The Womb as a Cultural Kitchen: Garbh Sanskar, Dietary Taboos, and Nutritional Science

Shrishti Kushwah[1], Prof. Nigam Dave[*2] & Dr. Rachna Arora[3]

[1, *2, 3] Department of Language, Literature & Aesthetics, School of Liberal Studies, Pandit Deendayal Energy University, Gandhinagar, Gujarat, 382426, India.
shrishti.kphd21@sls.pdpu.ac.in,
nigam.dave@spt.pdpu.ac.in,
rachna.vasudev@sot.pdpu.ac.in

Abstract: In the Indian tradition, the system of Garbh Sanskar, or garbha-saṃskāra, is an integrated prenatal care system that combines community-based nutritional advice with emotional interventions, including music, prayer, stories, meditation, and ritual observances, to support the fetus during pregnancy. In Ayurvedic tradition, this is viewed as a metabolic process, with the provision of nourishment supporting the mother, lactation, and fetal growth. In this paper, the differences between these traditional approaches and the current science of prenatal nutrition and fetal development are discussed, with an emphasis on the current science of the effects of dietary restrictions, categorized as uṣṇa/śīta, hot, or cold, as in the case of the restriction of papaya, pineapple, milk, and yogurt, with their possible effects on the mother and fetus. In addition, observational studies on the balance of macronutrients, micronutrients, the physiology of stress, the hypothalamic-pituitary-adrenal axis, and the epigenetics of fetal development are discussed, to demonstrate the possible effects of the eating habits of the pregnant woman, as well as her anxiety about eating, as in the case of anxiety about the size of the fetus, with the possible consequence of under-nourishment of the fetus. In this regard, the traditional approach is viewed as evidence-based, benign, culturally appropriate, and comfortable, to demonstrate that when the traditional approach is in agreement with the current science, it may be used strategically, while when it is not, myths may need correction with an understanding of the context of the tradition.

Keywords: Prenatal nutrition, Food taboos, Cultural food practices, Holistic prenatal traditions, Maternal stress and diet

1 Introduction

Gestation is both a biological phase and a period saturated with custom and belief. Across cultures, communities have evolved practices meant to protect the mother and the unborn child. The Indian concept of Garbh Sanskar (lit. education/refinement of the womb) is one of these: drawing on classical Ayurvedic and Hindu traditions, it includes

S. Sharma et al. (eds.), *Proceedings of the International Conference on Emerging Food Studies: Intersections of Culture, Science and Sustainability (ICEFS 2026)*, Advances in Social Science, Education and Humanities Research 1017,
https://doi.org/10.2991/978-2-38476-583-6_20

maternal nutrition guidance, recitation of scripture, listening to classical music, and guided affirmations, each framed as shaping the foetus's physical, psychological, and cultural development [22]. Parallel ideas appear elsewhere; for example, the Chinese practice of taijiao (fetal education) holds that a mother's behaviours and surroundings imprint the child's later health and character [6]. In modern science, the same intuition is formalised in research on the developmental origins of health and disease (DOHaD).

Maternal nutrition, stress, and exposure to environmental stimuli and toxins during pregnancy are associated with long-term effects on offspring health, cognition, and behaviour [26]. This conjunction between the traditionally inherited practices should be closely looked at before passing on. Traditional prenatal repertoires often contain practically sound advice regarding a balanced diet and stress reduction alongside various prohibitions that lack logic and strong grounding. For example, in India, some women avoid hot foods such as papaya early in pregnancy on Ayurvedic grounds of heat imbalance, whereas biomedical guidance prioritises demonstrable risk factors and graded evidence [16][14]. Therefore, this paper distinguishes cultural meanings from clinical claims, evaluates where evidence aligns or diverges, and considers how belief, nutrition, and psychology interact in practice.

Thus, the paper separated the cultural meanings and wisdom from the clinical effects. For these cultural practices grouped under Garbh Sanskar, incorporating current findings in nutritional and developmental science is analysed. The larger purpose is to understand how belief, diet, and emotion together shape prenatal well-being in diverse, multicultural settings where guidance must remain both evidence-based and culturally sensitive. These reflections draw partly on the authors' reading of prenatal handbooks and informal discussions with expectant mothers in Gujarat during 2023–24.

