madhya
Pradesh²

Abstract

The burden of mental health disorders, especially anxiety and depression, on the population in India is immense and increasing with 197.3 million people identified to be living with mental disorders in 2017. Although there has been progress in pharmacotherapy, there is still a gap of 70-92 percent in treatment, and thus, complementary, culturally aligned interventions are critically needed. The paper will analyze the Sattvik diet a classic Ayurvedic food system of pure, non-processed foods such as whole grains, fruits, nuts, legumes, and medicinal herbs as an adjunctive method of treating anxiety and depression. The systematic review method was applied, which was based on peer-reviewed articles published between 2015 and 2025 and found in PubMed, Google Scholar, and MEDLINE. The hypothesis was that frequent Sattvik dietary compliance is a significant factor in lowering the level of anxiety and severity of depression mediated by the gut brain axis, biosynthesis of tryptophan-serotonin and anti-inflammatory pathways. Cross-sectional, interventional, and meta-analytic studies provide evidence that Sattvik dietary components change the gut microbiome composition, increase serotonin synthesis, and reduce cortisol levels, which provide observable effects in GAD-7 and PHQ-9 scores. The Sattvik diet is a safe, affordable and culturally-based complementary approach to mental health management in India.

Keywords: Sattvik diet¹, anxiety², depression³, gut-brain axis⁴, complementary therapy⁵.

1. Introduction

India is facing a mental health crisis of unprecedented magnitude. In the Global Burden of Disease Study 1990-2017, it was found that 197.3 million Indians (14.6% of the population) were exposed to mental disorders, and as such, it was a doubling of the total disease burden that could be attributed to mental illnesses during the timeframe (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020). Depressive disorders rank the highest (33.8 per cent) and anxiety disorders rank the second highest (19.0 per cent) among all mental disorders, in terms of the proportion of Disability-Adjusted Life Years (DALYs) (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020). The National Mental Health Survey (NMHS) 2015-16 affirmed that the present prevalence of both anxiety disorders and depressive disorders in Indian adults is 3.6 and 0.8, respectively, and an appalling 85 percent treatment gap in common mental disorders (Murthy, 2017). Prevalence is significantly more in urban (13.5) than in rural (6.9) and women are disproportionately affected, with the prevalence of mental health disorders being 20% in women versus 10% in men.

Typical psychiatric treatment, which is dominated by pharmacotherapy using antidepressants and anxiolytics, is not affordable to most of the India population because of resource constraints, stigma, and acute shortage of mental health professionals (0.75 psychiatrists per 100,000 population as compared to the 3 recommended by WHO). This background requires the investigation of evidence-based complementary therapies that are based on Indian traditions. Nutritional psychiatry is a fast-developing discipline, and there is strong evidence that links the quality of diet to mental health nowadays (Aucoin et al., 2021; Solomou et al., 2023). The biological pathway between the state of food consumption and psychological conditions is the gut-brain axis, a two-way system of communication with the enteric nervous system, vagus nerve, immune signaling, and microbiota-derived metabolites. Sattvik diet which is part of Ayurvedic tradition which dates back to 5,000 years classifies foods according to their impact on manas (mind) and prana (vital energy): Sattvic (pure and calming), Rajasic (stimulating), and Tamasic (dulling). The supposed development of mental clarity, equanimity and emotional stability are hypothesized to be achieved in association with sattvic foods that include fruits, green vegetables, whole grains, lentils, nuts, seeds, dairy (in accordance with the traditional practice) and medicinal herbs like Ashwagandha, Brahmi, Turmeric (Mansi et al., 2023). Compliance with a Sattvik diet was linked to a decrease in anxiety, hormonal balance, and serotonin production (Nancy et al., 2025). Clinical and population health potential of the Sattvik diet in mainstream mental health practice is high as barriers to treatment become more apparent with growing mental health burden and insufficient treatment infrastructure. The current paper is a literature review to reflect on its effectiveness as a complementary therapy to anxiety and depression based on its mechanism.

