



# **Ayurvedic Management of Pediatric Behavioral Disorders with Special Reference to Shirodhara – A Review**

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## **Abstract**

Pediatric behavioral disorders are increasingly prevalent in the present era due to rapid lifestyle changes, academic stress, excessive screen exposure, disturbed sleep patterns, and improper dietary habits. These disorders commonly manifest as hyperactivity, inattention, irritability, anxiety, aggression, and emotional instability, significantly affecting a child's cognitive, social, and academic development. Ayurveda explains such conditions under the derangement of Manovaha Srotas, imbalance of Vata and Pitta Dosha, and depletion of Ojas, leading to impaired mental functions such as *Dhi*, *Dhriti*, and *Smriti*.

Shirodhara, a unique Panchakarma procedure, involves the continuous pouring of medicated liquids over the forehead and is described as a potent therapy for mental and neuropsychological disorders. It exerts a calming effect on the central nervous system, promotes neuroendocrine balance, improves sleep quality, and stabilizes mental functions. Along with Shirodhara, the use of Medhya Rasayana, appropriate dietary regulation, behavioral modification, and Satvavajaya Chikitsa plays a vital role in comprehensive management.

This review aims to highlight the Ayurvedic perspective of pediatric behavioral disorders and evaluate the therapeutic role of Shirodhara as a safe, noninvasive, and holistic treatment modality. The available classical references and contemporary studies suggest that Shirodhara is effective in reducing behavioral symptoms, improving attention span, emotional regulation, and overall quality of life in children. Thus, an integrative Ayurvedic approach with special emphasis on Shirodhara may offer promising outcomes in the management of pediatric behavioral disorders.

## **Keywords:**

Pediatric behavioral disorders, Shirodhara, Manovaha Srotas, Medhya Rasayana, Ayurveda, Satvavajaya Chikitsa, Child mental health

## **Introduction**

Childhood represents a crucial phase of physical, psychological, and emotional development. Behavioral disorders in children have become increasingly prevalent due to changing lifestyle patterns, academic pressure, altered family dynamics, excessive screen exposure, improper dietary habits, and disturbed sleep routines. These disorders commonly present as hyperactivity, inattention, impulsivity, anxiety, irritability, aggression, and emotional instability, which significantly interfere with learning ability, social interaction, and overall quality of life. In contemporary pediatrics, the rising incidence of conditions such as attention deficit hyperactivity disorder, anxiety disorders, and emotional disturbances has emerged as a major public health concern<sup>1</sup>.

Ayurveda emphasizes the importance of balanced development of Sharira and Manas from early childhood. Mental health in children is governed by the proper functioning of Manovaha Srotas, equilibrium of Tridosha, and integrity of Ojas, which together maintain stability of *Dhi* (intellect), *Dhriti* (retention), and *Smriti* (memory)<sup>2</sup>. Disturbance in these factors, particularly vitiation of Vata Dosha along with aggravation of Raja and Tama Guna, leads to behavioral abnormalities and impaired psychological functions<sup>3</sup>. Classical Ayurvedic texts describe several pediatric mental and behavioral conditions under entities such as *Unmada*,

*Apasmara*, *Chittodvega*, and *Bala Graha*, which resemble modern behavioral and neurodevelopmental disorders<sup>4</sup>.

The management of pediatric behavioral disorders in modern medicine largely relies on behavioral therapy and pharmacological interventions, which may be associated with adverse effects, dependency, and limited long-term benefits<sup>5</sup>. Hence, there is a growing demand for safe, noninvasive, and holistic therapeutic approaches. Ayurveda offers a comprehensive treatment strategy through Daivavyapashraya, Yuktvayapashraya, and Satvavajaya Chikitsa, aiming at correcting both somatic and psychological imbalances<sup>6</sup>.

Among the Panchakarma procedures, Shirodhara is considered highly beneficial in disorders of the mind. It involves the continuous and rhythmic pouring of medicated liquids over the forehead region, producing a tranquilizing effect on the central nervous system. Classical texts describe Shirodhara as effective in relieving stress, anxiety, insomnia, fear, and mental instability by regulating Vata Dosha and enhancing mental clarity<sup>7</sup>. Recent clinical observations suggest that Shirodhara helps in improving attention span, emotional stability, sleep quality, and behavioral control in children<sup>8</sup>.