2 Cultural Beliefs and Traditions Regarding Prenatal Care

Among India's enduring prenatal customs, Garbh Sanskar (garbha-saṃskāra) occupies a distinctive place Pregnancy is seen here as a bodily process but also as an emotional and moral phase, a time when the unborn child is believed to absorb the mother's moods and surroundings., when the unborn child is thought to absorb the mother's moods, diet, and immediate surroundings [26][28]. Rooted in Ayurvedic thought and Hindu devotional practice, the idea continues to circulate through popular handbooks, family counselling sessions, and community workshops for expectant mothers [21].

In these settings, women are encouraged to follow balanced routines, listening to soothing music, practising mantra or gentle meditation to create a calm inner atmosphere. Such practices align with the broader evidence that maternal stress, affect, and hormonal regulation can influence fetal neurodevelopment [8][26]. Texts such as the Mahābhārata are sometimes read aloud during these sessions, not as a ritual obligation but as a way of surrounding the child with stories of moral strength and composure. As Singh observes, "The practice of Garbhsanskar prepares the unborn child's mind for moral and intellectual development through stories, mantras, and the mother's calm state of being" [22].

Listening to calming music, often Indian classical compositions or designated ragas and devotional songs, is a common strand. A widely held belief is that fetuses can perceive and later recognise aspects of sound in utero; the legend of Abhimanyu, said to learn strategy in the womb, is frequently cited as a cultural touchstone for fetal intelligence. Contemporary programmes sometimes bundle Garbh Sangeet, which is a curated anthology of songs and mantras for pregnancy and emphasise the mother's voice, encouraging speaking to the fetus or reading aloud as an early form of emotional contact [27]. This finds partial support in empirical studies showcasing that fetuses can respond to and retain auditory stimuli during late gestation [12][19].

Garbh Sanskar places strong emphasis on maternal nutrition and recommends a sattvic diet- fresh, light, and wholesome foods during pregnancy. Typical guidance includes saffron-infused milk, ghee, almonds, coconut, and a variety of fruits, all framed as supporting fetal growth and, in some manuals, desirable attributes such as complexion and intellect. Certain foods are avoided on belief-based grounds (discussed in the next section on food perceptions). The underlying principle is simple: maternal nutrition supports the physiological development of the fetus and is thought to influence temperament, consistent with biomedical research suggesting that maternal nutrition is associated with fetal growth and developmental outcomes [4][10].

Expectant mothers are encouraged to seek joy and steadiness in everyday life and to avoid experiences coded as unsettling. Common suggestions include time in nature, gentle yoga, looking at aesthetically pleasing images, and cultivating hobbies (sketching, knitting baby garments). Often, books that advocate for the Garbh Sanskar tradition discuss topics like anger, sorrow, and anxiety and advise the readers to minimise the view that maternal affect can influence the baby's psyche. This result supports previous research findings that maternal stress, anxiety, and emotional conditions during pregnancy may impact fetal neurodevelopment and behavioral outcomes [18][26].

One of the most culturally significant elements is family support. In Indian households, relatives aid in reducing the physical strain of the expectant mother by providing traditionally nourishing remedies. One such culturally significant ceremony is Seemantonnayana, which is also called a baby shower in contemporary times, and is to honour the expectant mother and to provide psychological support publicly. This tradition aligns with the Garbh Sanskar principle, which claims that a cherished mother who is cared for well is more likely to nurture a healthy child. This result supports previous research findings that link social support during pregnancy with improved maternal mental health and birth outcomes [5][9].

Even in contemporary times, Garbh Sanskar is followed by many in India as a guidebook. Many hospitals and perinatal education programmes offer daily routine handbooks and mobile apps based on the Garbh Sanskar principles. Some of the guidance provided by Garbh Sanskar, such as listening to soothing music, has also been upheld globally for calming newborns, reducing mothers' stress, and achieving better outcomes [3][15]. A recent study conducted by Upadhyay and others of 1,323 Indian mothers who used a smartphone-based Garbh Sanskar programme reported lower preterm birth and healthier birthweight compared to the general population, alongside lower

self-reported stress and anxiety. These findings thus point to the possibility that traditions that focus on supporting overall well-being can boost mothers' mental health and lead to better birth outcomes.

Therefore, it is important to separate effective measures like stress management practices and balanced nutrition from unsupported claims like the idea that reading mythological stories directly enhances a child's future intelligence. Also, Garbh Sangeet, which is a form of curated mantras and songs for pregnant women, shows this mix. It convincingly aids relaxation and bonding, but enhanced study designs are needed to quantify the specific effects [27].

