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Review Article

Importance of Various Samskaras in Kaumarabhritya with Special Reference to Developmental Milestones, Growth of the Child and the Importance of the Immunisation Schedule: A Narrative Review

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ABSTRACT

Background: Kaumarabhritya, the paediatric branch of Ayurveda, describes childhood rites (samskaras) associated with important transitions from the neonatal period through early childhood. Contemporary paediatric care emphasises serial anthropometric growth monitoring, developmental surveillance, appropriate complementary feeding and timely immunisation. Objective: To conduct a narrative review of childhood samskaras across classical Ayurvedic treatises—principally the Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Ashtanga Sangraha, and Kashyapa Samhita—and evaluate their physiological, nutritional, and developmental correlations alongside contemporary paediatric standards and national immunisation frameworks. Methods: This narrative review considered published editions and commentaries of major Ayurvedic Samhitas alongside peer-reviewed paediatric literature and guidance from the World Health Organization (WHO), Indian Academy of Pediatrics (IAP) and Ministry of Health and Family Welfare (MoHFW). Edition-specific verse verification and systematic risk-of-bias assessment were not undertaken. Results: Selected childhood samskaras—including Jatakarma, Namakarana, Nishkramana, Annaprashana, Chudakarana, Karnavedhana and Aksharalekhana—can provide culturally meaningful opportunities for caregiver engagement and preventive counselling.

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Annaprashana may be discussed alongside the evidence-based recommendation to begin complementary feeding at about six months while continuing breastfeeding. Traditional rites cannot replace immunisation, serial growth assessment or developmental screening. Prelacteal honey is unsafe for infants younger than 12 months because of infant botulism risk. Evidence for Swarnaprashana remains preliminary; one small single-blind trial reported exploratory immunological findings, but did not establish a clear between-group improvement in serum IgG or clinical protection against infection. Conclusion: Samskaras represent culturally resonant opportunities to reinforce parent education and promote child health. Integrating these ceremonies into modern primary healthcare requires adherence to procedural safety, standard developmental and anthropometric surveillance, and strict compliance with the national immunisation schedule.

INTRODUCTION

Early childhood represents a decisive, highly dynamic biological window characterised by rapid physical growth, neurodevelopmental maturation, cognitive expansion, and socio-emotional development [1–4]. Optimal outcomes during this phase depend on responsive caregiving, adequate micro- and macronutrient intake, safe physical environments, regular developmental surveillance, and protection against infectious pathogens via timely vaccination [4–8].

In the Ayurvedic medical system, paediatric healthcare is formalised under Kaumarabhritya (or Bala Chikitsa), one of the eight clinical branches (Ashtanga) [9,10]. Classical treatises—notably the Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Ashtanga Sangraha and Kashyapa Samhita—describe rites and practices associated with stages of childhood [11–17]. The term samskara is used in Ayurveda in the sense of refinement, transformation or conditioning; the precise textual source and context of individual definitions should be checked against the edition cited. In early life, these practices marked the child's transition from intrauterine dependence to family and community life [14,18].

In contemporary healthcare, cultural ceremonies can be assessed through both sociological and clinical lenses. While traditional observances provide family support, social identity, and opportunities for maternal reassurance, traditional authority alone cannot establish clinical safety or efficacy [5,19]. Each procedure must be appraised against current standards of safety, biochemistry, and microbiology [6,19].

Somatic growth and functional neurodevelopment are closely related but clinically distinct processes. Growth describes quantitative, anatomical increments in body mass, linear length or height, and cranial circumference [4]. Functional development encompasses the qualitative acquisition of complex skills across gross motor, fine motor, communication, cognitive, and social-adaptive domains [5]. A child may demonstrate normal linear growth while exhibiting severe developmental delays; conversely, acute nutritional wasting may occur without immediate disruption of gross motor milestones [4,5]. Consequently, systematic dual surveillance is essential in early childhood care [5].

Active immunisation remains one of the most effective, evidence-based preventive health interventions in global medicine [7,8]. While traditional family gatherings can serve as calendar reminders for clinical appointments, traditional herbal electuaries, tonics, or ritual ceremonies cannot substitute for pathogen-specific vaccines [7,8,20]. This review examines classical samskaras from primary Ayurvedic literature alongside modern growth parameters, developmental milestones, and the Universal Immunisation Programme (UIP).

2. Aim and Objectives

2.1 Aim

To review the clinical, developmental, and psychosocial relevance of selected samskaras in Kaumarabhritya, referencing primary classical Ayurvedic Samhitas alongside modern developmental milestones, child growth monitoring, and the national immunisation schedule.

