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SIDDHA POSTPARTUM DIETARY AVOIDANCES AND MATERNAL–INFANT GUT HEALTH: AN INTEGRATIVE GUT–BRAIN AXIS APPROACH

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ABSTRACT

Background: The postpartum period is a critical window where maternal nutrition profoundly influences infant health through breast milk composition. Traditional Siddha medicine prescribes specific dietary avoidances to prevent digestive disturbances (mandhāgni) and the accumulation of undigested metabolites (amam), which are believed to be transmitted to the infant via breast milk. **Objective:** This review explores Siddha postpartum dietary restrictions in relation to contemporary evidence on maternal gut health, the human milk microbiome, and infant gut–brain development. **Methods:** A narrative review was conducted by integrating classical Siddha texts, such as Balavagadam, with contemporary biomedical literature from databases including PubMed and Scopus. **Results:** Siddha medicine cautions against heavy, mucus-forming, and flatulence-inducing foods—including buffalo milk, specific legumes, fried sweets (adhirasam), and certain fish—as they impair maternal digestion and promote amam. Modern evidence supports these observations, showing that maternal diet modulates the breast milk microbiome and metabolite composition, thereby influencing infant gut colonization and neurodevelopment via the gut–brain axis. **Conclusion:** Integrating Siddha dietary principles with contemporary microbiome science offers a holistic framework for promoting maternal recovery and preventing infant colic. This synthesis reinforces the pivotal role of maternal nutrition in shaping optimal infant health outcomes during the "fourth trimester".

KEYWORDS: Postpartum nutrition, Siddha medicine, maternal gut health, breast milk microbiome, infant colic, gut–brain axis.

INTRODUCTION

The postpartum period, often referred to as the “fourth trimester,” is a critical phase for both maternal recovery and infant development. During this time, women undergo significant physiological, hormonal, and psychological adjustments, while infants rely completely on maternal care and nutrition for survival and growth.[1]

Exclusive breastfeeding plays a central role in this process, providing optimal nutrition, immune protection, and bioactive factors that influence the infant’s gut microbiota and immune system maturation.[2] The composition of breast milk is not static; it is shaped by maternal health, gut microbiota, and diet, highlighting the importance of maternal nutrition in determining infant health outcomes.[3]

Traditional systems of medicine such as Siddha have long emphasized dietary regulation during the postpartum period, recommending the avoidance of certain foods believed to impair digestion, and produce undigested food particles (amam) that may transfer through breast milk.[4]

Modern science supports this view, as disturbances in maternal gut health can alter breast milk bioactives and microbial transfer, thereby affecting infant gut colonization and potentially contributing to colic or gastrointestinal discomfort.[5]

This paper explores how integrating Siddha postpartum dietary avoidances with modern insights on the maternal gut–infant gut–brain axis can offer a holistic, preventive approach to supporting maternal well-being, reducing infant colic, and promoting healthy gut and neurodevelopment in the newborn.

INTEGRATIVE CONCEPTUAL FRAMEWORK: LINKING SIDDHA POSTPARTUM PHYSIOLOGY W ITH GUT- BRAIN AXIS

In Siddha medicine, the postpartum stage is considered a period of mandhāgni (weakened digestive fire). Following childbirth, maternal tissues undergo depletion, fluid loss, and Vatham aggravation. This results in fragile digestion and reduced metabolic capacity. When mothers consume foods that are heavy, oily, or difficult to digest, they may remain undigested (amam), leading to gas, bloating, and toxin accumulation. Siddha texts emphasize that these undigested elements can be transmitted through breast milk, causing indigestion, colic, and irritability in the infant. Thus, strict postpartum dietary restrictions are prescribed to protect both maternal recovery and infant health.

Modern biomedical science provides converging explanations. The maternal diet directly shapes breast milk composition, influencing macronutrients, bioactive compounds, and the human milk microbiome (HMM). Breast milk is not only nutrition but also a dynamic immunological fluid, carrying immune cells, antibodies, and metabolites that protect both infants and mothers.[5] The maternal diet correlates with variations in the HMM, which in turn influence infant gut colonization and growth patterns.[6]

Crucially, early gut microbiota plays a profound role in infant development. Disruption in gut colonization during the early window of development is strongly linked to long-term health effects, a concept supported under the Developmental Origins of Health and Disease (DOHaD) framework.[7] When maternal digestion is poor (mandhāgni) and heavy foods are consumed, modern science would describe this as altered maternal gut microbiota and dysregulated milk composition, both of which impair infant gut health.

