American Journal of Psychiatric Rehabilitation

Expert Opinion Article

The Neuro-Endocrine Impact of *Sutika Paricharya*: A Review of Postpartum *Ayurvedic* Regimens in Regulating the HPA Axis and Preventing Maternal Morbidity

Dr.Varsha[1*], Dr. Hemant Kumar[2], Dr. Ankita Chouhan [3]

[1] Assistant Professor, Department of Stri Roga evam Prasuti Tantra, Shri Bhanwar Lal Dugar Ayurved Vishva Bharti, Sardarsharhar, Churu, Rajasthan E mail- varshadhaka95@gmail.com
[2]Assistant Professor, PG Department of Stri Roga evam Prasuti Tantra, Post Graduate Institute of Ayurved, Dr S R Rajasthan Ayurved University Jodhpur E mail- hemant5menaria@gmail.com
[3]PG Scholar PG Department of Stri Roga evam Prasuti Tantra, Post Graduate Institute of Ayurved, Dr S R Rajasthan Ayurved University Jodhpur E mail- ankitadabi1909@gmail.com

***Corresponding Author-** Dr.Varsha
(E mail- varshadhaka95@gmail.com)

Abstract
The postpartum period, recognized in Ayurveda as *Sutika Kala*, represents one of the most physiologically and psychologically volatile phases in the female reproductive lifecycle. This transition is characterized by a dramatic recalibration of the Hypothalamic-Pituitary-Adrenal (HPA) axis following the abrupt withdrawal of placental hormones, most notably Corticotropin-Releasing Hormone (CRH). Failure to successfully navigate this transition often results in significant maternal morbidity, including postpartum depression (PPD), chronic pain, and metabolic dysfunction. Ayurveda identifies this phase as a state of *Shunya Sharira* (empty body), characterized by severe *Vata* aggravation and *Dhatu Kshaya* (tissue depletion). The classical regimen of *Sutika Paricharya*—comprising specific dietetics (*Ahara*), lifestyle modifications (*Vihara*), and herbal interventions (*Aushadha*)—offers a comprehensive therapeutic framework for stabilization. This review synthesizes traditional Ayurvedic wisdom with contemporary neuro-endocrine research to explore how specific interventions, such as *Abhyanga* (oleation therapy) and the administration of *Rasayana* herbs like *Shatavari* (*Asparagus racemosus*), regulate the HPA axis. By promoting oxytocinergic pathways and dampening excessive cortisol reactivity, *Sutika Paricharya* serves as a biological buffer against the neuro-hormonal "vacuum" of the early puerperium. This integrated perspective provides a robust model for preventing postpartum morbidity and enhancing maternal health outcomes in a clinical setting.

Keywords Sutika Paricharya, HPA Axis, Postpartum Depression, Vata Shamana, Neuro-endocrinology, Shatavari, Maternal Morbidity, Shunya Sharira.

1. Introduction

The transition from the gestational state to the postpartum period is arguably the most acute endocrine event experienced by any mammal. Within minutes of parturition, the delivery of the placenta results in the immediate loss of a massive endocrine organ that has dominated maternal physiology for nine months. The maternal Hypothalamic-Pituitary-Adrenal (HPA) axis, which undergoes significant hyperactivity during pregnancy due to placental CRH secretion, suddenly finds itself in a state of suppressed feedback. This "neuro-endocrine vacuum" is a primary catalyst for various postpartum morbidities, most notably Postpartum Depression (PPD), which affects approximately 10% to 15% of women globally.

In the biomedical framework, the puerperium is defined by hemodynamic stabilization and uterine involution. However, the psychological and neurological dimensions of this phase are increasingly recognized as critical to long-term health. Dysregulation of the HPA axis, evidenced by a loss of the rhythmic coupling between Adrenocorticotropic Hormone (ACTH) and cortisol, has been identified as a hallmark of PPD and chronic fatigue syndromes. Furthermore, the lack of an adequate "stress buffer" traditionally provided by oxytocin during lactation—can leave the mother vulnerable to environmental stressors.