Therefore, the present review aims to explore the Ayurvedic understanding of pediatric behavioral disorders and to critically evaluate the role of Shirodhara as a supportive and effective therapeutic modality in their management.

## Aims & Objectives

### Aim:

To review the Ayurvedic concept and management of pediatric behavioral disorders with special reference to the role of Shirodhara.

### Objectives:

1. To understand pediatric behavioral disorders from an Ayurvedic perspective.
2. To study the involvement of Manovaha Srotas, Dosha, and Guna in behavioral disturbances.
3. To review classical references related to Shirodhara in mental disorders.
4. To evaluate the therapeutic significance of Shirodhara in pediatric behavioral conditions.
5. To assess the scope of Shirodhara as a safe and holistic treatment modality in children.

## Materials and Methods

The present study is a conceptual and narrative review based on classical Ayurvedic texts and contemporary literature. Relevant references were collected from Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Kashyapa Samhita, and their available commentaries. Modern scientific articles related to pediatric behavioral disorders and Shirodhara were retrieved from published journals, textbooks, and electronic databases. The collected data were critically analyzed to understand the Ayurvedic pathogenesis, treatment principles, and the therapeutic role of Shirodhara in pediatric behavioral disorders.

## Detailed Review

### 1. Concept of Pediatric Behavioral Disorders in Ayurveda

Ayurveda does not describe pediatric behavioral disorders as a single disease entity; however, various behavioral and psychological abnormalities observed in children can be understood under disturbances of Manas, Manovaha Srotas, and Tridosha. Normal psychological functioning depends on the balanced state of *Dhi* (intellect), *Dhriti* (control), and *Smriti* (memory). Any impairment in these faculties leads to abnormal behavior, poor attention, emotional instability, and learning difficulties.

In children, the dominance of Kapha Dosha during *Balyavastha* provides stability and growth; however, improper Ahara and Vihara can provoke Vata Dosha, resulting in restlessness, fear, impulsivity, and inattentiveness. Simultaneous aggravation of Pitta Dosha manifests as irritability, anger, aggression, and intolerance. Thus, pediatric behavioral disorders are primarily considered Vata–Pitta predominant Manasika Vyadhi.

### 2. Manovaha Srotas and Behavioral Regulation

Manovaha Srotas is responsible for the conduction and expression of mental functions. Its Mula Sthana is described as Hridaya and Manas. Vitiation of this channel leads to symptoms such as anxiety, hyperactivity, mood fluctuations, sleep disturbances, fear, and emotional instability. Continuous exposure to stress, excessive sensory stimulation, irregular routines, and incompatible diet further aggravate Manovaha Srotodushti in children.

### 3. Role of Manasika Dosha (Raja and Tama)

Mental health in Ayurveda is regulated by Sattva, Raja, and Tama Guna. In pediatric behavioral disorders, predominance of Raja Guna leads to hyperactivity, impulsiveness, anger, and restlessness, whereas dominance of Tama Guna results in dullness, poor comprehension, lethargy, and withdrawal. Reduction of **Sattva Guna** impairs emotional control and cognitive development, highlighting the importance of Satvavajaya Chikitsa in management.

### 4. Ayurvedic Correlation of Pediatric Behavioral Disorders

Several clinical conditions described in classical texts resemble modern behavioral disorders:

Ayurvedic Concept	Clinical Correlation
Chittodvega	Anxiety disorders
Unmada (mild form)	Behavioral dysregulation
Apasmara (psychological aspects)	Neurobehavioral symptoms
Bala Graha	Developmental and behavioral disorders

These descriptions support the holistic understanding of pediatric mental health in Ayurveda.

### 5. Principles of Management in Ayurveda

Ayurvedic management of pediatric behavioral disorders is multidimensional and includes:

- Nidana Parivarjana – avoidance of causative factors
- Ahara and Vihara regulation – proper diet, sleep, routine
- Medhya Rasayana – for cognitive enhancement
- Satvavajaya Chikitsa – behavioral and psychological control
- Panchakarma therapies – especially Murdhni Taila procedures

Among these, Shirodhara plays a significant role in calming the mind and regulating neuropsychological functions.

