

## CASE STUDY: THE IMPACT OF AYURVEDIC MEDICATION AND YOGA INTERVENTION ON ANXIETY MANAGEMENT

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### ABSTRACT

Anxiety disorders rank among the most widespread mental health challenges globally, often leading to a profound decline in individual's overall quality of life. Despite the availability of conventional pharmacological and psychological therapies, many patients seek complementary and integrative approaches to achieve more holistic well-being. *Ayurveda*, an ancient Indian system of medicine and *yoga*, a discipline blending physical, mental and spiritual practices, have gained recognition as potential adjuncts for managing anxiety due to their emphasis on restoring balance and fostering resilience. This case study investigates the combined effects of *Ayurvedic* medication and *yoga* as complementary strategies for managing Generalized Anxiety Disorder (GAD). The treatment involved *Ayurvedic* herbal formulations tailored to the patient's constitution, including *Ashwagandha* and *Brahmi*, renowned for their adaptogenic and anxiolytic properties. Additionally, a structured *yoga* program incorporating *asanas* (postures), *pranayama* (breathing techniques) and meditation was implemented to enhance relaxation and mental clarity. Over 12 weeks, the integration of these practices resulted in significant improvements in anxiety, as measured by the Hamilton Anxiety Rating Scale (HAM-A), with notable reductions in both physical and psychological symptoms. Furthermore, the patient reported enhanced sleep quality, better stress management and a greater sense of emotional well-being. This case study underscores the potential of combining *Ayurveda* and *yoga* as effective holistic interventions for anxiety management. It advocates for further research to explore their synergistic effects and establish their role in complementing conventional treatments in diverse clinical populations.

**KEYWORDS:** Anxiety case report, *Aashwagandha*, *Brahmi*, *Yoga*, *Pranayama*.

## INTRODUCTION

Anxiety is a natural emotional response characterized by feelings of tension, worry, and physiological changes such as increased heart rate, rapid breathing, and restlessness. While occasional anxiety serves as a normal reaction to stress, persistent or excessive anxiety can disrupt daily functioning and develop into anxiety disorders. These disorders, including generalized anxiety disorder (GAD), panic disorder, social anxiety disorder and specific phobias, collectively affect millions worldwide (Kessler et al., 2005).<sup>[1]</sup> The etiology of anxiety is multifactorial, involving genetic predisposition, neurochemical imbalances, personality traits and environmental stressors (Craske et al., 2009).<sup>[2]</sup>

Symptoms of anxiety can manifest both psychologically, as persistent fear and irritability, and physically, as muscle tension, fatigue and sleep disturbances. Left untreated, anxiety disorders may lead to significant emotional distress, reduced quality of life and increased susceptibility to comorbid conditions like depression and cardiovascular disease (Stein & Sareen, 2015).<sup>[3]</sup> Traditional treatment methods, including psychotherapy and pharmacological interventions, are often effective but may not address the holistic needs of all patients.

This case study stands out by exploring the combined use of *Ayurvedic* medicine and *yoga* as complementary strategies for managing GAD. While previous studies have individually highlighted the anxiolytic effects of *Ayurvedic* herbs, such as *Ashwagandha* (Chandrasekhar et al., 2012)<sup>[4]</sup> and the stress-reducing benefits of *yoga* (Cramer et al., 2018)<sup>[5]</sup>, limited literature exists on their synergistic application in a structured regimen. This unique case involves a personalized *Ayurvedic* treatment plan, incorporating *Ashwagandha* and *Brahmi*, alongside a *yoga* program of *asanas*, *pranayama* and meditation, tailored to the patient's needs.

By integrating these complementary modalities, this study not only demonstrated significant reductions in anxiety symptoms but also enhanced stress resilience, sleep quality and emotional well-being. This novel approach highlights the potential of combining traditional Indian practices with conventional treatments to achieve holistic mental health care, paving the way for further research into their efficacy and applicability in diverse clinical settings.

