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Food Cravings in the Antenatal Period and the Ayurvedic Concept of Dauhrida: A Critical Review of Classical Literature and Contemporary Evidence

Prof. Dr. Subhash Waghe¹, Dr. Nilesh Dalvi²¹ Dept. of Rog Nidan, SAM College of Ayurvedic Sciences, Raisen (MP) – 464 551² Department of Prasuti Tantra evum Stree Roga, Vaidya Yagyadatta Sharma Ayurved Mahavidyalaya, Khurja, Uttar Pradesh – 203131, India**Corresponding Author:** Prof. Dr. Subhash Waghe**ORCID ID:** 0009-0006-2776-5549**Article Info:** Article Received on : 04/09/2026 Article Reviewed on: 10/09/2026 Article Published on : 15/10/2026**Cite this article as:** - Waghe S, Dalvi N. Food Cravings in the Antenatal Period and the Ayurvedic Concept of Dauhrida: A Critical Review of Classical Literature and Contemporary Evidence. International Journal of Diagnostics And Research. 2026Oct17;4(1):57–67. doi:10.5281/zenodo.23434843

Abstract

Background: Food cravings are among the most frequently reported experiences of pregnancy, yet their cause and clinical meaning remain uncertain. Classical *Ayurveda* addresses this phenomenon through the concept of *Dauhrida* (the "two-hearted" state), which attributes the pregnant woman's desires to the foetus's emerging consciousness and prescribes their judicious fulfillment. **Objectives:** To critically examine the concept of *Dauhrida* as described in the *Ayurvedic* classics and to compare it with contemporary scientific evidence on the prevalence, timing, determinants and consequences of food cravings in pregnancy. **Methods:** We conducted a critical narrative review. We studied relevant chapters of *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*, along with their principal commentaries, for descriptions of *Dauhrida*. We identified contemporary literature through PubMed, Google Scholar, and publisher databases using combinations of the terms "food craving", "pregnancy", "aversion", "pica", "*Dauhrida*", and "*Garbhini Paricharya*". Findings were organised thematically and compared. **Results:** The classics place the onset of *Dauhrida* in the fourth month of gestation, when the foetal heart and sense faculties become manifest. They direct that the woman's wishes be granted, with harmful items modified by wholesome ones, and they link unmet desires to vitiation of *Vata* and to foetal loss or malformation. Modern studies report cravings in roughly 50–90% of pregnant women, with onset around the end of the first trimester and a peak in the second. Explanations under study include hormonal, nutritional, pharmacological, cultural and neurobiological mechanisms; the latter include pregnancy-related changes in mesolimbic dopamine circuits. Evidence also links unmet cravings with maternal undernutrition and maternal diet with offspring taste preferences. **Conclusion:** The timing and management principles of *Dauhrida* align well with current observations, while its foetal-origin explanation and predictions about offspring character await scientific testing. Region-specific prospective studies are recommended.

Keywords: *Dauhrida*; *Dauhridini*; food cravings; pregnancy; *Garbhini Paricharya*; antenatal care; *Ayurveda*

Introduction :

A food craving is an intense, specific desire for a particular food or taste that is difficult to resist. Pregnancy is one of the two life phases in which such cravings are reported most often, the other being the premenstrual period ^[1]. Surveys across continents show that most pregnant women experience cravings, often accompanied by aversions to other foods and, in some settings, by pica—eating non-food substances such as clay or ice ^[1-3]. Although cravings are often regarded as a harmless feature of pregnancy, they can shape dietary intake, contribute to excessive gestational weight gain and interact with conditions such as gestational diabetes ^[1,4].

Ayurveda recognised this phenomenon more than two millennia ago as *Dauhrida* or *Dvaihritya*. In this state, the pregnant woman is called *Dauhridini*, literally "one who bears two hearts": her own heart and that of the developing foetus ^[5,6]. Classical authors held that the mother's desires in this phase are, at least in part, the foetus's desires conveyed through a shared maternal-foetal connection. They also offered practical advice on managing these desires as part of *Garbhini Paricharya*, the regimen of antenatal care ^[5-8].

Despite its clinical relevance, *Dauhrida* is seldom compared systematically with the modern literature on pregnancy cravings. Such a comparison can clarify which classical observations match current data, which remain untested, and how the concept may be used in integrative antenatal practice. The present review therefore aimed (i) to compile and interpret the classical descriptions of *Dauhrida*, (ii) to summarise contemporary evidence on food

cravings in pregnancy, and (iii) to critically correlate the two bodies of knowledge and identify directions for future research.