2.2 Objectives

- To document the primary verse references, classical descriptions, and historical significance of childhood samskaras across the Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Ashtanga Sangraha, and Kashyapa Samhita.
- To examine how childhood samskaras correspond with modern windows of physical growth, sensory development, and nutritional transitions.

- To outline objective growth monitoring indices based on WHO child growth standards and domain-specific milestone surveillance guided by Indian Academy of Pediatrics (IAP) clinical protocols.
- To detail the current Government of India Universal Immunisation Programme (UIP) schedule within the context of primary paediatric care.
- To critically evaluate the pharmacological, clinical, and safety profile of Swarnaprashana and other electuaries (Lehana).
- To propose a structured, culturally competent clinical framework integrating traditional observances with evidence-based paediatric care.

MATERIALS AND METHODS

This narrative review synthesises classical Sanskrit medical treatises with modern paediatric clinical guidelines and public health resources:

1. Classical Ayurvedic Texts and Commentaries: The review consulted published editions and commentaries of the Charaka Samhita (Sharira Sthana, Chapter 8) [11,12]; Sushruta Samhita (Sharira Sthana, Chapter 10; Sutra Sthana, Chapter 16) [13,14]; Ashtanga Hridaya (Uttara Sthana, Chapter 1) [15]; Ashtanga Sangraha (Uttara Sthana, Chapter 1) [16]; and Kashyapa Samhita (Sutra Sthana, Lehana Adhyaya, and Khila Sthana) [17]. Verse numbering and page references should be confirmed against the exact printed editions used by the authors before submission.

2. Contemporary Clinical and Paediatric Guidelines: Evidence-based standards were retrieved from authoritative global and national bodies: WHO Child Growth Standards and growth reference data [4]; WHO Guidelines for Complementary Feeding of Infants and Young Children (6–23 Months) [6]; Indian Academy of Pediatrics (IAP) consensus guidelines on global developmental delay and early screening [5]; and Ministry of Health and Family Welfare (MoHFW), Government of India, operational guidelines for the Universal Immunisation Programme (UIP) [7,8].

3. **Biomedical Literature Search: Peer-reviewed clinical and pharmacological literature concerning paediatric Ayurvedic electuaries, particularly Swarnaprashana and Suvarna Bhasma, was identified through MEDLINE/ PubMed, Scopus, Google Scholar and DHARA [20–22]. Evidence was appraised with attention to study design, sample size, outcomes, follow-up duration, formulation standardisation and safety.**

4. Classical Concept of Samskara in Kaumarabhritya

In Kaumarabhritya, samskaras are described as rites or practices associated with important stages of childhood and may carry physiological, social and psychosocial significance [14,17]. Their cultural value should be distinguished from clinical effects that have not been established through controlled research.

Some classical sources describe childhood nutritional stages according to the predominant type of feeding [13,15]:

- **Ksheerapa (Milk-fed phase): broadly the period in which breast milk is the principal food.**
- **Ksheerannada (Milk-and-food phase): a transitional period in which breast milk is supplemented by other foods.**
- **Annada (Food-dominant phase): the later period in which the child increasingly depends on family foods. These categories are historical descriptions and should not be treated as substitutes for current infant-feeding guidance.**

These stages provide a traditional framework for discussing feeding transitions and family practices. In contemporary care, clinical decisions should be based on the child's age, developmental readiness, nutritional needs and current evidence-based guidance [6].

5. Detailed Analysis of Selected Samskaras with Classical Citations

Samskara	Classical Samhita Source Verses	Prescribed Timing	Core Traditional Purpose
Jatakarma	Charaka: Sha. 8/43–46 [11] Sushruta: Sha. 10/14–17 [13] Ashtanga Hridaya: Ut. 1/1–7 [15]	Immediately after birth	Traditional rites and early newborn-care practices; historical feeding rituals must not be followed if unsafe.
Namakarana	Charaka: Sha. 8/47 [11] Sushruta: Sha. 10/24 [13] Ashtanga Hridaya: Ut. 1/15–18 [15]	10th, 12th, or 100th day post-partum	Naming and social recognition of the child.
Nishkramana	Sushruta: Sha. 10/25 [13] Kashyapa: Khila. 12 [17] (cf. Charaka: Sha. 8/63 [11])	4th month of life (or 3rd month)	First outing and symbolic introduction to the external environment.
Annaprashana	Sushruta: Sha. 10/48 [13] Ashtanga Hridaya: Ut. 1/25–26 [15] Kashyapa: Khila. 12 [17]	6th month of life	Ritual marking of the introduction of complementary foods.
Karnavedhana	Sushruta: Sha. 10/56–58; Su. 16/1–3 [13] Ashtanga Hridaya: Ut. 1/30–33 [15]	6th or 7th month (regional: up to 8th month)	Earlobe piercing as a traditional cultural practice; disease-prevention claims are unproven.
Chudakarana	Charaka: Chi. 24/40 [11] Sushruta: Chi. 24/71–72 [13] Ashtanga Hridaya: Ut. 1/28–29 [15]	1st to 3rd year of life	Traditional tonsure rite; attributed benefits are cultural/historical, not established biological effects.
Aksharalekhana	Ashtanga Sangraha: Ut. 1/38–40 [16] Kashyapa: Khila. 12 [17]	5th year of life	Formal initiation into letters, writing and learning.