### 6. Shirodhara: Concept and Procedure

Shirodhara is a specialized Panchakarma therapy in which a continuous stream of medicated liquid is poured rhythmically over the forehead region, particularly over the *Sthapani Marma*. Liquids used include Taila, Takra, Ksheera, or Kwatha, selected according to Dosha predominance.

The therapy is classified under Murdhni Taila, which nourishes the sense organs and pacifies Vata and Pitta Dosha. Classical texts indicate its effectiveness in conditions involving mental stress, insomnia, fear, anxiety, and emotional instability.

### 7. Mode of Action of Shirodhara (Ayurvedic Perspective)

From an Ayurvedic viewpoint, Shirodhara acts by:

- Pacifying aggravated Vata Dosha, the main regulator of mental activity
- Enhancing Sattva Guna and reducing Raja and Tama
- Nourishing Majja Dhatus and strengthening Manovah Srotas
- Providing *Hridaya and Indriya Prasadana*
- Improving sleep and emotional balance

### 8. Mode of Action of Shirodhara (Modern Perspective)

Modern explanations suggest that Shirodhara produces:

- A constant pressure and vibratory stimulus over the forehead
- Regulation of hypothalamic–pituitary–adrenal (HPA) axis
- Reduction in cortisol levels
- Activation of parasympathetic nervous system
- Improvement in sleep architecture and emotional regulation

These effects collectively contribute to behavioral stabilization and improved attention in children.

### 9. Role of Shirodhara in Pediatric Behavioral Disorders

Clinical observations indicate that Shirodhara helps in:

- Reducing hyperactivity and restlessness
- Improving attention span and concentration
- Enhancing sleep quality

- Decreasing anxiety and irritability
- Improving emotional control and social behavior

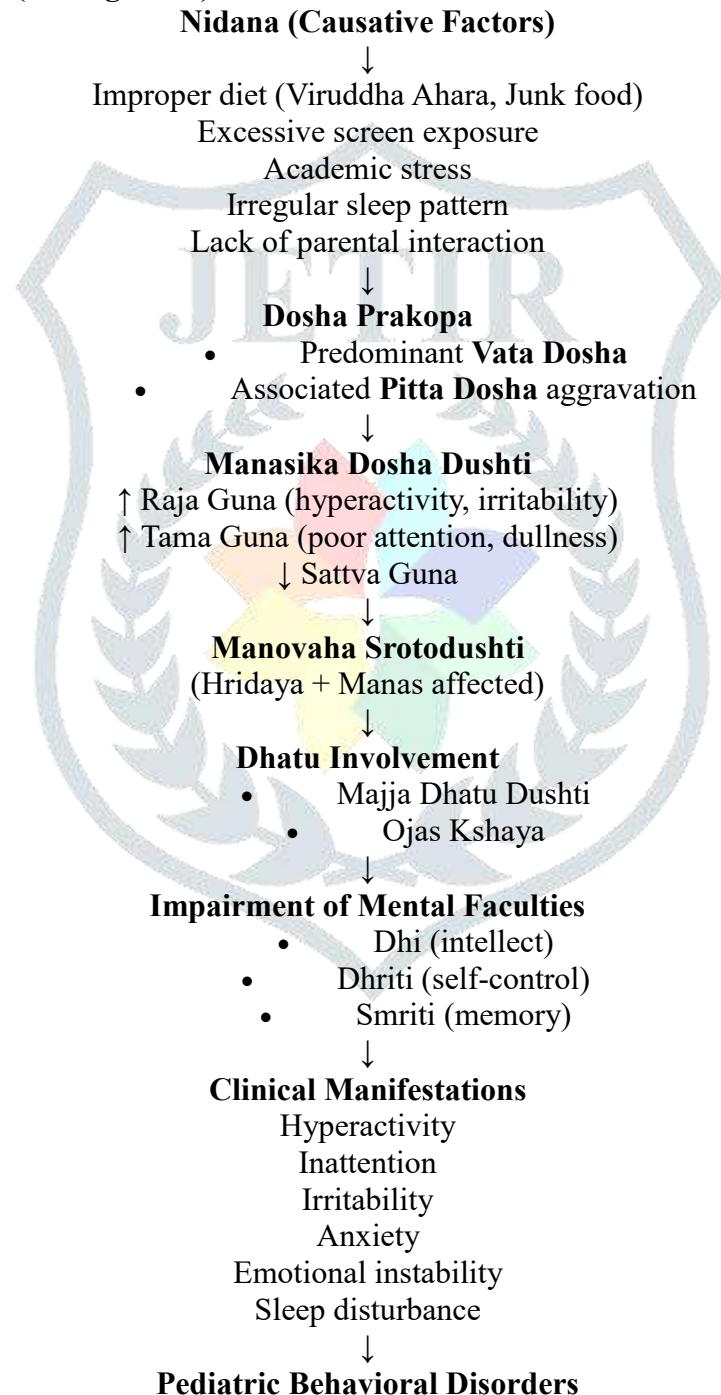
When administered in age-appropriate manner with mild medicated liquids, Shirodhara is considered safe and well tolerated in pediatric patients.