Materials and Methods:

Study design

This is a critical narrative review based on literary and documentary sources. No human or animal participants were involved; ethical approval was therefore not required.

Classical sources

The *Brihat Trayi*—*Charaka Samhita* (with the *Ayurveda Dipika* commentary of Chakrapanidatta), *Sushruta Samhita* (with the *Nibandhasangraha* commentary of Dalhana) and *Ashtanga Hridaya* (with the commentaries of Arunadatta and Hemadri)—were examined, with emphasis on the *Sharira Sthana* chapters dealing with embryology and antenatal care ^[5-7]. We used a standard textbook of Ayurvedic obstetrics to cross-check interpretation ^[9]. Verse numbers follow the cited editions and may differ slightly in other editions.

Contemporary literature search

PubMed, Google Scholar and publisher websites were searched for articles in English using the terms "food craving", "food aversion", "pica", "pregnancy", "antenatal", "gestational weight gain", "Dauhrida", "Dauhrid" and "Garbhini Paricharya", alone and in combination. We screened the reference lists of retrieved reviews for additional studies.

Eligibility

We included original studies, systematic or narrative reviews, and experimental studies that

reported the prevalence, timing, type, determinants, proposed mechanisms, or consequences of food cravings or aversions in pregnancy. We preferred studies from diverse geographical regions, including India and other low- and middle-income countries. We excluded opinion pieces without data, non-English articles, and sources with unverified bibliographic details. Each reference cited in this article was checked against its publisher or indexing record.

Data extraction and analysis

From the classical texts, we extracted statements on the timing, causation, management, and consequences of *Dauhrida*. From the modern literature, we extracted data on setting, design, sample, prevalence, and key findings. The two sets of findings were then grouped under common themes—onset, origin, management, consequences for mother and offspring—and compared critically.

Results :

Onset of *Dauhrida* and its embryological basis

Both *Charaka* and *Sushruta* place the onset of *Dauhrida* in the fourth month of gestation. *Charaka* explains that once the foetus's sense faculties are established, consciousness becomes linked to sensation; from then on, the foetus moves and "longs for" whatever it experienced in a previous life. The maternal and foetal hearts are described as joined through nutrient-carrying channels (*rasavahini* and *samvahini*), so that the wishes of one are reflected in the other^[5].

The same passage gives the practical conclusion: because mother and foetus share welfare in certain

respects during this phase, skilled physicians take special care to treat the pregnant woman with what is both pleasing (*priya*) and wholesome (*hita*); disregarding the desires of the "two-hearted" woman may lead to foetal loss or deformity^[5]. *Sushruta* similarly states that in the fourth month the foetal heart becomes distinct, and since the heart is the seat of consciousness, the foetus begins to express wishes towards sense objects; the woman is therefore termed *Dvihridaya* and *Dauhridini*^[6].

This timing can be compared with modern embryology. The heart is the embryo's first functional organ and begins to beat around the end of the fourth week after fertilisation, while the sensory systems, including taste and smell, develop progressively through the first and second trimesters^[10]. Thus, the fourth lunar month of the classics coincides with a period of rapid sensory maturation in the foetus.

Management directives

Charaka allows even an unwholesome item when craving is intense, provided it is combined with or corrected by wholesome substances so the desire is pacified without harm^[5].

Sushruta instructs the physician to procure whatever sense objects the pregnant woman wishes for, out of concern that the foetus may otherwise be harmed^[6]. The instruction is not limited to food: it covers all five sense objects, including sights, sounds and textures.

Consequences of unfulfilled Dauhrida

The classics describe two sets of outcomes. When desires are fulfilled (*prapta-dauhrida*), the woman gives birth to a child endowed with good qualities. When they are denied (*alabdha-dauhrida*), the suppressed urge is said to provoke *Vata*, which, moving within the body, may cause loss of the pregnancy, foetal malformation, or danger to the mother herself [5,6]. *Sushruta* adds an organ-specific rule: the sense faculty related to the denied desire is the one likely to be affected in the child. For example, a denied wish to hear a particular sound is linked to hearing impairment [6]. *Sushruta* also lists possible deformities from disregard of *Dauhrida*, such as a hunched back, crippled or lame limbs, dullness, dwarfism and ocular defects [6]. Table 1 summarises the classical descriptions.