Ayurveda, the ancient Indian system of medicine, approaches the postpartum stage through the concept of *Sutika Kala*. The Ayurvedic perspective emphasizes that the mother's body becomes *Shunya* (empty) and is dominated by *Vata Dosha*. The primary clinical objective during this time is to pacify *Vata*, restore *Agni* (digestive fire), and replenish the *Dhatus* (tissues) that were depleted during labor. The classical texts, including the *Charaka Samhita*, *Sushruta Samhita*, and *Kashyapa Samhita*, delineate a meticulous regimen known as *Sutika Paricharya*.

This research paper aims to evaluate the neuro-endocrine implications of *Sutika Paricharya*. By mapping the effects of traditional practices—such as medicated oil massage (*Abhyanga*), thermal therapy (*Swedana*), and the consumption of specific galactagogues and adaptogens—onto modern neuro-hormonal pathways, we can begin to understand the biological mechanisms behind these ancient regimens. The ultimate goal is to provide a scientific rationale for integrating Ayurvedic postpartum care into contemporary maternal healthcare to mitigate global maternal morbidity.

2. Methodology

This review utilized a dual-domain research methodology, synthesizing evidence from classical Ayurvedic texts and modern peer-reviewed scientific literature.

2.1. Data Sources and Retrieval

The Ayurvedic review was conducted by identifying relevant chapters and verses (Shlokas) in the *Brihatrayi* (the "Great Trilogy" of *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*) and the *Kashyapa Samhita*, which is the foundational text for Kaumarbhritya (Pediatrics) and Prasuti Tantra (Obstetrics). Key search terms in Sanskrit included *Sutika*, *Sutika Kala*, *Shunya Sharira*, *Garbhashaya Shuddhi*, and *Stanya Janana*.

The modern scientific review utilized databases including PubMed, Scopus, and the Cochrane Library. The search strategy focused on the pathophysiology of the HPA axis during the postpartum period, the neurobiology of maternal-infant bonding, and the pharmacological properties of key Ayurvedic botanicals. Search strings included "HPA axis postpartum dysregulation," "cortisol reactivity breastfeeding," "oxytocin HPA interaction," and "phytochemistry of Shatavari and Dashamoola".

2.2. Analysis and Synthesis

The identified data points were analyzed for causal relationships and physiological overlaps. For instance, the Ayurvedic concept of *Vata Shamana* was analyzed in the context of parasympathetic activation and cortisol reduction. The state of *Agni Mandya* (depleted digestion) was correlated with the metabolic slowdown observed in states of HPA suppression. All findings were synthesized into a cohesive narrative that details the mechanistic pathways through which *Sutika Paricharya* stabilizes the maternal neuro-endocrine system.[i]

3. Literery Review:

3.1. Pathophysiology: The Intersection of HPA Axis and Shunya Sharira

The transition from pregnancy to the puerperium is marked by a structural and functional reset of the endocrine system. To understand how *Sutika Paricharya* influences this process, we must first examine the inherent vulnerabilities of the postpartum state.

3.1.1. Modern Perspective: HPA Axis Dysregulation

During the third trimester of pregnancy, the placenta secretes massive quantities of CRH into the maternal circulation. Unlike the hypothalamic CRH, placental CRH is stimulated by cortisol, creating a feedforward loop that results in significant hypercortisolemia. This state is biologically necessary to support fetal development and prepare the mother for the stress of labor. However, upon delivery of the placenta, this primary source of CRH is abruptly removed.

The maternal hypothalamus, having been suppressed by months of high placental CRH and cortisol, does not immediately regain its pulsatile rhythmicity. This results in a state of relative adrenal insufficiency or "HPA blunting". Research shows that women with PPD exhibit a specifically blunted HPA response, characterized by higher ACTH levels that fail to stimulate an appropriate cortisol response—indicative of a loss of feedback sensitivity.