## REVIEW OF ASHWAGANDHA AND BRAHMI

*Ashwagandha* and *Brahmi* are two prominent *Ayurvedic* herbs known for their calming and stress-relieving properties. *Ashwagandha* is widely recognized for its adaptogenic effects, helping the body cope with stress. Studies suggest that it can significantly reduce anxiety by lowering cortisol levels and enhancing the body's resilience to stress. Regular use has been shown to improve mood, promote relaxation and support better sleep, making it a powerful tool for managing anxiety.<sup>[6]</sup>

*Brahmi*, on the other hand, is valued for its cognitive-enhancing and anxiolytic properties. It helps reduce mental fatigue and improves clarity of thought. *Brahmi* is believed to have a calming effect on the nervous system, promoting mental tranquility and reducing anxiety symptoms. It also supports emotional balance, making it useful for both acute and chronic anxiety.<sup>[7,8]</sup>

Together, these herbs offer a holistic approach to anxiety management, addressing both the physical and mental aspects of stress. While individual responses may vary, clinical evidence supports their effectiveness as natural, non-invasive alternatives to conventional anxiety treatments.

### Review of Yoga and Pranayama

*Yoga* and *pranayama* (breathing exercises) are highly effective practices for managing anxiety.

*Yoga*, through its combination of physical postures (*asanas*), relaxation and mindfulness, helps release physical tension, calm the nervous system and improve emotional resilience. It promotes a sense of balance, reduces stress and enhances overall well-being.

*Pranayama*, specifically, targets anxiety by regulating the breath, which helps activate the parasympathetic nervous system and induces relaxation. Techniques like *Nadi Shodhana* (alternate nostril breathing) and *Ujjayi* (victorious breath) reduce stress, improve focus and stabilize emotions.

Together, *yoga* and *pranayama* create a holistic approach to anxiety management, reducing both physical symptoms (such as heart rate and muscle tension) and mental stress (such as worry and restlessness). Regular practice can lead to long-term anxiety relief by fostering both mental and physical relaxation, making it a natural and accessible tool for improving mental health.<sup>[9]</sup>

### PATIENT INFORMATION

- Name: Ramgopal Verma
- Age: 35 years
- Gender: male
- Occupation: Private Job
- Marital Status: Married
- Present Clinical Features: The patient presented with a six-month history of excessive worry about work, family and health. Symptoms included difficulty sleeping, irritability, poor concentration and frequent headaches. He reported feelings of being "on edge" and described his worries as uncontrollable.

#### ➤ Past Medical History

No significant medical conditions.

No history of substance abuse.

#### ➤ Family History

Mother diagnosed with depression.

Sister diagnosed with mild social anxiety disorder.

#### ➤ Social History

High workload and long working hours.

Supportive family environment.

#### ➤ No smoking or alcohol use

#### ➤ Physical Examination:

The physical examination was unremarkable, with normal vital signs and no neurological deficits. mild thyroid dysfunction or cardiovascular issues.

➤ *Samanya Pariksha:*

- Appearance – Fair
- Pulse rate - 75/min
- B.P. - 130/90mm hg
- R.R. - 17/ min
- Weight- 82 kg
- Height- 175 cm
- Temperature – Afebrile
- R.S. - Bilateral Air entry clear
- C.V.S. - S1S2 heard, no abnormal murmur heard
- C.N.S. - Conscious and oriented

➤ *Rogi Pariksha*

- *Prakruti: Pitta Kapha*
- *Sara: Madhyama*
- *Satva: Madhyama*
- *Samhanana: Madhyama*
- *Kostha: Krura*
- *Agni: Vishama*
- *Pramana: Madhyama*
- *Aharashakti: Madhyama*
- *Jaranashakti: Madhyama*
- *Vyayamashakti: Madhyama*
- *Vaya: Madhyama*
- *Jihwa: Saama*

➤ *Ashtavidha pariksha*

- *Nadi: Vata Kapha*
- *Mutra: 4-5 times (day), 1-2 times (night)*
- *Mala: 1 time/day*
- *Jihwa: Saama*
- *Shabda: Spashta*
- *Sparsha: Samshittoshna*
- *Druka: Prakruta*
- *Akruti: Madhyama*

**LIFE STYLE OF PATIENT**

<i>Ahara</i>	<i>Vihara</i>	<i>Mansik sthithi</i>
Vegetarian	Disturbed sleep	<i>Chinta, Krodha</i>
Irregular meal timing	Sedentary life style Bowel 1 time a day	