5.1 Jatakarma (Birth Rituals and Early Newborn Care)

Classical Citations: Charaka Samhita, Sharira Sthana, Ch. 8, Verses 43–46 [11]; Sushruta Samhita, Sharira Sthana, Ch. 10, Verses 14–17 [13]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 1–7 [15]; Ashtanga Sangraha, Uttara Sthana, Ch. 1, Verses 1–5 [16].

Classical Description: Classical texts describe immediate care after birth, including attention to the newborn's breathing, warmth, cord care and early feeding [11,13,15]. They also describe ritual administration of an electuary containing ingredients such as gold, ghee and honey [11,13]. These historical descriptions should not be equated with modern neonatal resuscitation protocols.

Contemporary Appraisal and Critical Safety Alert: Modern Essential Newborn Care prioritises immediate drying and assessment of breathing, thermal care, skin-to-skin contact, appropriate cord care and early initiation of breastfeeding. Routine suctioning is not recommended for a vigorous newborn; resuscitation, when needed, must follow current neonatal resuscitation guidance [1,2]. Historical prelacteal administration of honey or other substances must not be adopted in current newborn care.

NEONATAL SAFETY ALERT — DO NOT GIVE HONEY TO INFANTS UNDER 12 MONTHS Honey may contain Clostridium botulinum spores and can cause infant botulism. Do not administer honey to an infant younger than 12 months [19,23]. Do not give routine prelacteal feeds or non-indicated oral substances to a newborn. Support early breastfeeding and exclusive breastfeeding for the first six months [1,6]. Modern newborn care includes drying, assessment of breathing, thermal care, skin-to-skin contact, appropriate cord care and early breastfeeding. Routine suctioning is not recommended for a vigorous newborn; resuscitation must follow current neonatal protocols [1,2].

Clinical Directives: Do not administer honey to infants younger than 12 months. Initiate breastfeeding within the first hour when mother and newborn are clinically stable, support exclusive breastfeeding for the first six months, and administer birth-dose vaccines according to the current national schedule [6,7]. Cord clamping and resuscitation should follow current facility protocols.

5.2 Namakarana (Naming Ceremony and Identity Formation)

Classical Citations: Charaka Samhita, Sharira Sthana, Ch. 8, Verse 47 [11]; Sushruta Samhita, Sharira Sthana, Ch. 10, Verse 24 [13]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 15–18 [15].

Classical Description: Conducted on the tenth, twelfth, or hundredth day following delivery, Namakarana involves giving the child two names: one public name (Ghoshavat) and one private name based on astrological coordinates or family heritage (Nakshatrika Nama) [11,13]. The environment is kept clean, and the mother and child are bathed in herbal decoctions to signify the end of the acute puerperal period (Sutika Kala) [11,15].

Contemporary Appraisal: Namakarana serves as an important bridge between cultural recognition and public health registration. Clinically, this timeframe coincides with crucial early postnatal checks: (a) Civil and Health Registration: Securing the child's legal identity, birth certificate, and Mother and Child Protection (MCP) card [7]; (b) Neonatal Clinical Screening: Assessing for neonatal hyperbilirubinemia (jaundice), adequacy of weight recovery following initial physiological weight loss (which should reverse by 10–14 days), umbilical cord healing, and maternal postpartum recovery or depression [1,2]; and (c) Immunisation Audit: Confirming the timely administration of birth-dose vaccines prior to scheduling the 6-week infant immunisation visit [7].

5.3 Nishkramana (First Outing and Environmental Adaptation)

Classical Citations: Sushruta Samhita, Sharira Sthana, Ch. 10, Verse 25 [13]; Kashyapa Samhita, Khila Sthana, Ch. 12 [17]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 21–22 [15]; cf. Charaka Samhita, Sharira Sthana, Ch. 8, Verse 63 (for nursery and environmental protection) [11].