3.1.2. Ayurveda Perspective: Shunya Sharira and Vata Dominance

Ayurveda describes the postpartum body as *Shunya* (empty). This concept is rooted in the sudden physical and energetic void created by the loss of the fetus, amniotic fluid, and placenta.

- **Sanskrit Definition of *Sutika***

According to Acharya Sushruta:

*सुतीका तु खलु सा या गर्भमुत्सृज्य अपरामुत्सृजति । (Sushruta Samhita, Sharira Sthana 10/16)***:** A woman is designated as *Sutika* specifically after she has expelled the fetus and subsequently the placenta (*Apara*).[ii]

The "emptiness" described here is twofold: physical (intra-abdominal decompression) and physiological (depletion of *Dhatus* or tissues). In the absence of the "space-occupying" fetus, *Vata Dosha*—which governs all movement and is characterized by the elements of air and space quickly fills the void. This leads to a state of *Vata Prakopa* (aggravation), which manifests clinically as anxiety, insomnia, tremors, and systemic pain.

3.1.3. Comparative Pathophysiology

The clinical manifestations of *Vata* aggravation in Ayurveda bear a striking resemblance to the signs of autonomic instability and HPA dysregulation in modern medicine.

Feature	HPA Axis Dysregulation (Modern)	*Vata Prakopa/Shunya Sharira* (*Ayurveda*)
Origin	Withdrawal of placental CRH	Sudden expulsion of fetus and placenta
Mechanism	Loss of feedback sensitivity	Accumulation of *Vata* in empty channels
Metabolic State	Reduced glucocorticoid sensitivity	*Agni Mandya* (Sluggish digestion)
Psychological	Postpartum Depression and Anxiety	*Sutika Unmada* and *Mano-daurbalya*
Structural	Connective tissue laxity (Diastasis Recti)	*Deha-shaithilya* (Looseness of body)

The "neuro-hormonal vacuum" of modern science can be viewed as the physiological substrate of Ayurvedic *Shunyata*. The goal of *Sutika Paricharya* is effectively to fill this vacuum through specific sensory and biochemical inputs.

3.1.4. Modern and Ayurveda Perspectives on Maternal Resilience[iii]

Resilience in the postpartum period is defined by the body's ability to maintain homeostasis despite the massive withdrawal of gestational hormones.

- **The Role of Oxytocin as a Neuro-Endocrine Buffer**

Modern research highlights oxytocin as a central player in maternal resilience. Released during breastfeeding and skin-to-skin contact, oxytocin has direct inhibitory effects on the CRH neurons in the paraventricular nucleus (PVN) of the hypothalamus. This suppresses the HPA axis's reactivity to acute stressors, creating a "calm and connection" response. In symptomatic women (those with PPD or anxiety), this oxytocin-mediated buffering is often absent or dysregulated.

- **Ayurvedic Perspective on Rasa and Stanya**

In Ayurveda, the quality of *Stanya* (breast milk) is an indicator of the mother's internal equilibrium. *Stanya* is a secondary tissue (*Upadhatu*) derived from *Rasa Dhatu* (plasma/lymph). Acharya Charaka states that *Rasa* is the first tissue formed after digestion and is the seat of the heart and mind. When the mother is stressed or depleted (*Dhatu Kshaya*), the *Rasa Dhatu* is compromised, leading to low milk production and emotional vulnerability. The replenishment of *Rasa* and *Ojas* (vital essence) is, therefore, the primary aim of postpartum nutrition[iv].

3.1.5. Signs and Symptoms of Maternal Morbidity

Failure to implement the *Sutika Paricharya* leads to the development of *Sutika Roga* (postpartum diseases). These are characterized by their chronicity and difficulty in management due to the mother's weakened state.