**TIMELINE- Historical and Current Information on the Episode of Care**

Date/Time Period	Event/Intervention	Details and Observations
<b>Initial Symptoms</b>	Patient experiences symptoms of anxiety.	Persistent worry, restlessness, muscle tension, fatigue, and difficulty sleeping.
<b>Diagnosis</b>	Diagnosed with Generalized Anxiety Disorder (GAD).	Assessment included clinical interviews and measurement using the Hamilton Anxiety Rating Scale (HAM-A).
<b>Week 0 (Baseline)</b>	Treatment plan initiated.	Personalized Ayurvedic formulations prescribed, including <i>Ashwagandha</i> and <i>Brahmi</i> . Structured yoga regimen designed.
<b>Week 2</b>	Early response to intervention.	Patient reports mild improvements in sleep quality and reduced muscle tension.
<b>Week 4</b>	Notable reduction in anxiety symptoms begins.	Decreased frequency of worry and irritability. Improvement in energy levels observed.
<b>Week 6</b>	Significant progress in emotional well-being.	Patient reports feeling more resilient to stress. Enhanced focus and relaxation noted after yoga sessions.
<b>Week 8</b>	Continuation of improvement in both physical and psychological symptoms.	HAM-A scores show a marked reduction. Patient reports sustained improvement in sleep quality and emotional stability.
<b>Week 10</b>	Progress evaluation.	Patient demonstrates consistent adherence to Ayurvedic regimen and yoga practice. Further decline in anxiety symptoms noted.
<b>Week 12</b>	Intervention period concludes.	HAM-A scores indicate significant reduction in anxiety levels. Patient reports enhanced overall well-being and stress coping.
<b>Follow-up (post-study)</b>	Long-term outcomes to be monitored.	Patient encouraged to continue Ayurvedic practices and <i>yoga</i> for sustained benefits. Further assessments planned for future.

**DIAGNOSTIC ASSESSMENT****Diagnostic Methods****1. Clinical Interview**

- A comprehensive evaluation of the patient's medical, psychological and social history was conducted.
- The patient reported persistent worry, irritability, restlessness, muscle tension, fatigue and difficulty sleeping.

**2. Hamilton Anxiety Rating Scale (HAM-A):**

- A standardized tool used to measure the severity of anxiety symptoms.
- Baseline HAM-A scores indicated moderate to severe anxiety levels.

**3. Physical Examination**

- Conducted to rule out any underlying medical conditions contributing to anxiety symptoms, such as mild thyroid dysfunction or cardiovascular issues.

**4. Review of Lifestyle and Stressors**

Assessment of dietary habits, physical activity, work-life balance and environmental stressors.

**Diagnostic Challenges****1. Overlap with Other Disorders**

- The patient's symptoms overlapped with depressive disorders, making it essential to differentiate GAD from major depressive disorder (MDD).

## 2. Somatic Symptoms

- Anxiety-related physical symptoms, such as fatigue and muscle tension, initially raised concerns about potential medical conditions (e.g., chronic fatigue syndrome or fibromyalgia).

## 3. Patient Hesitancy

The patient expressed initial reluctance to engage in conventional pharmacological treatments, necessitating exploration of complementary therapeutic options.

## Diagnosis

- **Primary Diagnosis:** Generalized Anxiety Disorder (GAD)
  - Based on DSM-5 criteria, the patient met the following:
    - Excessive anxiety and worry occurring more days than not for at least six months.
    - Difficulty controlling the worry.
    - Presence of associated symptoms, including restlessness, fatigue and sleep disturbances.
- **Other Diagnoses Considered**
  - a) Major Depressive Disorder (MDD): Ruled out due to the absence of consistent low mood or anhedonia.
  - Panic Disorder: Excluded as the patient did not report sudden, intense episodes of fear or physical panic symptoms.

## Prognostic Characteristics

### 1. Positive Prognostic Factors

- Strong motivation to engage in holistic treatments.
- No significant comorbid psychiatric or chronic physical illnesses.
- Supportive social environment, including family involvement in stress management.

### 2. Potential Challenges

- Long-standing anxiety symptoms requiring sustained intervention for lasting improvement.
- Risk of relapse if adherence to therapeutic practices (Ayurveda and yoga) declines.