## 10. Supportive Therapies

Shirodhara is more effective when combined with:

- Medhya Rasayana** (Brahmi, Mandukaparni, Guduchi, Shankhapushpi)
- Abhyanga** with medicated oils
- Nasya (mild form)** in selected cases
- Counseling and parental guidance**

### Flowchart of Samprapti (Pathogenesis)



## Discussion

Pediatric behavioral disorders represent a growing challenge in contemporary healthcare due to early exposure to psychosocial stressors, digital overuse, altered lifestyle, and reduced physical activity. Modern medicine explains these disorders mainly through neurochemical imbalance, cortical dysregulation, and

altered executive functioning. However, long-term pharmacological therapy in children often raises concerns regarding dependency, adverse effects, and incomplete behavioral normalization.

Ayurveda provides a broader and more holistic understanding of these conditions by emphasizing the interaction between Sharira, Manas, Dosha, and Guna. According to Ayurvedic principles, mental health is not restricted to brain function alone but depends upon the harmonious functioning of Manovaha Srotas, balance of Tridosha, and predominance of Sattva Guna. Pediatric age is physiologically Kapha dominant; however, irregular Ahara and Vihara precipitate Vata–Pitta imbalance, leading to behavioral instability.

The concept of impairment of Dhi, Dhriti, and Smriti forms the core pathological basis for pediatric behavioral disorders. Increased Raja Guna produces restlessness, impulsivity, anger, and hyperactivity, while Tama Guna leads to dullness, poor comprehension, and reduced motivation. This dual imbalance closely resembles modern descriptions of attention deficit, emotional dysregulation, and executive dysfunction.

Shirodhara plays a crucial therapeutic role by acting directly on the functional axis of Manas and Majja Dhatu. From an Ayurvedic standpoint, the continuous rhythmic flow over the forehead pacifies Vata Dosha, stabilizes mental fluctuations, enhances Sattva Guna, and nourishes higher neurological centers. The therapy also supports Hridaya, considered the seat of consciousness.

From a modern physiological perspective, Shirodhara induces deep relaxation by stimulating the hypothalamic region and modulating the hypothalamic–pituitary–adrenal (HPA) axis. Reduction in stress hormones and enhancement of parasympathetic dominance explain improvements in sleep, attention, and emotional regulation observed clinically.

Thus, Shirodhara serves as a bridge between classical Ayurvedic principles and modern neurophysiological mechanisms. When combined with Medhya Rasayana, Satvavajaya Chikitsa, and lifestyle regulation, it offers a safe, noninvasive, and holistic management strategy for pediatric behavioral disorders.