- **Ayurvedic Classification of Morbidity**

1. **Sutika Unmada:** A state of mental confusion or depression caused by *Vata* affecting the *Manovaha Srotas* (channels of the mind). It correlates with PPD and postpartum psychosis.
2. **Shula and Angamarda:** Severe abdominal pain and body aches resulting from the "dryness" and "coldness" of *Vata* in the musculoskeletal system.
3. **Stanya-Kshaya:** Inadequate lactation, which Ayurveda links to emotional distress and nutritional depletion, mirroring the link between stress and low oxytocin.
4. **Agni-Saada:** Total loss of digestive capacity, leading to weight loss and persistent fatigue.

- **Modern Biomarkers of Morbidity**

Modern clinical assessments utilize the Edinburgh Postnatal Depression Scale (EPDS) to measure psychological morbidity. Biologically, this state is marked by:

- **Flattened Diurnal Cortisol Slope:** A lack of the normal morning peak and evening decline in cortisol levels.
- **Altered ACTH-to-Cortisol Ratio:** High ACTH levels without a concomitant rise in cortisol, indicating adrenal resistance.
- **Low Oxytocin Area-Under-the-Curve (AUC):** Insufficient oxytocin release during infant feeding, which correlates with higher stress reactivity.

4. Treatment: The Therapeutic Architecture of Sutika Paricharya[v]

The management of a *Sutika* is divided into *Ahara* (diet), *Vihara* (lifestyle), and *Aushadha* (herbal medicines). Each component is designed to stabilize the neuro-endocrine axis by addressing the state of *Shunya*.

- **External Regimens (Vihara)**

The lifestyle protocols focus on tactile stimulation and thermal therapy to calm the nervous system.

- **Abhyanga: The Sensory-Endocrine Reset**

Daily oil massage (*Abhyanga*) is a mandatory part of *Sutika Paricharya*. In Ayurveda, *Vata* resides primarily in the skin (*Sparshanendriya*); hence, oleation is the most direct way to pacify it.

- **Neuro-Mechanism:** Tactile stimulation activates mechanoreceptors in the skin, which send afferent signals to the brain to release oxytocin. Clinical studies show that postpartum women receiving massage have significantly lower cortisol levels and higher affectionate bonding scores.
- **Parasympathetic Activation:** The rhythmic nature of *Abhyanga* shifts the body from a sympathetic (fight-or-flight) state to a parasympathetic (rest-and-digest) state, facilitating HPA axis recalibration.

- ***Swedana and Parishechana***

The use of warm decoctions (*Kwashas*) for baths and local fomentation helps in the involution of the uterus (*Garbhashaya Shuddhi*).

- **Thermodynamics:** Warmth promotes vasodilation, which improves the delivery of nutrients to the depleted tissues and aids in the removal of metabolic waste.
- **Muscle Relaxation:** It relieves the pelvic floor tension and musculoskeletal pain associated with labor.
- **Abdominal Vestana (Girdling)**

The abdomen is tightly wrapped with a clean cloth immediately after delivery. This is a critical structural intervention.

- **Hemodynamic Stability:** Girdling prevents the sudden "pooling" of blood in the splanchnic vessels, maintaining blood pressure and reducing the stress of hemodynamic shifts.
- **Neurological Grounding:** The constant pressure provides sensory "feedback" to the brain, filling the *Shunya* space and providing a sense of physical security that dampens the *Vata* response.
- **Internal Regimens (Ahara and Aushadha)**

The internal management is structured to restore *Agni* while providing the raw materials for endocrine recovery.

- **The Role of Pippali (Piper longum)**

Immediately post-delivery, *Charaka* recommends the intake of *Pippali* and *Chitraka* powders with ghee or warm water.

- **Bio-enhancement:** *Pippali* contains piperine, which inhibits cytochrome P450 and glucuronidation, effectively increasing the bioavailability of other nutrients and medicinal compounds.
- **Metabolic Revival:** It acts as a *Dipaniya* herb, stimulating the secretion of digestive enzymes and reviving the suppressed metabolism (*Agni*).
- **Dashamoola: The Anti-Inflammatory Buffer**

Dashamoola is used in decoctions and oils for its potent *Vatahara* and anti-inflammatory properties.