2. Literature Review

The study of dietary intervention in the mental health field has gained momentum in the last ten years. Bayes et al. (2022) published AMMA study (a landmark randomized controlled trial) on 72 depressed young males, which showed that an intervention of a Mediterranean whole-food diet led to a statistically significant reduction of the scores of depressive symptoms compared to the control group, which elucidates the therapeutic potential of unprocessed plant-dominant diets. Complementary, Molendijk et al. (2018) carried out a systematic review and meta-analysis of prospective studies and discovered that adherence to the Mediterranean diet corresponded to a much lower risk of self-reported depressive symptoms (OR = 0.91; 95% CI: 0.88 0.96). In a cross-sectional study, Walsh et al. (2023) evaluated the relationship between vegan, vegetarian, and omnivore eating habits and depressive symptoms and found that the overall dietary quality, as opposed to mere inclusion or exclusion of animal products, is the determinant of mental health outcomes. This was supported by Haghghatdoost et al. (2023) in their large multicentric Iranian community study (LIPOKAP), which concluded that the unhealthy plant-based diet index (uPDI) in the highest quartile significantly predicted both anxiety (OR = 1.53; 95% CI: 1.07219) and depression (OR = 1.95). On the other hand, the healthful plant-based diet index (hPDI) that is most similar to Sattvik principles was negatively related to the risk of mental disorder.

The mechanistic foundation of dietary effects on mental health is solidly established. O'Mahony et al. (2015) showed that the most important factor in peripheral serotonin production is tryptophan metabolism in the gut, and the vagus nerve, the immune system, short-chain fatty acids (SCFAs), and tryptophan are the main communication pathways of the gut-brain axis. Donoso et al. (2023) confirmed that the modulation of the gut microbiome diet affects neuroinflammatory signaling and is directly applicable to antidepressant effect. The article by Samuthpongton et al. (2023) is a strong piece of evidence that the risk of depression is much higher with consumption of ultra-processed food (JAMA Network Open, 2023), which is directly opposite to the Sattvik dietary model of intake of minimally processed and whole-food. Adolpho and Tilg (2024) also determined that the dietary habits in the West encourage chronic low-grade inflammation, gut dysbiosis, and neuroinflammation, which are related to anxiety and depressive disorders. In the Indian context, a cross-sectional study was carried out by Kundu et al. (2022) on 440 Indian university students and the results showed

that students who had good quality diets were much less likely to report depressive (AOR = 2.15; 95% CI: 1.203.84) and anxiety symptoms (AOR = 1.96; Mansi et al. (2023) have explicitly studied the Sattvik-anxiety nexus and confirmed that Sattvik dietary compliance can decrease anxiety by enhancing intestinal wellness, hormonal equilibrium, and optimal serotonin synthesis. Similar positive results of Sattvik Ahar in management of anxiety were reported by Bhasarkar et al. (2021). The evidence presented by Majeed et al. (2024) is at the level of RCT that Ashwagandha (*Withaniasomnifera*) as one of the foundational Sattvik adaptogenic herbs caused a significant increase in serotonin and a decrease in both GAD-7 and PHQ-9 scores in a double-blind, placebo-controlled trial. The study by Rossa-Roccor et al. (2021) validated that the junk food dietary component was positively correlated with, and significantly contributed to, depression ($\beta = .21, p \leq .001$) and anxiety ($\beta = .14, p \leq .001$) in young adults, which supports the protective nature of the antithetical Sattvik model.

3. Objectives

1. To evaluate the association between Sattvik dietary adherence and the severity of anxiety and depression symptoms as measured through standardized tools (GAD-7 and PHQ-9).
2. To identify the biochemical and neurophysiological mechanisms through which Sattvik diet components including tryptophan-rich plant foods, dietary fiber, and Ayurvedic adaptogenic herbs modulate the gut-brain axis and neurotransmitter synthesis in the management of anxiety and depression.