Classical Description: Scheduled around the fourth month of life (or third month in select traditions), Nishkramana is explicitly codified as a distinct rite by Sushruta and Kashyapa, involving escorting the child outside the domestic residence for the first time. The infant is systematically introduced to ambient daylight (Surya darshana), the night moon (Chandra darshana), and open air under protective maternal care [13,15,17].

Contemporary Appraisal: At around four months, many infants show improving head control, visual tracking and social interaction, although the timing varies. A first outing is a cultural observance, not a developmental test. Outdoor exposure should be brief and comfortable, avoiding extreme temperatures, direct intense sunlight, heavy air pollution and crowded settings when infection risk is high [24].

5.4 Annaprashana (Initiation of Complementary Feeding)

Classical Citations: Sushruta Samhita, Sharira Sthana, Ch. 10, Verse 48 [13]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 25–26 [15]; Ashtanga Sangraha, Uttara Sthana, Ch. 1, Verses 34–36 [16]; Kashyapa Samhita, Khila Sthana, Ch. 12 (Phalaprashana-Annaprashana Vidhi) [17].

Classical Description: Classical sources describe the introduction of food around the sixth month, with variations in the foods and sequence described by different authors [13,15,17]. These descriptions are historical and should not be interpreted as requiring a particular food or preparation.

Contemporary Nutritional Appraisal: Current guidance recommends introducing safe, nutritionally adequate complementary foods at about six months while continuing breastfeeding up to two years or beyond. Complementary foods should provide adequate energy and diverse nutrients, including iron and zinc [6].

Operational Clinical Recommendations: (a) Dietary quality: offer a diverse range of age-appropriate foods, including iron-rich foods and varied textures; (b) Texture progression: progress from mashed and soft foods towards thicker textures and safe finger foods as the child develops; and (c) Hygiene and safety: wash hands

and utensils, avoid choking hazards, and do not add excess salt or free sugars [6].

5.5 Chudakarana / Chaula (Scalp Tonsure and Hygiene)

Classical Citations: Charaka Samhita, Chikitsa Sthana, Ch. 24, Verse 40 [11]; Sushruta Samhita, Chikitsa Sthana, Ch. 24, Verses 71–72 [13]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 28–29 [15].

Classical Description: Chudakarana is described as a childhood tonsure rite, commonly associated with the first few years of life in the cited traditions [13,15]. Explanations of its traditional purposes should be presented as historical or cultural beliefs rather than established biological benefits.

Contemporary Appraisal: Hair shaving does not increase hair follicle number, thickness, growth rate or intelligence. If a family chooses tonsure, it should be performed with clean, single-use or appropriately sterilised equipment by a trained person; avoid the procedure over inflamed, infected or injured scalp skin. Any skin injury should receive appropriate care.

5.6 Karnavedhana (Ear Piercing and Asepsis)

Classical Citations: Sushruta Samhita, Sharira Sthana, Ch. 10, Verses 56–58 [13]; Sushruta Samhita, Sutra Sthana, Ch. 16, Verses 1–3 [13]; Ashtanga Hridaya, Uttara Sthana, Ch. 1, Verses 30–33 [15].

Classical Description: Sushruta describes earlobe piercing in a specified age and seasonal context and discusses the importance of choosing the appropriate site [13]. The stated prophylactic or protective rationale is a traditional attribution and is not an established biomedical effect.

Contemporary Appraisal: Ear piercing has no established role in preventing disease or influencing developmental milestones. Potential complications include pain, bleeding, local infection, allergic contact dermatitis and keloid formation [26]. If undertaken for cultural or personal reasons, it should be performed by a trained practitioner using sterile equipment and suitable hypoallergenic jewellery, with clear aftercare advice.

5.7 Aksharalekhana / Vidyarambha (Formal Literacy and Cognitive Acquisition)

Classical Citations: Ashtanga Sangraha, Uttara Sthana, Ch. 1, Verses 38–40 [16]; Kashyapa Samhita, Khila Sthana, Ch. 12 [17].

Classical Description: Aksharalekhana is described as an initiation into writing or learning, with timing varying by textual tradition [16,17]. It should be understood as a cultural and educational rite, not as the beginning of cognitive or language development.

Contemporary Neurodevelopmental Appraisal: While this rite marks the cultural start of schooling, cognitive and language acquisition begins in infancy. Current developmental science shows that early relational interactions—such as conversational turn-taking, shared book reading, singing, and fine-motor activities (e.g., scribbling, building blocks)—shape neural architecture well before formal kindergarten [5,27]. Parents should provide an engaging, responsive environment without placing premature academic pressures on the child [27].