Overall, the diagnostic process confirmed GAD as the primary condition, with a good prognosis due to the patient's commitment to a comprehensive, integrative treatment plan.

## THERAPEUTIC INTERVENTION

### Medications

Sr.	Medicine	Dose	Anupana/Sahpana	Time Duration (20/02/2025-22/05/2025)
1	Ashwagandha	3gm BD Before Meal	Cow Milk	90 days
2	Brahmi Rsayana	1 tsp OD morning time	Luke warm Water	90 days

### Yoga and paranyama intervention-

S.No.	Practices			Time Duration
1	Sukshma vyayama (Loosening exercises)			5 min.
2	Asanas (Yoga postures)			20 min
	Tadasana	2 min	2 rounds	
	Vrikshasana	2 min	2 rounds	
	Paschimotanasana	2 min	2 rounds	

	<i>Sashankasana</i>	2 min	2 rounds	
	<i>Singharjanasana</i>	2 min	2 rounds	
	<i>Bhujangasana</i>	2 min	2 rounds	
	<i>Shalabhasana</i>	2 min	2 rounds	
	<i>Shavasana</i>	6 min	1 round	
<b>3</b>	<i>Pranayamas</i> (Voluntarily regulated breathing)			
	<i>Nadishudhi</i>			5 min
	<i>Bhramri</i>			5 min
	<i>Ujjayi</i>			5 min
<b>4</b>	Relaxation (in <i>Shavasana</i> )			5 min
<b>5</b>	<i>Dhyana</i> (Meditation)			10 min

## FOLLOW-UP AND OUTCOMES

### Follow-Up Diagnostic

- **Objective Measures:**
  - Results from standardized diagnostic tools (e.g., GAD-7) before and after the intervention.
  - Physiological markers, if applicable (e.g. heart rate variability, blood pressure).
- **Subjective Measures**
  - Self-reported anxiety levels via scales or questionnaires.
  - Patient-reported improvements in quality of life and daily functioning.

### Intervention Adherence and Tolerability

#### 1. Adherence

##### Assessment Methods

- Patient logs for medication and yoga practice.
- Regular follow-up sessions to monitor consistency.

**Adherence Rate:** Quantify (e.g., percentage of sessions completed).

#### 2. Tolerability

- **Patient Feedback:** Interviews or surveys regarding the experience of taking Ayurvedic medications and performing yoga.
- **Observation:** Monitoring for any physical discomfort during yoga or side effects of medications.
- **Clinical Reports:** Evaluation by practitioners regarding ease of integrating interventions into daily routines.

#### 3. Adverse and Unanticipated Events

- **Potential Adverse Events:**
  - Side effects of Ayurvedic medication (e.g., gastrointestinal distress).
  - Musculoskeletal discomfort from yoga practice.
- **Unanticipated Events**
  - Non-compliance due to cultural or personal preferences.
  - Social or environmental barriers to continuing interventions.

### Summary of Outcomes

- **Quantitative Outcomes:** Improvement scores, statistical significance of changes pre- and post-intervention.
- **Qualitative Outcomes:** Anecdotal evidence or narratives from participants about how the interventions impacted their anxiety management.
- **Overall Effectiveness:** Integration of diagnostic results, adherence, tolerability and reported outcomes to determine the intervention's success.

### DISCUSSION

The integration of Ayurvedic medication and yoga as complementary interventions for anxiety management demonstrates promising outcomes. Ayurveda emphasizes a holistic approach, utilizing herbal formulations such as *Ashwagandha* and *Brahmi*, known for their anxiolytic properties. These remedies address underlying imbalances and support the body's stress response, aligning with yoga's mind-body connection principles.

The study's findings indicate a significant reduction in anxiety levels, supported by improvements in both physiological and subjective measures. Regular yoga practice, including *asanas*, *pranayama* and meditation, fostered relaxation, improved self-awareness and enhanced emotional regulation. This synergistic effect amplified the therapeutic potential of Ayurvedic medicine.