4. Methodology

The systematic narrative review design used in this study includes the analysis of secondary data published in peer-reviewed studies (2015-2025). The literature search and synthesis were based on the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) framework. The following keywords were used to search PubMed, Google Scholar, MEDLINE, CINAHL, and AyushPortal: Sattvik diet, Ayurvedic nutrition, anxiety management, depression, tryptophan-serotonin, plant-based diet mental health, PHQ-9, GAD-7, nutritional psychiatry, India mental health. The last search was done in January 2025. The inclusion criteria were (a) the study examined dietary habits or particular Sattvik food items in terms of anxiety or depressive symptoms, (b) the study used reliable psychological measures (PHQ-9, GAD-7, BDI, DASS-21, CES-D), (c) the study was conducted in peer-reviewed journals, (d) the study involved human participants, and (e) the study was in English. Animal research, editorials, abstracts of conferences, case reports (without controls) and research that utilized unproven mental health measures were excluded. Two reviewers extracted information on a study design, sample size, dietary assessment method, mental health outcome measures, and key findings independently. Information on cross-sectional, RCT, meta-analytic and observational studies were thematically synthesized. Standardized mean differences (SMDs), odds ratios (ORs), descriptive statistics, and adjusted odds ratios (AORs) were noted and tabulated. The review is based on the studies carried out in India, USA (NHANES), Iran, Australia, and multinational cohorts, and the focus on the studies involving Indian population, or Ayurvedic dietary ingredients is aimed to make the context as relevant as possible. Since it is a review of published data, no primary data was to be collected involving human participants and institutional ethics committee approval was not mandatory.

5. Results

Table 1: Burden of Anxiety and Depression in India — National Data (2015–2017)

Indicator	Value	Data Source
Population affected by mental disorders (2017)	197.3 million (14.6%)	India GBD (2020)
Lifetime prevalence of mental disorders	13.7%	NMHS 2015–16
Current prevalence — Anxiety disorders	3.6%	NMHS 2015–16
Current prevalence — Depressive disorders	0.8%	NMHS 2015–16
Depressive disorders' share of mental DALYs	33.8% (95% CI: 29.5–38.5)	India GBD (2020)
Anxiety disorders' share of mental DALYs	19.0% (95% CI: 15.9–22.4)	India GBD (2020)
Treatment gap — Common mental disorders	85.0%	NMHS 2015–16
Urban mental disorder prevalence	13.5%	PIB (2025)

References: Murthy (2017); India State-Level Disease Burden Initiative Mental Disorders Collaborators (2020)

Table 1 is a confirmed epidemiologic information that determines the magnitude of anxiety and depression in India. The unmet requirement of accessible interventions is acute with 197.3 million affected people and an 85% treatment gap. All mental health DALYs are made up of 52.8% depressive and anxiety disorders. The increased prevalence in urban areas (13.5% vs. 6.9% rural) is associated with the increased adoption of processed, Tamasic/Rajasic diets in urban locations, which highlights the direct applicability of Sattvik dietary promotion as a preventive and complementary public health intervention (Murthy, 2017; India State-Level Disease Burden Initiative Mental Disorders Collaborators)

Table 2: Association Between Dietary Patterns and Depression/Anxiety Risk — Meta-Analytic Evidence

Dietary Pattern	Sample/Study Type	Outcome	Effect Size (95% CI)	Significance
Mediterranean diet adherence	>700,000 participants (92 cohorts)	Depression (self-reported)	OR = 0.91 (0.88–0.96)	Significant
Mediterranean diet RCT (AMMEND)	72 young males (Australia)	BDI depression score	Significant reduction	p < 0.05
Dietary improvement (RCT, 25 trials)	Elevated cardiometabolic risk	SMD depression	−0.23 (−0.38 to −0.09)	Low certainty
Whole-food (Sattvik-equivalent) diet	Cross-sectional review	Depression risk	35% lower risk	Significant
Healthful plant-based diet (hPDI)	NHANES 31,622 participants	PHQ-9 ≥10 prevalence	8.8% overall	Significant

References: Molendijk et al. (2018); Bayes et al. (2022); Mansi et al. (2023); Dabravolskaj et al. (2024)

Table 2 shows that dietary patterns functionally equivalent to the Sattvik model, that is, whole and unprocessed plant-preponderant foods, have a consistent and significant depression and anxiety risk reduction effects in multinational research involving more than 700,000 individuals. The fact that the OR of adherence to the

Mediterranean diet is 0.91 and that whole-food diets have a 35-percent lower risk of influencing mental health outcomes proves the extent of dietary impact on mental health outcomes. The SMD of 25 RCTs (−0.23) supports the use of dietary intervention as a clinically significant adjunct measure (Bayes et al., 2022; Molendijk et al., 2018).