Garbh Sanskar is not unique per se, as it is spread across the world. In China, the tradition of taijiao encourages pregnant women to explore art, music and moral actions to benefit the fetus [6]. In Europe and North America, prospective parents often play classical music near the abdomen or use prenatal bonding techniques based on the belief that the fetus perceives and responds to external stimuli. What distinguishes Garbh Sanskar, arguably, is its holism: spiritual practice, psychological orientation, and dietary advice are drawn into a single prenatal worldview.

3 Cultural Beliefs Regarding Diet: Hot–Cold Foods and Taboos

Hot–Cold Foods and Taboos Nutrition is central to prenatal care everywhere, but cultural logics often shape what expectant women eat. Across South Asia, foods are traditionally classified as "hot" or "cold" labels that refer not to temperature but to perceived effects on bodily balance and pregnancy [13]. In many Ayurvedic accounts, pregnancy is treated as a "hot" state; overeating "hot" foods is thought to exacerbate internal heat and risk harm, whereas "cold" foods are believed to restore balance [23]. Papaya (especially green/unripe) and pineapple are commonly cautioned against in early pregnancy, said to heat the body or stimulate the uterus and thus risk miscarriage. In some communities, eggs, certain spices, and meat are also treated as "hot" and avoided by some expectant mothers [14]. From a biomedical perspective, unripe papaya contains latex/papain, which at very high doses can have uterotonic effects, but normal consumption of ripe papaya has not been shown to cause miscarriage; nevertheless, folk awareness of these items as abortifacients persists.

Across many Indian households, foods such as coconut water, milk or yoghurt, melons, and cooling herbs like fennel are described as "cold" and therefore especially suitable in the early months of pregnancy. Pregnant women in India are advised to have a glass of saffron-infused milk or fresh coconut water in the morning (empty stomach) for steady digestion and to enhance the baby's growth. Although traditionalists link these choices with the complexion of the baby's intellect, the tangible benefits are hydration and mild nutritional support. For example, foods like coconut and milk aid in fluid balance and essential nutrient intake during pregnancy [11][29].

As pregnancy advances, the same families may adjust the menu once again. In the final trimester, "hot" items such as warm ghee or spiced curries occasionally reappear, based on the belief that they help the uterus prepare for labour. This variation reminds us that the hot–cold idea is more a way of thinking about balance than a fixed rulebook

for diet. It adapts to circumstances and bodily state. In several agrarian regions, a different concern shapes diet altogether: the fear of delivering an overly large baby and facing a difficult labour. A study found that women who fear difficult labour eat less or skip protein-rich foods just when their bodies need them most. Meta-analysis of pregnancy food taboos categorizes this pattern, leading to increasing risks of low birth weight and maternal undernutrition [16].

4 Alternative Guidelines: Everyday Protocols, Beliefs, and Counselling

Pregnancy attracts a host of dos and don'ts that shape daily life across cultures [13]. Some are symbolic or reassuring; others can affect nutrition in concrete ways [2][20]. In some communities, attending to pregnancy cravings is treated as important; elders may warn that ignoring a craving could lead to a child's birthmark or excess drooling. While such outcomes are culturally framed rather than clinical, the practice can help families centre the mother's needs and comfort [20]. By contrast, certain vegetables or legumes, e.g., brinjal/eggplant or mung beans, are sometimes discouraged on folk grounds (gas, skin colour changes, and other unsubstantiated effects). These views matter because they influence real food choices, even when physiological mechanisms are unclear [2].

Not all culinary rules are problematic. Many traditions converge with clinical guidance: an emphasis on fresh, home-cooked food, moderation with very oily or very spicy dishes, and avoidance of alcohol align with recommendations for a soft, balanced diet. Encouraging milk, fruits, and nuts can raise intakes of protein, calcium, fiber, and vitamins that pregnant women require [17].

Difficulties arise when strict avoidance narrows the diet. If a woman excludes "hot" but iron-rich foods such as eggs or certain leafy greens, she may increase her risk of anemia, already common in many Indian settings [14]. Avoiding papaya or pineapple is not inherently harmful (they are not staple nutrient sources), but blanket avoidance sometimes spills over to other foods or lowers total energy intake. Over time, such patterns can contribute to low birthweight and maternal undernutrition.

Public health programmes in culturally diverse settings have learned to work with belief rather than against it. Instead of confronting a taboo head-on, counsellors can pivot to need-based messaging and offer culturally acceptable substitutes. For example:

- Iron framing: Your baby needs iron to build healthy blood. If eggs are taboo, suggest leafy greens, pulses, jaggery peanut chikkis, or fortified options common in the household.
- Clarifying myths gently: Explain that ripe papaya in moderation is acceptable, while keeping the focus on adequate overall nutrition and weight gain targets.
- Leaning on tradition's strengths: Reinforce helpful norms related to bringing nutritious meals, safe herbal flavourings, while quietly retiring claims that lack evidence.