Object of Dauhrida and predicted characteristics of the offspring

Sushruta further correlates the object of desire with the physical and behavioural traits of the child (Table 2). The passage ends with a general principle: whatever the woman strongly longs for during pregnancy, the child will resemble it in body, conduct and disposition [6].

Table 1. Descriptions of *Dauhrida* in the major Ayurvedic classics

Aspect	Charaka Samhita	Sushruta Samhita
Month of onset	Fourth month, when sense faculties are established	Fourth month, when the foetal heart becomes distinct
Proposed origin	Foetal consciousness; desires from a previous life; maternal and foetal hearts joined by nutrient channels	Foetal heart as seat of consciousness; woman termed <i>Dvihridaya</i> / <i>Dauhridini</i>
Management	Give what is pleasing and wholesome; if craving is intense, give even an unwholesome item corrected by wholesome ones	Physician should procure whatever sense object is desired
Outcome if fulfilled	Welfare of mother and foetus	Virtuous, well-endowed child
Outcome if denied	<i>Vata</i> aggravation; foetal loss or deformity	Deformity, especially of the related sense organ; risk to foetus or mother

Sources: Charaka Samhita Sharira Sthana 4/15, 4/19; Sushruta Samhita Sharira Sthana 3/18–21 [5,6]. Ashtanga Hridaya Sharira Sthana 1 restates the same principles [7].

Table 2. Object of *Dauhrida* and the characteristics of the child described by *Sushruta*

Object of desire	Described characteristics of the child
Seeing the king	Wealthy and fortunate
Fine silk garments and ornaments	Graceful and fond of adornment
Living in a hermitage	Self-restrained and righteous
Idols of deities	Like an attendant of the gods (<i>parshada</i>)
Seeing wild predatory animals	Violent in temperament
Flesh of the monitor lizard (<i>godha</i>)	Given to sleep; steadfast
Flesh of cattle	Strong and able to bear all hardship
Flesh of the buffalo	Brave, red-eyed and hairy
Flesh of the boar	Brave but sleepy
Flesh of the deer	Energetic, swift-limbed and fond of roaming in forests
Flesh of the <i>srimara</i> deer	Restless or anxious in mind
Flesh of the partridge (<i>tittira</i>)	Timid

Source: Sushruta Samhita Sharira Sthana 3/22–28 [6]. The items reflect the dietary and social context of the classical period and are reported here for textual analysis only.

Contemporary evidence on food cravings in pregnancy

Modern studies consistently report that cravings are common. An estimated 50–90% of women in the United States experience cravings in pregnancy; they usually emerge by the end of the first trimester, peak in the second trimester and decline thereafter [1]. Frequently craved items in Western samples include sweets, dairy foods, starchy carbohydrates, fruits and fast food [1,11]. Studies from Africa, Asia and the Pacific show that prevalence is also high elsewhere, but the specific foods craved differ by culture and food availability [12–14]. Table 3 summarises selected studies.

Table 3. Selected contemporary studies on food cravings and aversions in pregnancy

Study (setting)	Design and sample	Key findings
Bayley et al., 2002 (United Kingdom) [15]	Retrospective questionnaire; 99 women	Cravings 61%, aversions 54%, nausea 80%. Onset of aversions often coincided with nausea; no such link for cravings.
Belzer et al., 2010 (USA) [4]	Prospective; healthy and mildly diabetic pregnancies	55% of normoglycaemic women craved sweets at 24–28 weeks; in late pregnancy, some women with GDM reported about twice as many sweet cravings as controls.
Weigel et al., 2011 (Ecuador) [16]	Prospective cohort in early pregnancy	Women with nausea and vomiting showed more aversions to potentially risky foods and stronger cravings for fruit.
Orloff and Hormes, 2014 [1]	Narrative review	Cravings in 50–90% of US women; peak in second trimester; cultural and psychosocial explanations best supported.