Table 3: Sattvik Diet Components and Their Biochemical Mechanisms in Mental Health

Sattvik Food/Herb	Active Compound	Biochemical Mechanism	Mental Health Outcome
Fruits, legumes, whole grains	Tryptophan (essential amino acid)	Converted to 5-HT (serotonin) via enterochromaffin cells in gut	Antidepressant, mood regulation
Whole grains, vegetables	Dietary fiber → SCFAs (butyrate, propionate)	Gut microbiome modulation; vagus nerve signaling; BBB integrity	Reduced anxiety, neuroinflammation ↓
Ashwagandha (W. somnifera)	Withanolides	Cortisol reduction; serotonin level elevation; HPA axis modulation	Anxiolytic, antidepressant
Turmeric (C. longa)	Curcumin	Upregulates serotonin and dopamine; reduces CRP/IL-6	Mood stabilization, anti-inflammatory
Brahmi (B. monnieri)	Bacosides A and A3	Enhances hippocampal 5HT3A receptor expression; elevates BDNF	Cognitive enhancement, antidepressant

References: O'Mahony et al. (2015); Majeed et al. (2024)

Table 3 visualizes the mechanistic connection between Sattvik ingredients in the diet and mental well-being. The gut produces about 95% of the serotonin in the body through the tryptophan breakdown process- a process that is directly reliant on food consumption. Dietary fiber-derived SCFAs are gut-brain axis signaling molecules, which regulate neuroinflammation and cortisol release (O'Mahony et al., 2015). Sattvik herbs that include Ashwagandha and Brahmi have neuropsychopharmacological effects with RCT-validated mechanisms over and above the effects of nutritional adequacy alone (Majeed et al., 2024).

Table 4: Diet Quality and Mental Health Outcomes — India Cross-Sectional Study

Variable	Good Diet Quality Group	Poor Diet Quality Group	AOR (95% CI)	p-value
No depressive symptoms (PHQ-9 < 10)	61.1% (56.6–65.7%)	38.9%	AOR = 2.15 (1.20–3.84)	p < 0.05
No anxiety symptoms (GAD-7 < 10)	Significantly higher	Significantly lower	AOR = 1.96 (1.07–3.59)	p < 0.05
Post-graduate student + good diet	Higher proportion	Lower proportion	Significant (p < 0.05)	p < 0.05
Urban resident + good diet quality	Higher proportion	Lower proportion	Significant (p < 0.05)	p < 0.05
Appetite maintained/improved + good diet	Associated	Not associated	Significant mediator	p < 0.05

Reference: Kundu et al. (2022)(N = 440 Indian university students; April–June 2021)

Direct Indian evidence is provided in Table 4 by Kundu et al. (2022) in association with dietary quality and anxiety and depression in a sample of university students. Students with a good diet quality were 2.15 times less likely to show depressive symptoms (PHQ-9) and 1.96 times less likely to show anxiety symptoms (GAD-7). Significant protection was observed with 61.1% of students adhering to good quality of diet. This Indian cohort confirms, on a national level, the universally confirmed result that dietary enrichment positively correlates with a reduction in the psychological burden of symptoms with a direct agreement on the applicability of the Sattvik dietary model (Kundu et al., 2022).

Table 5: Plant-Based Diet and Mental Health Outcomes: Systematic Review and Multicentric Data

Study	Sample Size	Dietary Measure	Mental Health Outcome	Finding
Haghighatdoost et al. (2023)	Multicentric, Iran	Unhealthful PDI (uPDI) Q4 vs Q1	Anxiety risk	OR = 1.53 (95% CI: 1.07–2.19)
Haghighatdoost et al. (2023)	Multicentric, Iran	uPDI Q4 vs Q1	Depression risk	OR = 1.95 (95% CI: 1.34–2.85)
Rossa-Roccor et al. (2021)	Young adults (N=338)	Junk food dietary component	Depression (PHQ-9)	$\beta = .21$, adj. $R^2 = .39$, $p \leq .001$
Rossa-Roccor et al. (2021)	Young adults (N=338)	Junk food dietary component	Anxiety (GAD-7)	$\beta = .14$, adj. $R^2 = .32$, $p \leq .001$
PMC Systematic Review (2025)	8,110 (13 studies)	Whole-food plant-based diet	Combined anxiety/depression	Reduced symptoms; fiber+antioxidants protective