6. Swarnaprashana and Paediatric Electuaries (Lehana)

6.1 Classical Textual Foundation

The primary textual authority for Swarnaprashana is the Kashyapa Samhita (Sutra Sthana, Lehana Adhyaya) [17]:

सुवर्णप्राशनं हि एतत् मेधाग्निबलवर्धनम् । आयुष्यं मङ्गलं पुण्यं वृष्यं वर्ण्यं ग्रहापहम् ॥ मासात् परममेधावी व्याधिभिर्न च धृष्यते । षड्भिर्मासैः श्रुतधरः सुवर्णप्राशनाद् भवेत् ॥ — काश्यपसंहिता, सूत्रस्थान, लेहनाध्याय *[17]*

Translation: The classical passage attributes benefits such as enhancement of medha (intellect), agni (digestive/metabolic capacity) and bala (strength) to Suvarnaprashana, and describes further benefits with continued administration. These are claims reported in the classical text and should not be presented as clinically proven effects. Kashyapa describes rubbing gold with water and combining the material with ghrita and honey [17].

6.2 Modern Empirical Evidence and Pharmacological Appraisals

Modern Evidence: Research on Suvarna Bhasma and Swarnaprashana includes laboratory, animal and limited human studies [20–22]. These evidence types are not interchangeable: findings from material-characterisation or animal studies cannot establish clinical benefit in children.

- **Published reviews describe substantial variation among available Swarnaprashana preparations in the form of gold, ingredients, dose, preparation method and duration. Consequently, findings from one formulation cannot be generalised to all commercial or practitioner-prepared products; standardisation and batch-level quality testing are important [21].**29 Nov 2026
- **Human clinical evidence: Bhaskaran, Patel and Srikrishna conducted a randomised, controlled, single-blind study involving 102 healthy infants. The intervention and control groups received different preparations for four weeks, with follow-up. The study did not demonstrate a statistically significant between-group difference in IgG change; the authors reported an exploratory signal based on immunoglobulin normalisation. These surrogate findings do not establish prevention of infections or a clinically meaningful improvement in immunity [20].**
- **Preclinical Evidence: Animal studies have reported non-specific immunological effects of certain gold preparations; such findings are hypothesis-generating and cannot be extrapolated directly to clinical efficacy or safety in children [22].**

6.3 Critical Limitations and Safety Boundaries

Despite these preliminary findings, three crucial clinical cautions must be underscored:

- **Preliminary Nature of Evidence: The human evidence is limited by a small sample, single-blind design, short treatment and follow-up periods, and reliance on surrogate laboratory outcomes rather than confirmed infection rates, hospitalisation or other patient-important outcomes [20].**
- **Standardisation and Quality Control: Paediatric formulations require validated identity, purity, dose consistency and contaminant testing. The safety of one tested preparation cannot be assumed for other products or batches; potential contamination and toxicity must be considered [21].**
- **No Substitute for Active Immunisation:** Swarnaprashana does not induce pathogen-specific immune responses. It cannot produce neutralising antibodies against specific pathogens such as poliovirus, measles virus, or Corynebacterium diphtheriae. Clinicians must ensure that families understand this difference so they do not forgo routine vaccinations [7,20].

7. Developmental Milestones and Clinical Surveillance

Developmental surveillance is the ongoing monitoring of a child's acquisition of skills during routine care [5]. Surveillance should be combined with age-appropriate standardised screening when indicated; milestone checklists support, but do not replace, clinical assessment [5,28].