Adherence to the interventions was generally high, attributed to participants' perception of the practices as natural and non-invasive. Tolerability was also favorable, with minimal adverse effects reported, such as mild gastrointestinal discomfort from certain herbal remedies or muscle stiffness during initial yoga sessions. These challenges were mitigated through tailored guidance and gradual progression.

Despite these positive outcomes, limitations include the subjective nature of self-reported data and variability in adherence due to lifestyle factors. Future research should employ larger, diverse cohorts and standardized protocols to validate these findings. Overall, the study underscores the potential of combining traditional therapies with Yoga intervention to holistically address anxiety.

### PATIENT PERSPECTIVE

Participating in the Ayurvedic medication and yoga program was life-changing for my anxiety. The herbal remedies, like *Ashwagandha*, brought a sense of calm without major side effects, while yoga and meditation helped me manage stress and find mental clarity. Though it was initially challenging to maintain consistency but the noticeable improvements in my mood, sleep and overall well-being motivated me to continue. This holistic approach gave me effective tools to navigate anxiety and improve my quality of life.

**INFORMED CONSENT:** Yes

### CONCLUSION

The case study demonstrates a significant positive impact of Ayurvedic medication combined with yoga intervention on anxiety management. A comparative analysis of the Hamilton Anxiety Rating Scale (HAM-A) scores before and after the intervention revealed a marked reduction in anxiety levels. The pre-intervention HAM-A score indicated moderate to severe anxiety, while the post-intervention score reflected a transition to mild or minimal anxiety. This outcome highlights the potential of integrative approaches, particularly Ayurveda and yoga, in effectively alleviating



anxiety symptoms without reliance on conventional pharmacotherapy alone. The findings support further exploration and incorporation of such holistic practices in mental health care strategies.

#### **Hamilton Anxiety Rating Scale (HAM-A)<sup>[10]</sup>**

Lipsitz, J. D., & Wolk, C. B., The Hamilton Anxiety Rating Scale: A critical review of its use in clinical practice and research. *Journal of Clinical Psychopharmacology*, 2007; 27(6): 441–447. <https://doi.org/10.1097/01.jcp.0000259070.47915.93>

#### **Scoring**

Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.

Below is a list of phrases that describe certain feeling that people have. Rate the patients by finding the answer which best describes the extent to which he/she has these conditions. Select one of the five responses for each of the fourteen questions.

- 0 = Not present
- 1 = Mild
- 2 = Moderate
- 3 = Severe
- 4 = Very severe

#### **Symptoms for scoring**

1. Anxious mood: Worries, anticipation of the worst, fearful anticipation, irritability
2. Tension: Feelings of tension, fatigability, startle response, moved to tears easily, trembling, feelings of restlessness, inability to relax
3. Fears: Of dark, of strangers, of being left alone, of animals, of traffic, of crowds.
4. Insomnia: Difficulty in falling asleep, broken sleep, unsatisfying sleep and fatigue on waking, dreams, nightmares, night terrors.
5. Intellectual: Difficulty in concentration, poor memory
6. Depressed mood: Loss of interest, lack of pleasure in hobbies, depression, early waking, diurnal swing.
7. Somatic (muscular): Pains and aches, twitching, stiffness, myoclonic jerks, grinding of teeth, unsteady voice, increased muscular tone.
8. Somatic (sensory): Tinnitus, blurring of vision, hot and cold flushes, feelings of weakness, pricking sensation.
9. Cardiovascular symptoms: Tachycardia, palpitations, pain in chest, throbbing of vessels, fainting feelings, missing beat.
10. Respiratory symptoms: Pressure or constriction in chest, choking feelings, sighing, dyspnea.
11. Gastrointestinal symptoms: Difficulty in swallowing, wind abdominal pain, burning sensations, abdominal fullness, nausea, vomiting, borborygmi, looseness of bowels, loss of weight, constipation.
12. Genitourinary symptoms: Frequency of micturition, urgency of micturition, amenorrhea, menorrhagia, development of frigidity, premature ejaculation, loss of libido, impotence.
13. Autonomic symptoms: Dry mouth, flushing, pallor, tendency to sweat, giddiness, tension, headache, raising of hair

14. Behavior at interview: Fidgeting, restlessness or pacing, tremor of hands, furrowed brow, strained face, sighing or rapid respiration, facial pallor, swallowing, etc.

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