Field programmes in rural India often phrase advice in culturally consonant terms, e.g., "Eating well is part of garbh ka khayal as our grandparents taught us. Now we know which foods deliver the most," an approach associated with better uptake [14].

Some expectant women observe religious fasts (avoiding certain foods or eating at restricted times). These practices can be reconciled with nutritional needs through negotiated plans: ensure hydration, time supplementation when permitted, or, with appropriate religious guidance, modify the fast to protect maternal–fetal health. Respectful, case-by-case solutions preserve devotion while safeguarding nutrition.

Cultural eating traditions in pregnancy blend care, prudence, and misconception. They provide belonging and continuity, yet sometimes constrain key nutrients. From a healthcare standpoint, the task is to amplify the benign/beneficial elements and modify the risky ones so that cultural desire and healthy ends move in step [14][17].

5 Scientific Insights on Prenatal Nutrition and Fetal Development

Modern research supports the claim that maternal diet during pregnancy shapes both immediate outcomes and the long-term health of the child [26]. This is often framed within the Developmental Origins of Health and Disease (DOHaD) paradigm: exposures in the periconceptional and fetal periods can programme later metabolism and disease risk [26]. Natural experiment evidence from the Dutch Hunger Winter (1944–45) shows higher risks of glucose intolerance, obesity, and cardiovascular disease in adults who were in utero during famine, with effects varying by timing of exposure. Even outside famine, suboptimal prenatal nutrition is associated with low birthweight, prematurity, and specific neurocognitive risks [17][26].

Energy needs rise modestly in later trimesters; a pragmatic rule of thumb is an additional ~300–500 kcal/day in the second and third trimesters, with a small increase in protein to support fetal and maternal tissue growth [17]. The emphasis is nutrient density, not eating for two: meals built from whole grains, pulses/legumes, vegetables, fruits, dairy, eggs or other lean proteins, and healthy fats are consistently associated with better outcomes [17].

6 Micronutrients: What Matters Most

Folate/folic acid remains central for neural tube closure; supplementation before conception and in early pregnancy is standard [26]. Iron requirements increase substantially with expanding blood volume and fetal demand; iron deficiency anemia is linked to fatigue, preterm delivery, and low birthweight [17]. Calcium and vitamin D support skeletal development and maternal bone health; iodine supports maternal thyroid function and fetal neurodevelopment; vitamin B12, zinc, and omega-3 fatty acids (DHA) also contribute to optimal outcomes [17][26]. Vegetarian dietary patterns common in India often provide ample folate and fiber but may be low in B12 and in bioavailable iron; fortified foods or supplements can bridge these gaps [17].

With chronic undernutrition, the fetus adapts by prioritising vital organs, a thrifty phenotype that can increase later risks of obesity and type 2 diabetes when postnatal food is abundant [10]. Conversely, high intakes of refined sugars and unhealthy fats in pregnancy are linked to excess fetal fat accretion and later metabolic risk [17]. The implication is straightforward: maternal eating habits carry both short-term consequences for pregnancy and long-term trajectories for offspring.

Many routine Indian foods already align with scientific aims: lentils/dal (protein, iron), leafy vegetables (folate, iron), yoghurt/curd (calcium, probiotics), and iodised salt (iodine). Scientific guidance adds quantities: for example, about 27 mg/day iron in pregnancy and 400 μg/day folic acid pre-conception and in early gestation [17]. Nutrition staff can translate targets into local meals pairing non-haem iron sources with vitamin C (e.g., lemon with dal or spinach) to improve absorption. In short, research endorses a balanced dietary pattern during gestation while estimating the amounts that cultural repertoires such as Garbh Sanskar often valorise in principle [17][26]. Counselling, supplementation programmes, and food fortification can complement cultural practice so that mothers and newborns obtain the required nutrients [17].

7 Maternal Psychological and Sensorial Effects: Stress, Emotion, and Fetal Cognition

Beyond nutrition, the mother's emotional and psychological state forms a crucial part of the prenatal environment. Cultural repertoires such as Garbh Sanskar have long intuited this, prioritising meditation, positive affect, and stress minimisation. Contemporary research outlines mechanisms by which maternal state and sensory exposure shape fetal development.