7.1 Comprehensive Milestone Acquisition Across Core Functional Domains

Age interval	Gross motor	Fine motor & adaptive	Language & communication	Social & cognitive
Birth–2 months	Moves both arms and legs; lifts head briefly when prone [28]	Hands often fisted; briefly opens hands; looks at a face [28]	Reacts to loud sounds; makes sounds other than crying [28]	Looks at faces; begins to smile when spoken to or smiled at [28]
3–4 months	Holds head steady when supported upright; pushes up on elbows when prone [28]	Brings hands to mouth; holds a toy when placed in hand [28]	Chuckles; turns toward a familiar voice; makes cooing sounds [28]	Smiles to gain attention; enjoys interaction [28]
5–6 months	Rolls from tummy to back; pushes up with straight arms; may sit leaning on hands [28]	Reaches for a wanted toy; explores objects with mouth; transfers objects between hands [28]	Laughs; takes turns making sounds; strings vowel sounds [28]	Recognises familiar people; enjoys looking at self in mirror [28]
7–9 months	Gets to sitting and sits without support; may move into crawling position [28]	Uses fingers to rake food toward self; bangs objects together [28]	Babbles repeated sounds; looks when name is called [28]	Looks for a dropped object; enjoys peek-a-boo; may show stranger anxiety [28]
10–12 months	Pulls to stand; walks holding furniture [28]	Uses thumb and index finger to pick up small objects; puts objects into a container [28]	Waves bye-bye; uses a name such as mama/dada specifically; understands a simple no [28]	Plays simple social games; looks for hidden objects [28]
13–18 months	Takes independent steps and walks without holding on [28]	Scribbles; drinks from a cup; tries to use a spoon [28]	By 18 months, tries to say several words besides mama/dada; follows a simple one-step direction [28]	Points to show interest; imitates simple activities; helps with dressing [28]
19–24 months	Runs; kicks a ball; walks up a few stairs with help [28]	Uses a spoon; builds a small block tower [28]	Combines at least two words; points to named body parts or pictures [28]	Notices when another person is upset; engages in simple pretend play [28]
30–36 months	Climbs; runs more steadily; jumps with both feet [28]	Draws a circle after demonstration; strings large items [28]	Has short back-and-forth conversations; asks who/what/where/why; speech is understood most of the time [28]	Joins other children in play; follows simple routines [28]
4–5 years	Hops on one foot; catches a large ball; may skip [28]	Draws a person with several body parts; uses some buttons [28]	Speaks in longer sentences; tells a simple story; answers questions about a story [28]	Engages in cooperative and imaginative play; follows rules in simple games [28]

7.2 Developmental Red Flags Requiring Immediate Investigation

The following findings warrant prompt developmental assessment and, where indicated, targeted medical evaluation. A single milestone should be interpreted in the context of the child's overall development, corrected age when preterm, hearing and vision, and clinical history [5,28]:

- **Milestone Regression:** Loss of previously acquired motor, communication, or personal-social capabilities at any age [5].
- **3 Months:** Absence of consistent social smiling; failure to fixate on or track visual stimuli; persistent fisting [5,28].
- **6 Months:** Persistent neck lag on pull-to-sit; inability to reach for objects; absence of vocalisation or vowel sounds [5].
- **9 Months:** Inability to sit steadily without support; absent babbling; lack of response to own name [5].
- **12 Months: Concern is warranted if the child is not using gestures such as waving, is not responding to simple requests, or is not pulling to stand; absence of meaningful communication should also be assessed [5,28].**
- **18 Months: Inability to walk independently, absence of meaningful spoken words, or lack of pointing to share interest warrants assessment [5,28].**
- **24 Months: Absence of spontaneous two-word combinations or concerns about social communication, play or repetitive behaviours warrants assessment [5,28]. Persistent toe-walking alone should be interpreted clinically rather than treated as a stand-alone universal red flag [5].**

8. Childhood Growth Monitoring and Anthropometry

Regular growth monitoring provides an objective way to assess nutritional status and identify growth faltering or possible underlying illness [4]. Growth measurements should be interpreted serially and in the context of age, sex, prematurity and clinical findings.

8.1 Key Anthropometric Indicators

Weight-for-Age: Evaluates overall nutritional status. While sensitive to rapid changes (such as acute dehydration or infection), it does not distinguish between acute wasting and chronic stunting [4].

Length/Height-for-Age: Measures linear skeletal growth. Values falling below −2 Standard Deviations (SD) from the WHO Child Growth Standards designate childhood stunting, indicating chronic, long-term undernutrition or recurrent infections [4].

Weight-for-Length/Height: Evaluates body proportionality and lean tissue mass. Values below −2 SD identify acute wasting; values below −3 SD indicate Severe Acute Malnutrition (SAM), which requires therapeutic nutritional and medical intervention [4].

Head Circumference (Occipitofrontal Circumference, OFC): Serial measurement in early childhood helps identify abnormal head growth, including microcephaly or macrocephaly. Interpret measurements using age- and sex-specific standards and assess the child clinically [4].

Body Mass Index-for-Age (BMI-for-Age): Used to assess body composition across childhood, identifying both severe thinness and early-onset paediatric overweight or obesity [4].

8.2 Application of WHO Standards

The WHO Child Growth Standards provide age- and sex-specific growth curves. Serial measurements plotted on appropriate charts are more informative than a single measurement. A downward change in growth trajectory or a persistently low z-score should prompt assessment of feeding, illness, measurement technique and other possible causes [4,6].

9. Universal Immunisation Programme (UIP) in India

Vaccination induces antigen-specific immune responses and is a core component of preventive child healthcare [7,8]. The schedule below summarises the national programme; always check current MoHFW and state implementation guidance before clinical use.