- **HPA Modulation:** Chronic inflammation is a primary driver of HPA axis hyperactivity. By inhibiting cyclooxygenase (COX) pathways and reducing systemic inflammation, *Dashamoola* prevents the "inflammatory drive" of cortisol.
- **Uterine Health:** It possesses an "oxytocic effect" that facilitates uterine contraction and the expulsion of lochia, aiding in anatomical recovery.
- **Shatavari (Asparagus racemosus): The Endocrine Master-Herb**

Shatavari is the premier *Rasayana* for the postpartum period. Its effects are deeply integrated into the neuro-endocrine axis.

- **Hormonal Mimicry:** Shatavarins (steroidal saponins) have an affinity for estrogen receptors, providing a mild phytochemical buffer against the "estrogen crash" of the early puerperium.
- **Galactogenesis:** It directly increases serum prolactin and milk volume, which in turn reinforces the oxytocin loop.
- **Gut-Brain Axis:** As a prebiotic, it supports the growth of *Lactobacillus*, which is associated with reduced neuro-inflammation and improved mood.
- **Samhita-wise Comparison of Sutika Regimens**

The different Samhitas emphasize various aspects of the regimen depending on the specific needs of the mother.

Authority	Specific Diet/Medication	Duration of Regimen	Primary Goal
Charaka Samhita	*Pippali*, *Chavya*, *Chitraka* with Ghee; Gruels (*Yavagu*).	1.5 Months (general).	Restoration of *Agni* and *Rasa*.
Sushruta Samhita	*Vatahara* Oils; *Vidarigandhadi Gana* herbs; Abdominal Girdling.	Until first menstruation.	Uterine involution (*Garbhashaya Shuddhi*).
Kashyapa Samhita	Oil or Ghee based on baby's gender; *Kulthya* (Horse gram) soup.	6 Months (if weak).	Replenishing *Dhatus* and *Ojas*.

5. Discussion: The Neuro-Endocrine Stabilization Model

The synergistic impact of *Sutika Paricharya* can be understood as a "Neuro-Endocrine Stabilization Model" that targets multiple points of the stress-response system simultaneously.

Pathway 1: Sensory-Endocrine Modulation

The skin-brain connection is the first line of defense. By subjecting the *Sutika* to daily *Abhyanga*, the Ayurvedic regimen ensures a constant stream of positive sensory input that suppresses the PVN's stress response. This is not merely relaxation; it is a profound pharmacological event where endogenous oxytocin is used to reset the HPA axis. The presence of *Withania somnifera* (Ashwagandha) in many of these oils further assists this process by reducing the adrenal cortex's sensitivity to ACTH, thereby preventing cortisol spikes.[vi]

Pathway 2: Phytochemical Replenishment

The use of herbs like *Shatavari* provides a bridge between the hyper-hormonal state of pregnancy and the non-pregnant state. By providing

phytoestrogenic support, *Shatavari* softens the withdrawal symptoms that lead to mood disturbances. Furthermore, the bio-enhancing properties of *Pippali* ensure that the micronutrients required for neurotransmitter synthesis (like tryptophan for serotonin) are effectively absorbed from the diet.

Pathway 3: The Agni-Gut-HPA Loop

Ayurveda's insistence on a liquid-to-solid dietary progression is scientifically sound. The suppressed HPA axis in the early postpartum period is often accompanied by a reduction in gastric acid and digestive enzymes. By starting with *Manda* (rice water) and *Yavagu* (gruel) fortified with *Deepana* (digestive) herbs, the regimen avoids overwhelming the system. This prevents gut dysbiosis, which is a known trigger for the HPA axis through the release of pro-inflammatory cytokines.