Thus, Siddha concepts of mandhāgni, amam, and Vatham aggravation map closely onto biomedical findings that maternal diet and digestion critically determine breast milk quality and infant gut–brain development. This integrative perspective strengthens the rationale for postpartum dietary avoidances in Siddha practice.

CLASSICAL SIDDHA TEXTUAL BASIS FOR POSTPARTUM DIETARY AVOIDANCES

Classical Siddha pediatric literature describes maternal dietary influences on infant digestive health in poetic form. The following verse from Balavagadam[26] outlines dietary factors that may contribute to Maandham (infantile digestive disturbance) when consumed by a lactating mother:

“[illegible]
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[illegible]
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[illegible]
[illegible].

Translation (Summary)

This verse explains that when a lactating mother consumes heavy, sour, mucus-forming, and flatulence-inducing foods—including buffalo milk, sour buttermilk, ghee, plantain, mango, coconut, jaggery, legumes, and certain fish—the breastfed infant may develop Maandham, characterized by fever, shivering, diarrhea, bloating, and digestive disturbance. The text attributes these manifestations to the transfer of altered breast milk resulting from impaired maternal digestion.

POSTPARTUM FOODS TO AVOID (SIDDHA GUIDELINES WITH MODERN INSIGHTS)

Siddha medicine emphasizes dietary restrictions in the postpartum stage due to weak digestion (mandhāgni). Consumption of unsuitable foods may aggravate vatham or kapham, generate amam (toxins), and transmit disturbances through breast milk, contributing to infant colic and poor digestion.

FOOD	SIDDHA VIEW	MODERN VIEW
Buffalo (*Bubalus bubalis*) milk, Buffalo curd, Buffalo	Increases Kabam, causes mental dullness, cognitive impairment.[8]	High saturated fats in buffalo milk/curd/ghee influence milk digestibility and may affect infant cognition.[9]
Mochai (*Lablab purpureus*) Kadalai (*Cicer arietinum*)	Aggravates mūthodam (three dosha imbalance) → bloating, digestive disturbances.[8]	Legumes like Lablab purpureus contain oligosaccharides that can cause flatulence due to fermentation in the colon.[8]
Mavu porutkal (Flour Based foods)/, Adhirasam (Fried food)	Adhirasam (sweet, heavy, oily) increases Kabam (sluggishness, mucus) and Pitham (heat, acidity).[11]	Consumption of heavy, fried, and sweet foods can disrupt maternal gut microbiota, reduce SCFA production, and alter breast milk composition.[12] These maternal gut changes may affect infant gut colonization and neurodevelopment via the gut–brain axis.[13]
Banana (*Musa paradisiaca)*	Banana - Mucus-forming, increases Kabam, slows digestion.[27]	Bananas: Ripe bananas are rich in fructans, a type of FODMAP carbohydrate, which can ferment in the colon and lead to gas and bloating.[14]
Mango (*Mangifera Indica*)	Heating and heavy; may worsen digestion and increase Pitham, leading to discomfort.[28]	Mango is High in FODMAPs (fructose & sorbitol); maternal intake of FODMAPs has been linked to elevated infantile colic via altered gut fermentation and dysbiosis affecting the gut–brain axis.[15]
Coconut and Tender coconut water (*Cocos nucifera*)	Cooling, Weakens Agni, heavy to digest.[29]	High in electrolytes and healthy fats; cooling; in excess may slow gastric emptying, weaken digestion, and cause bloating or flatulence, especially in sensitive individuals, pregnant women, and infants.[16]
Peanut	Flatulence-inducing; difficult to digest; causes bloating and restlessness.[30]	A randomized controlled trial showed that maternal exclusion of peanuts (along with other allergens) reduced colic in breastfed infants — 74% responders vs. 37% in controls.[17]
Jaggery	Sweet heavy to digest Increases Kapha and intestinal worms andmetabolic disturbance.[19]	A study on high-sugar diets (analogous to jaggery overconsumption) showed that excess sucrose intake altered gut microbiota, reduced short-chain fatty acids, and increased susceptibility to metabolicand digestive disturbances.[18]
Bitter Gourd (*Momordica charantia)*	considered Vatham and Pitham aggravating and may cause colic or digestive upset.[21]	Unripe dried bitter gourd (6 g/day) caused diarrhea, flatulence, and digestive discomfort in adults (IRR 6.50).[20]
Ooli meen (Barracuda)	Heavy to digest and induces eczema.[25]	High ciguatoxin levels; heat-resistant toxin can transfer via breast milk; infants may suffer diarrhea; breastfeeding discouraged if poisoning occurs.[22]
Kendai Meen (Rohu fish)	Increases Vatham.[24]	A recent study on Rohu (Labeo rohita) from the Jhelum River reported heavy metal levels in muscle exceeding safety limits, with health risk indices (THQ, MPI) indicating significant risks for frequent consumers.[23]

The comparative overview illustrates that many of the postpartum food avoidances prescribed in Siddha medicine align with modern biomedical evidence. While Siddha texts emphasize protection of digestion (mandhāgni) and prevention of amam accumulation, contemporary studies demonstrate how these same foods influence maternal gut function, breast milk composition, and infant gut health. Together, these perspectives suggest that traditional postpartum restrictions may have a rational physiological basis. Building on these findings, the following discussion explores their broader implications through the lens of the maternal–infant gut–brain axis.