### Mode of Action of Shirodhara

Ayurvedic Perspective	Modern Perspective
Pacifies aggravated Vata Dosha	Calms central nervous system
Reduces Raja and Tama Guna	Reduces stress and anxiety levels
Enhances Sattva Guna	Improves emotional regulation
Strengthens Manovaha Srotas	Modulates neuroendocrine pathways
Nourishes Majja Dhatu	Improves neuronal functioning
Improves Dhi, Dhriti, Smriti	Enhances attention and cognition
Promotes Nidra (sound sleep)	Regulates sleep–wake cycle
Provides Hridaya Prasadana	Activates parasympathetic dominance
Acts as Manas Shamana therapy	Lowers cortisol levels

### Clinical Significance

Pediatric behavioral disorders require a gentle, safe, and holistic approach due to the sensitive developmental stage of childhood. Ayurveda offers a comprehensive management strategy that addresses not only behavioral symptoms but also the underlying imbalance of Dosha, Manas, and lifestyle factors. Shirodhara, being a noninvasive and well-tolerated Panchakarma procedure, holds significant clinical value in pediatric practice. Clinically, Shirodhara helps in reducing hyperactivity, restlessness, irritability, anxiety, and sleep disturbances commonly observed in behavioral disorders. It improves attention span, emotional stability, and adaptability in children, thereby enhancing academic performance and social interaction. The therapy promotes mental relaxation without the risk of drug dependency or sedation, which is a major concern in conventional pharmacological management.

Shirodhara also strengthens Manovaha Srotas and supports Majja Dhatu, contributing to better neurodevelopment and psychological resilience. When administered along with Medhya Rasayana, proper dietary regulation, parental counseling, and Satvavajaya Chikitsa, it provides sustained clinical benefits. Thus, Shirodhara can be effectively utilized as a supportive, complementary, and preventive therapy in pediatric behavioral disorders, improving overall quality of life for both children and caregivers.

### Limitations and Future Scope

#### Limitations

- Limited large-scale randomized controlled clinical trials evaluating Shirodhara in pediatric behavioral disorders.

- Lack of standardized protocols regarding duration, frequency, and selection of medicated liquids for children.
- Variability in age, temperament, and severity of behavioral symptoms may influence therapeutic outcomes.
- Difficulty in objective assessment due to subjective behavioral parameters.
- Limited awareness and acceptance of Panchakarma therapies in pediatric populations.

## Future Scope

- Conducting multicentric clinical trials to establish scientific evidence and standard treatment guidelines.
- Development of age-specific Shirodhara protocols suitable for pediatric patients.
- Integration of Ayurvedic therapies with behavioral therapy and counseling for comprehensive care.
- Neurophysiological studies to evaluate changes in brain activity, stress hormones, and sleep patterns following Shirodhara.
- Exploration of Shirodhara as a preventive intervention in early childhood to promote mental well-being.

## Conclusion

Pediatric behavioral disorders constitute a growing challenge in present-day clinical practice due to increasing psychosocial stressors, lifestyle alterations, and early exposure to digital environments. Conventional management approaches, though beneficial, often provide symptomatic relief with limitations related to long-term safety and sustainability. In this context, Ayurveda offers a holistic and individualized framework that addresses the fundamental causes of behavioral disturbances rather than merely suppressing symptoms.

The Ayurvedic understanding of pediatric behavioral disorders is deeply rooted in the concepts of Manovaha Srotas Dushti, Vata–Pitta Dosha imbalance, predominance of Raja and Tama Guna, and impairment of Dhi, Dhriti, and Smriti. This multidimensional approach allows comprehensive assessment of psychological, physiological, and environmental factors influencing child behavior.

Shirodhara emerges as a valuable therapeutic modality due to its calming, nourishing, and stabilizing effects on the mind and nervous system. By pacifying Vata Dosha, enhancing Sattva Guna, and strengthening Majja Dhatus, Shirodhara helps restore mental equilibrium and emotional stability. Its noninvasive nature, safety profile, and favorable tolerability make it particularly suitable for pediatric patients. The observed benefits in attention, sleep quality, emotional regulation, and behavioral control highlight its clinical relevance.

When administered as part of an integrative Ayurvedic treatment protocol incorporating Medhya Rasayana, Satvavajaya Chikitsa, dietary regulation, and parental counseling, Shirodhara offers sustained therapeutic outcomes. Therefore, it can be considered an effective supportive and complementary therapy in the management of pediatric behavioral disorders.

In conclusion, Shirodhara represents a promising Ayurvedic intervention that bridges classical wisdom with contemporary neurobehavioral understanding. Further scientific exploration and standardized clinical studies are warranted to strengthen its evidence base and facilitate its integration into holistic pediatric mental healthcare.

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