References: Haghighatdoost et al. (2023); Rossa-Roccor et al. (2021)

Table 5 provides a two-way relationship unhealthy and highly processed diets (uPDI) are strong predictors of both anxiety and depression, whereas whole-food plant-based diets with structural consistency with the Sattvik model are protective. Evidence of this trend has been found in data of 8,110 people in 13 studies, where high-fiber and antioxidant diets were always linked to reduced stress and psychological symptom scores. The dose-like relationship between dietary quality and mental health outcomes is measured by strong beta coefficients of Rossa-Roccor et al. (2021) (Haghighatdoost et al., 2023; Rossa-Roccor et al., 2021).

Table 6: Interventional Study Outcomes Using Sattvik Components for Anxiety and Depression

Study	Intervention	Design	Sample	Primary Outcome	Key Finding
Majeed et al. (2024)	Ashwagandha + Piperine	Double-blind RCT, placebo-controlled	Adults with anxiety/depression	GAD-7, PHQ-9, serum serotonin	Significant ↓ anxiety, ↓ depression, ↑ serotonin ($p < 0.001$)
Bayes et al. (2022)	Mediterranean whole-food diet (AMMEND)	RCT	72 young males, MDD	BDI-II depression score	Significant reduction vs control ($p < 0.05$)
Cabrera-Suárez et al. (2024)	Mediterranean diet (PREDIDEP)	RCT	Adults, elevated cardiometabolic risk	CES-D score	SMD = -0.23 (-0.38 to -0.09)
Kundu et al. (2022)	Dietary quality assessment	Cross-sectional	440 Indian students	PHQ-9, GAD-7	Good diet: AOR 2.15 (no depression); AOR 1.96 (no anxiety)

References: Majeed et al. (2024); Bayes et al. (2022); Cabrera-Suárez et al. (2024); Kundu et al. (2022)

Table 6 summarizes the findings of RCTs and observational studies that dietary interventions based on Sattvik principles can clinically significantly improve measures of anxiety and depression. The Ashwagandha a (a) mechanism-level mechanism-level efficacy is shown by the mechanism-level efficacy-enhancing serotonin increase in the double-blind RCT by Majeed et al. (2024). The trials AMMEND and PREDIDEP prove comparable results of Mediterranean whole-food diets functionally parallel to Sattvik patterns, which give solid multi-study support to the dietary complementary therapy model (Majeed et al., 2024; Bayes et al., 2022; Cabrera-Suárez et al., 2024).

6. Discussion

The Ayurvedic tradition and modern neuroscience converge to provide a lucrative framework to comprehend why Sattvik dietary compliance could lessen anxiety and depressive symptom load. The results of this review are in line with both objectives: the Sattvik dietary adherence correlates with lower GAD-7 and PHQ-9 severity scores, and the association is mediated by gut-brain axis, tryptophan-serotonin biosynthesis, and anti-inflammatory mechanisms. The tryptophan-serotonin pathway is the most basic one. Tryptophan is the essential amino acid that is the sole biosynthetic precursor of serotonin (5-HT), which is naturally abundant in sattvik foods whole grains, legumes, nuts, fruits, and seeds. About 95 percent of serotonin in the body is produced in enterochromaffin cells of the gastrointestinal tract, where the tryptophan in the diet is directly converted into serotonin (O'Mahony et al., 2015). The gut synthesizes serotonin, which controls the appetite, sleep, bowel movements, and mood and transmits information to the central nervous system through the vagus nerve. By continuously supplying the gut-brain axis with tryptophan-rich plant foods and dietary fiber that enhances a healthy gut microbiome, a Sattvik diet keeps the gut-brain axis in a healthy state to balance its neurochemicals. The mechanistic nature of Sattvik dietary principles, which are supported by dietary modulation of the gut microbiome in altering neuroinflammatory tone and directly acting on antidepressant response pathways, is confirmed by Donoso et al. (2023) and reflects millennia-old neuroscience foundations.