DISCUSSION

This review highlights the convergence between Siddha postpartum dietary avoidances and modern insights into maternal–infant gut health through the gut–brain axis. Siddha medicine regards the postpartum period as a state of mandhāgni (weakened digestive fire), where improper foods can generate amam (undigested metabolites) and disturb both mother and infant. Dietary avoidances are prescribed to protect fragile digestion, improve maternal recovery, and prevent colic or gastrointestinal upset in infants.

Modern biomedical research provides parallel explanations. Maternal diet strongly influences gut microbiota composition and metabolic activity, which in turn shapes breast milk bioactives, immune factors, and microbial communities. These elements are directly transferred to the infant, determining early gut colonization, immune programming, and neurodevelopment.

Disturbances such as dysbiosis, reduced short-chain fatty acid (SCFA) production, or allergen transfer may manifest clinically as infantile colic, irritability, or immune dysfunction.

Several examples demonstrate this convergence. Legumes such as Lablab purpureus are considered gas-forming in Siddha medicine, and modern studies confirm their oligosaccharide content promotes fermentation and bloating. Fried sweets like athirasam are classified as heavy and Kapha-increasing; biomedical studies similarly link fried and sugary foods with reduced SCFA production and gut dysbiosis. Bananas and mangoes are described as mucus-forming or heating, while FODMAP research shows they contribute to colonic fermentation and colic. Even fish such as barracuda and rohu, avoided in Siddha tradition, are supported by modern toxicology findings related to ciguatoxin and heavy metal contamination.

The preventive orientation of Siddha dietary avoidances resonates with the Developmental Origins of Health and Disease (DOHaD) framework, which emphasizes that early-life exposures—including maternal diet and breast milk composition—have long-term health consequences. By protecting maternal digestion and milk quality, Siddha avoidances may reduce colic and foster more stable infant gut colonization, indirectly supporting neurodevelopment via the gut–brain axis.

Future research should aim to validate these traditional practices using clinical trials, microbiome sequencing, and breast milk metabolomics. Interdisciplinary approaches, bridging Siddha theory with microbiome science, hold promise for developing culturally sensitive and biologically grounded postpartum nutrition strategies.

LIMITATION AND RESEARCH GAPS

This review has several limitations that warrant acknowledgment. First, much of the evidence from Siddha medicine is derived from classical texts, which provide qualitative descriptions of postpartum physiology and diet but lack quantitative data or standardized clinical trials. Second, biomedical studies on maternal diet, breast milk composition, and infant colic are limited in sample size and design heterogeneity, making direct comparison with Siddha constructs challenging.

In addition, correlations between specific foods mentioned in Siddha texts and maternal–infant outcomes are often extrapolated from general nutrition or toxicology research rather than postpartum-specific studies. Mechanistic pathways such as the maternal gut–milk–infant gut axis remain incompletely understood, particularly in the context of early neurodevelopment.

Future work should focus on systematic clinical studies that evaluate Siddha-informed postpartum diets in relation to maternal gut microbiota, breast milk metabolomics, and infant outcomes. Longitudinal research is also needed to assess whether these early interventions reduce infantile colic and confer long-term benefits for immunity, metabolism, and cognition. Interdisciplinary collaborations between Siddha practitioners, nutritionists, microbiome scientists, and pediatricians will be essential to advance this field.

CONCLUSION

Siddha postpartum dietary avoidances, rooted in the concepts of mandhāgni, and ama, show striking parallels with modern research on maternal digestion, breast milk composition, and infant gut–brain development. Both perspectives emphasize that maternal diet is a central determinant of infant health, particularly in preventing colic and supporting early microbiome stability.

By integrating Siddha wisdom with emerging microbiome and metabolomic evidence, a holistic and culturally relevant framework for postpartum nutrition can be developed. Such an approach has the potential to improve maternal recovery, optimize breast milk quality, and foster healthy neurodevelopment in the infant. Bridging traditional knowledge with modern science thus offers a preventive, low-cost strategy for enhancing maternal–child health outcomes in the critical "fourth trimester."

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