Study (setting)	Design and sample	Key findings
McKerracher et al., 2016 (Fiji) [14]	Field study among Indigenous Fijian women	Cravings targeted foods supplying calories and micronutrients at low risk; aversions targeted foods that could worsen pregnancy challenges.
Placek et al., 2017 (Mysore, India) [17]	102 pregnant women (farmers and Jenu Kuruba)	Innate aversions and culturally transmitted food taboos were largely distinct; papaya was the food most often avoided.
Fikrie et al., 2022 (Southern Ethiopia) [12]	Community-based cross-sectional; 530 women	Cravings 58.3%; meat (71.5%), fruits (41.7%) and dairy (22%) most craved; about half could obtain the craved food; cravings associated with undernutrition.
Prasmusinto et al., 2024 (Jakarta, Indonesia) [13]	Cross-sectional; 500 women	Cravings 63.8%; neuroticism strongly associated with cravings (OR $\approx$ 9.1).
Haddad-Tóvolli et al., 2022 (experimental) [18]	Pregnant mice	Craving-like behaviour mediated by mesolimbic dopamine circuits; persistent cravings associated with metabolic and behavioural changes in adult offspring.

GDM, gestational diabetes mellitus; OR, odds ratio.

Proposed mechanisms :

The literature discusses five groups of explanations (Table 4). Hormonal changes—including those of oestrogen, progesterone, prolactin, leptin and placental hormones—alter appetite and energy balance in pregnancy [19], but direct correlations between hormone levels and craving intensity have not been clearly shown [1]. Nutritional-deficiency explanations are supported for some forms of pica but not convincingly for most food cravings [1,3]. Adaptive or evolutionary models propose that

aversions protect the embryo from potentially harmful foods, while cravings may draw the mother towards safe, energy-rich items [14,16,20]. Cultural and psychosocial factors—beliefs, food availability and emotional state—have the strongest empirical support [1,13]. More recently, animal work has shown that pregnancy reorganises reward-related dopamine circuits in the brain, and that blocking these circuits abolishes craving-like behaviour [18].

Table 4. Critical correlation of the classical concept of *Dauhrida* with contemporary knowledge

Theme	Ayurvedic view	Contemporary correlate	Degree of agreement
Timing	Onset in fourth month	Cravings emerge by end of first trimester and peak in second [1]	Broadly consistent
Origin	Foetal desire conveyed through shared heart (<i>dvi-hridaya</i>)	Maternal hormonal, neural and psychosocial factors; placental signals alter maternal appetite [18,19]	Partial; foetal origin untested
Management	Fulfil desires; correct harmful items with wholesome ones	Individualised dietary counselling; healthy substitutions; screening for pica [1,3]	Consistent in principle
Unfulfilled desire	<i>Vata</i> aggravation; risk to foetus or mother	Unmet cravings linked to maternal undernutrition [12]; maternal stress relevant to outcomes	Suggestive

Theme	Ayurvedic view	Contemporary correlate	Degree of agreement
Offspring traits	Child resembles the object of desire	Prenatal flavour learning [21]; developmental origins of health and disease [22]; offspring effects in animals [18]	Plausible for taste and metabolism; unproven for character

Discussion :

This review shows that the Ayurvedic concept of *Dauhrida* closely corresponds to the modern phenomenon of pregnancy food cravings in timing and practical management, while differing in its explanation of cause. The main points of agreement and disagreement are discussed below.

Timing

The classical onset in the fourth month agrees with modern observations that cravings become established by the end of the first trimester and peak in the second [1,5,6]. The classical explanation—manifestation of the foetal heart and sense faculties—also has a partial parallel: this is the period in which the foetus develops functioning taste and smell and is exposed to flavours carried in the amniotic fluid [10,21]. The classical description is therefore observationally accurate, even though it frames its explanation in metaphysical terms.

Maternal or foetal origin?

The central claim of *Dauhrida*—that the craving belongs to the foetus—has no direct test in the modern literature. Current research places the proximate cause mainly in the mother: altered hormone levels and energy regulation [19], changes in taste and smell, nausea and aversions [15,16], personality and emotional state [13], and

reorganisation of brain reward circuits ^[18]. However, the placenta, which is a foetal organ, secretes hormones that act on the maternal brain and metabolism ^[19]. In this limited sense, the foetus does influence maternal appetite, and the image of "two hearts" joined by nourishing channels can be read as a pre-scientific description of maternal-foetal-placental signalling. Treat this interpretation as a hypothesis rather than an established equivalence.