9.1 National Immunisation Schedule for Infants, Children, and Adolescents

Age / timing	Vaccines / supplements	Route and site	Protection / notes
At birth	BCG; OPV-0; Hepatitis B birth dose	As per current MoHFW guidance	Severe childhood TB; poliomyelitis; perinatal hepatitis B prevention. Hepatitis B birth dose should be given within 24 hours.
6 weeks	Pentavalent-1; OPV-1; RVV-1; fIPV-1; PCV-1	As per current MoHFW guidance	Diphtheria, pertussis, tetanus, hepatitis B, Hib, polio, rotavirus disease and pneumococcal disease.
10 weeks	Pentavalent-2; OPV-2; RVV-2	As per current MoHFW guidance	Second primary doses for the corresponding antigens.
14 weeks	Pentavalent-3; OPV-3; RVV-3; fIPV-2; PCV-2	As per current MoHFW guidance	Third primary doses for pentavalent, OPV and rotavirus; second fIPV and PCV doses.
9–12 months	MR-1; PCV booster; JE-1 in endemic districts. Vitamin A: first dose (1 lakh IU)	As per current MoHFW guidance	Measles-rubella; pneumococcal booster; Japanese encephalitis in endemic districts. Vitamin A is a supplement, not a vaccine.
16–24 months	MR-2; DPT booster-1; OPV booster; JE-2 in endemic districts. Vitamin A: second dose (2 lakh IU at 16 months), then every 6 months up to 5 years	As per current MoHFW guidance	Booster protection against measles-rubella, diphtheria, pertussis, tetanus, polio and JE where applicable. Vitamin A is a supplement.
5–6 years	DPT booster-2	As per current MoHFW guidance	Booster protection against diphtheria, pertussis and tetanus.
10 years	Td	As per current MoHFW guidance	Adolescent booster against tetanus and diphtheria.
16 years	Td	As per current MoHFW guidance	Second adolescent booster against tetanus and diphtheria.
14 years (2026 national campaign)	Single-dose HPV vaccine for eligible 14-year-old girls under the national campaign	As per campaign operational guidance	Voluntary vaccination with parental consent to prevent HPV-related disease; this is a separate national campaign and should not be presented as a routine age band in the historical UIP schedule.
Pregnancy	Td-1, Td-2 or Td booster, as indicated by prior vaccination history	As per current MoHFW guidance	Maternal and neonatal tetanus prevention; follow current national guidance.

Source: Government of India National Immunisation Schedule, as summarised by the Press Information Bureau in March 2026 [7]. HPV vaccination details are based on the separate national campaign announcement [8]. Vitamin A is a supplementation programme, not a vaccine. Routes, doses and sites should be followed from current MoHFW operational guidance and product-specific instructions.

9.2 Bridging Traditional Samskaras with Immunisation Schedules

Traditional childhood ceremonies may provide convenient opportunities to review the child's MCP card or

U-WIN record and remind caregivers about upcoming immunisation visits. They must not replace scheduled visits or be used to defer vaccination.

- **Jatakarma Period (Birth):** Review administration of the birth triad (BCG, OPV-0, Hepatitis B birth dose) [7].
- **Namakarana (Day 10–12):** Check the Mother and Child Protection (MCP) card and verify appointment dates for the 6-week immunisations [7].
- **Nishkramana (around month 4): Review whether the 6-, 10- and 14-week primary vaccine visits have been completed; do not assume that a ceremony itself confirms vaccine receipt [7].**
- **Annaprashana (around month 6): Discuss complementary feeding and check that the next immunisation visit at 9–12 months is planned [6,7].**
- **Chudakarana / Karnavedhana (variable timing): Check the immunisation record and ensure due vaccines are administered on schedule; do not delay vaccination for an elective ceremony or procedure [7].**
- **Aksharalekhana (around school-entry age): Review the immunisation record and confirm the 5–6-year DPT booster, as applicable [7].**

10. Integrative Clinical Framework: Reconciling Tradition and Evidence-Based Paediatrics

An integrative approach to paediatric care brings together respect for family traditions and evidence-based clinical medicine [19].