Therapeutic Implications for Maternal Morbidity

Integrating *Sutika Paricharya* into modern obstetric care could significantly reduce the incidence of PPD and chronic fatigue. The traditional focus on "filling the emptiness" addresses the biological reality of the postpartum transition far more comprehensively than the modern "watchful waiting" approach. For instance, the combination of *Dashamoolarishta* for pain and *Shatavari Gulam* for lactation provides a dual-benefit of physiological recovery and neuro-endocrine stabilization.

6. Conclusion

The neuro-endocrine impact of *Sutika Paricharya* is a testament to the profound understanding ancient Ayurvedic scholars had of maternal physiology. By conceptualizing the postpartum period as a state of *Shunyata* and *Vata* provocation, they correctly identified the period of maximum neuro-hormonal vulnerability. The multi-modal regimen—targeting the skin, the gut, and the endocrine organs—provides a comprehensive strategy for HPA axis regulation.

The findings of this review suggest that:

1. *Abhyanga* and *Vestana* provide the sensory and structural stability required to dampen the HPA axis's hyper-reactivity.
2. Herbs like *Shatavari* and *Dashamoola* provide the phytochemical support necessary to buffer the hormonal transition and prevent PPD.
3. The focus on *Agni* and *Pippali*-led bio-enhancement ensures metabolic recovery and gut-brain health.

For the PhD scholar in Ayurveda Gynaecology, these insights provide a robust foundation for further clinical research. By measuring cortisol rhythms, ACTH levels, and oxytocin AUC in women undergoing *Sutika Paricharya*, we can definitively quantify the neuro-endocrine benefits of these ancient practices and advocate for their inclusion in global maternal health protocols.

1. Definition of Sutika:

सुतीका तु खलु सा या गर्भमुत्सृज्य अपरामुत्सृजति ।[vii]

A woman who has expelled the fetus and the placenta is termed a *Sutika*. This marks the beginning of the endocrine transition.

2. On the Vulnerability of the Sutika:

करणान्यान्यता दृष्टा कर्तुः कर्ता स एव तु। कर्ता हि करणैर्युक्तः कारणं सर्वकर्मणाम्॥४९॥ (Charaka Samhita, Sharira Sthana 8/49)**:** The doer (the body) is dependent on its instruments (the *Dhatus* and *Agni*). When these are depleted, the "doer" cannot maintain health, making the postpartum woman susceptible to chronic disease.

3. On the Importance of Vata Shamana:

References

i Jolley, S. N., Elmore, S., Barnard, K. E., & Carr, D. B. (2007). Dysregulation of the hypothalamic-pituitary-adrenal axis in postpartum depression. *Biological Research for Nursing*, 8(3), 210-222. DOI: 10.1177/1099800406294598.

ii Acharya Charaka. (1996). *Charaka Samhita* (Vidyotini Hindi Commentary by K. Shastri & G. Chaturvedi). Sharira Sthana, Chapter 8, Verse 32, p. 937. Varanasi: Chaukhambha Bharati Academy.

iii Acharya Sushruta. (2002). *Sushruta Samhita* (Ayurveda Tatva Sandipika Hindi Commentary by Ambika Datta Shastri). Sharira Sthana, Chapter 10, Verses 16-18, p. 76. Varanasi: Chaukhambha Sanskrit Sansthan.

iv Parekar, R. R., & Bolegave, S. S. (2015). Experimental evaluation of analgesic, anti-inflammatory and anti-platelet potential of Dashamoola. *Journal of Ayurveda and Integrative Medicine*. DOI: 10.4103/0975-9476.146548.

vvVriddha Jivaka. (2013). *Kashyapa Samhita* (English Translation by P. V. Tewari). Khila Sthana, Chapter 11, Verses 18-20. Varanasi: Chaukhambha Visvabharati.

vi Meltzer-Brody, S., et al. (2015). Oxytocin and HPA stress axis reactivity in postpartum women. *Psychoneuroendocrinology*. DOI: 10.1016/j.psyneuen.2024.10725

vii Sushruta Samhita, Sharira Sthana 10/16)