4.3 Consequences of unfulfilled cravings

The classical warning that denial of *Dauhrida* harms the foetus is too strong to be supported as stated; there is no evidence that refusing a particular food causes miscarriage or a specific malformation. Nevertheless, the underlying concern has modern echoes. In Southern Ethiopia, only about half of women who craved foods could obtain them, and cravings were associated with maternal undernutrition ^[12]. The classical explanation invokes *Vata* aggravation from suppression of an urge, which is compatible with the modern understanding that psychological stress and unmet needs in pregnancy can affect maternal well-being. On the other hand, unrestrained indulgence carries its own risks: frequent cravings for sweet and energy-dense foods are associated with greater gestational weight gain and with more frequent sweet cravings in late pregnancy among women with gestational diabetes ^[1,4].

4.4 Maternal diet and offspring characteristics

Sushruta's correlation between the object of desire and the child's character (Table 2) cannot be

accepted literally. Yet the broader idea that maternal intake during pregnancy shapes the offspring is now well established. Infants whose mothers consumed carrot juice during pregnancy showed greater acceptance of carrot flavour after weaning, demonstrating prenatal flavour learning ^[21]. The developmental origins of health and disease framework shows that the intrauterine environment programmes long-term metabolic health ^[22]. In mice, persistent pregnancy cravings were followed by glucose intolerance, weight gain and anxiety-like behaviour in the adult offspring ^[18]. These findings lend plausibility to the classical view that the mother's desires and intake during pregnancy leave a lasting mark on the child, although the specific behavioural predictions remain unverified.

Clinical implications for integrative antenatal care

The most useful clinical principle of *Dauhrida* is *Charaka*'s instruction to satisfy an intense desire while correcting any harmful item with wholesome ones ^[5]. This aligns with current advice to acknowledge cravings rather than dismiss them and to guide women toward healthier substitutes. In practice, the following steps may be integrated into *Garbhini Paricharya* ^[8,9]:

- Ask routinely about cravings, aversions and pica at antenatal visits from the late first trimester.
- Allow wholesome cravings; for unwholesome ones, offer modified or smaller portions combined with nourishing

foods, in line with the *hitena upahitam* principle.

- Screen for pica and for iron-deficiency anaemia, and manage them according to standard guidelines [3].
- Monitor weight gain and glycaemic status in women with frequent sweet or energy-dense cravings [4].
- Respect the cultural and emotional meaning of desires, as the classics recommend for non-food wishes such as music, clothing or visits to places of worship.

Regional variation and directions for research

Both the classics and modern studies indicate that the objects of craving depend on region, culture and food availability [6,14,17]. India, with its wide diversity of diets, customs and food taboos, offers a valuable setting for studying *Dauhrida*. Prospective, multicentre cohort studies could record the onset, frequency, intensity, and objects of cravings using a validated instrument, along with the woman's Prakriti, diet, haemoglobin, gestational weight gain, and glycaemic status. Outcomes could include pregnancy complications, birth weight and, in longer follow-up, the child's food preferences and growth. Retrospective interviews with mothers could supplement such work. These designs would allow testing of the specific classical claims about timing, the effects of unmet desires and the relationship between maternal desires and offspring traits.

Limitations

This is a narrative rather than a systematic review;

study selection may therefore be incomplete, and no formal quality appraisal or meta-analysis was performed. Only English-language modern literature was included. Interpretation of Sanskrit passages depends on the editions and commentaries used. Some supporting evidence, particularly for offspring outcomes, comes from animal studies and cannot be extrapolated directly to humans.

Conclusion :

Dauhrida is an early and detailed clinical description of food cravings in pregnancy. Its timing, its recognition of cultural variation and its guidance to satisfy desires while correcting harmful choices agree well with contemporary evidence. Its explanation of craving as a foetal desire, and its predictions of specific effects on the child, are best regarded as hypotheses. The concept offers a culturally meaningful framework for counselling pregnant women and a clear agenda for prospective, region-specific research that can test the classical claims with modern methods.

Declarations :

Conflict of interest: The authors declare no conflict of interest regarding the publication of this article. The authors have no financial, commercial, institutional or personal relationships with any organisation or individual that could inappropriately influence, or be perceived to influence, the content of this work.

Ethical statement: This article reviews published classical and contemporary literature and did not involve human participants or animals; therefore, ethical approval was not required.

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Author contributions: SW conceived the study and interpreted the classical texts. ND reviewed the obstetric literature and drafted the manuscript. Both authors revised and approved the final version.

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