The anti-inflammatory aspect is also vital. There is a growing reconceptualization of depression and anxiety as partly inflammatory processes, and the presence of high C-reactive protein (CRP), interleukin-6 (IL-6) and TNF-alpha as biomarkers in clinical presentations. Adolpho and Tilg (2024) determined that chronic low-grade inflammation and gut dysbiosis are fuelled by Western diets with high levels of ultra-processed foods, refined sugars, and saturated fats, which directly promote the risk of depression. This association was quantified by Samuthpongton et al. (2023) in a large prospective cohort, which conclusively proved that the risk of depression increases significantly with greater consumption of ultra-processed foods, thus verifying the protective effect of the Sattvik dietary model by contrast. Sattvik herbs, especially Turmeric (curcumin) and Ashwagandha (withanolides) have direct anti-inflammatory as well as neuroendocrine regulatory action. The best quality of clinical evidence was provided by Majeed et al. (2024), which showed in a double-blind RCT that standardized Ashwagandha root extract with piperine significantly increased serum serotonin levels and decreased the GAD-7 and PHQ-9 scores ($p < 0.001$). In line with Objective 1, the data about the Indian context provided by Kundu et al. (2022) is especially important. Good dietary quality was observed to lower the risk of depressive symptoms (AOR = 2.15), and anxiety symptoms (AOR = 1.96) in multivariate-adjusted regressions of 440 university students. This national data supports the extrapolability of worldwide dietary-mental health results to the Indian community. Since university students in India are shifting towards more Rajasic and Tamasic eating habits that are characterized by a high intake of processed food products, refined carbohydrates, and caffeine that encourage Sattvik dietary principles in schools is an available, low-cost intervention with resources that have a strong level of evidence (Kundu et al., 2022; Solomou et al., 2023).

The dietary risk measured as the unhealthful plant-based diet index (uPDI) in the multicentric LIPOKAP study data by Haghghatdoost et al. (2023) further has OR of 1.53 and 1.95 in the highest uPDI quartile. This shows

that a plant-based label is inadequate quality of diet and wholeness (Sattvik attributes) are the key determinants of mental health benefit. This implication is directly comparable to the Ayurvedic understanding that even purported vegetarian cuisines can be Tamasic (stale, processed, or inert), and therefore mind-altering. There are two possible constraints that are worth consideration. To begin with, the majority of cross-sectional studies only determine association but not causation, longitudinal RCT directly assessing the impact of Sattvik dietary protocols on clinically diagnosed anxiety and depression in Indian populations is very much required. Second, the measurement of adherence to Sattvik dietary patterns is not standardized, validated Sattvik Diet Adherence Indices similar to the Mediterranean Diet Score would be of great benefit to this field of study. However, all three types of evidence, i.e., mechanistic, clinical, and epidemiological, point to the Sattvik diet as a scientifically-based, culturally-appealing, and practically-available complementary intervention in mental health management in India (Nancy et al., 2025; Aucoin et al., 2021; Dabravolskaj et al., 2024).

7. Conclusion

The Sattvik diet based on 5,000 years of Ayurvedic knowledge and now supported by modern neuroscience of nutrition is a strong argument in support of the Sattvik diet as a complementary treatment agent in the management of anxiety and depression. Its ingredient foods and herbs regulate the tryptophan-serotonin biosynthesis pathway, improves gut microbiome composition, decreases neuroinflammation, and regulates HPA axis, which culminates in calculable improvements in anxiety and the severity of depressive symptoms. The Sattvik diet provides a safe, economically feasible and culturally integrated complementary intervention to a treatment gap in India of 85% leaving most mentally ill individuals without care. It is highly suggested to incorporate Sattvik dietary principles in the public health programs, school curricula, and clinical care paths of mild-to-moderate anxiety and depression. Randomized controlled studies in future longitudinal studies are necessary on standardized Sattvik dietary protocols with validated adherence indices in order to provide definite clinical guidelines.

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