1. **Nutritional Guidance through Annaprashana:** Clinicians can use Annaprashana to support timely complementary feeding at six months. Consultations should focus on dietary diversity, locally available nutrient-rich foods, clean preparation, and avoidance of added salt, sugar, or choking hazards [6].
2. **Procedural Safety and Infection Prevention: • Eliminate prelacteal honey and other non-indicated oral substances in newborns; support early and exclusive breastfeeding [6,19,23]. • If families choose tonsure or ear piercing, advise on trained providers, sterile equipment, hygienic wound care and prompt assessment of infection [25,26].**
3. **Dual Developmental and Growth Surveillance:** Family ceremonies can serve as natural reminders for clinical check-ups. At each visit, healthcare teams should measure and plot weight, length/height, and head circumference on WHO charts while screening milestones using validated IAP tools [4,5].
4. **Clarifying the Role of Swarnaprashana:** When parents inquire about Swarnaprashana, healthcare providers should present the current evidence transparently. Families should understand that while early research explores general immunomodulatory properties, it does not replace antigen-specific protection provided by routine childhood vaccines [7,20].

DISCUSSION

Classical Ayurvedic samskaras reflect an organised, historical approach to maternal and child healthcare. Rites such as Jatakarma, Namakarana, Nishkramana, and Annaprashana served to structure early life, supporting maternal bonding and marking key transitions in sensory, motor, and nutritional development [11–17].

From a modern medical perspective, it is essential to distinguish cultural and psychological value from demonstrated clinical outcomes. While samskaras offer meaningful touchpoints for family support and preventive education, ceremonial performance alone does not modify biological growth, improve cognitive capacity, or confer disease immunity [4,5].

Nutritional weaning illustrates an area of broad alignment: classical sources describe food introduction around the sixth month [13,15], while current guidance recommends complementary feeding from about six months alongside continued breastfeeding [6]. Current advice additionally emphasises dietary diversity, iron-rich foods, safe textures, hygiene and responsive feeding [6].

Conversely, historical practices involving prelacteal administration of honey and herbal mixtures must be re-evaluated using modern microbiological standards. The documented risk of infant botulism from Clostridium botulinum spores in raw honey makes prelacteal administration unsafe in infants under 12 months [19,23]. Modern practice must replace these prelacteal feeds with immediate, exclusive breastfeeding [1,6].

Swarnaprashana illustrates the need to distinguish classical claims and preliminary research from established clinical guidance. One small single-blind controlled trial reported exploratory immunological findings, but did not demonstrate a significant between-group difference in IgG change and did not establish prevention of childhood infections [20]. Swarnaprashana must not be promoted as a substitute for routine vaccination or other proven preventive care [7,8].

Ultimately, the most effective approach combines cultural respect with scientific rigor. By recognizing the social significance of samskaras, healthcare providers can engage families constructively while ensuring that core preventive practices—growth charting, milestone surveillance, sanitary weaning, and active immunisation—remain standard components of child healthcare [4–7].

12. Research Gaps and Future Directions

1. **Philological Analysis of Primary Sources:** Further textual research across classical manuscripts and historical commentaries can help clarify the evolution of paediatric procedures and identify regional variations in samskaras [11–17].
2. **Standardization of Classical Formulations:** Clear manufacturing and quality control standards are needed for paediatric Ayurvedic preparations, including detailed physicochemical profiling (XRD, TEM, DLS) of Suvarna Bhasma to verify nanoparticle size and exclude toxic heavy metal contamination [21].
3. **Rigorous Clinical Trials:** Well-designed, adequately powered, randomized controlled trials are required to evaluate the clinical outcomes of formulations like Swarnaprashana, using objective endpoints (such as incidence of laboratory-confirmed respiratory or gastrointestinal infections) alongside long-term safety evaluations [20].
4. **Health Services Research:** Implementation studies could evaluate whether linking preventive child health messaging (such as complementary feeding education or immunisation reminders) to traditional family ceremonies improves clinic attendance and vaccination coverage in primary care settings [7,19].

13. Limitations

This article is a narrative review and does not follow a systematic review methodology or meta-analytic protocol. Textual selection was descriptive. The exact printed editions and page/verse numbering of classical sources must be checked by the authors against the physical or authenticated digital editions actually consulted; regional manuscript and commentary variations may exist. The immunisation schedule is time-sensitive and should be rechecked against current MoHFW guidance at submission.

CONCLUSION

Samskaras in Kaumarabhritya represent a culturally rich framework marking developmental milestones in early childhood. When properly understood, they offer practical opportunities to reinforce family-centred care, provide guidance on complementary feeding, and encourage attendance at routine paediatric visits.

The clinical value of these traditions depends on their safe integration with modern paediatric practice. Anthropometric growth monitoring, early developmental screening, evidence-based complementary nutrition, and timely immunisation remain essential for promoting child health. Traditional rites must not delay or replace needed medical care or recommended vaccines. By combining cultural sensitivity with established clinical standards, healthcare professionals can support family traditions while safeguarding the health and development of children.

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