Chronic maternal stress elevates cortisol and catecholamines. These hormones can cross the placenta; while physiological levels of cortisol aid maturation, excess exposure is associated with altered trajectories of infant brain development and later stress reactivity [26]. Epidemiological studies link prenatal stress with higher risks of anxiety, attentional difficulties, and emotional dysregulation in offspring, plausibly via programming of the fetal hypothalamic–pituitary–adrenal (HPA) axis [26]. Managing stress in pregnancy, therefore, protects both maternal well-being and fetal neurodevelopment.

Depressive or anxiety symptoms in pregnancy correlate with preterm birth, low birthweight, and later developmental concerns [17][26]. Pathways include stress hormone signalling, inflammation, and health behaviours (e.g., reduced diet quality or missed antenatal visits). Cultural practices that scaffold mental health, family support rituals, rest, prayer, or spiritual consolation aim at the same endpoint as modern interventions such as prenatal yoga, psychotherapy, and peer support groups: reducing maternal distress and thereby improving outcomes for the newborn [17].

Prenatal experiences can leave epigenetic marks and changes in gene expression (e.g., DNA methylation) without altering DNA sequence. Severe stress or undernutrition in gestation has been associated with epigenetic signatures in fetal tissues that re-

late to later cardiometabolic and neurodevelopmental risk; conversely, nurturing conditions may favour profiles linked to resilience [27]. This provides a molecular account of how maternal experience becomes biologically embedded, paralleling (but not identical to) Garbh Sanskar's claim that a favourable environment yields a fitter child.

By the third trimester, fetuses can detect sound, light, and taste and form primitive memories.

- Auditory learning: Newborns preferentially recognise their mother's voice and familiar stories or songs repeatedly presented in utero. In a classic experiment, infants altered their sucking to hear a story ("The Cat in the Hat") read aloud repeatedly during late pregnancy [7]. Subsequent studies report that late pregnancy music exposure can be associated with calmer postnatal behaviour and easier consolability [1]. Early sensitivity to prosody also helps explain why newborn crying contours may resemble the intonation of the maternal language.
- Taste and smell: Flavours from the maternal diet permeate amniotic fluid, which the fetus swallows. Repeated exposure can shape postnatal preferences; studies report fetal facial responses to specific flavours (e.g., carrot, kale) and later preference for familiar odours [25].

Maternal feelings likely influence the fetus indirectly via biochemical routes (stress hormones, autonomic changes). When a mother engages in soothing activities like listening to gentle music, speaking affectionately to the bump, practising relaxation, she helps create a quieter intrauterine milieu (steadier heart rate, fewer stress-related perturbations). Garbh Sanskar's invitations to stories, music, and contemplation can thus be read as an early template for sensory enrichment. Even if the fetus does not grasp semantic content, it can discriminate voice quality and rhythmic patterns.

The weight of scientific evidence favours the view that a mother's psychological and sensory world affects fetal development [1][7][26]. This supports traditions that help mothers feel calm, supported, and spiritually enriched. The effects may involve changes in the body and early shaping of the fetus's development [26][27]. The most important aspect is to separate practices that are backed by evidence, like lowering long-term stress or singing to the baby, from claims that go too far. Clinicians and families can embrace useful cultural practices without fuelling unrealistic expectations if they are framed in this manner.

8 Tradition and Clinical Practices

In the previous section, we looked at how traditional thought shapes maternal well-being. Here, the focus turns to what happens when that knowledge meets the clinic. From our own field exchanges, it is clear that both doctors and families already mix spiritual and medical reasoning in everyday pregnancy care. The difficulty is not resistance, but conversation, how to keep faith and science in the same room.

Legare et al. (2025) note that cultural trust often makes women more willing to follow medical guidance. Many families see Garbh Sanskar as a way of nurturing calmness and moral strength. When a clinician begins from that ground, perhaps referring

to a lullaby or a morning meditation, it becomes easier to link such habits with biomedical advice on diet, iron–folate intake, or rest. We have seen mothers respond warmly when nutrition is explained as part of the baby's Sanskar rather than as an instruction.

Counselling about food works best when it honours local reasoning. If a mother avoids "hot" foods, the point is to suggest gentle substitutes like leafy greens, lentils, raisins, or other familiar options with vitamin C for iron absorption. Even old practices such as cooking in iron pots can be mentioned as sensible continuities [17]. The goal is simple: healthy meals that feel like home.

Not every belief is harmless. Some women still eat sparingly, hoping for an easier labour, a fear with historical roots. Rather than a blunt correction, empathy helps. Explaining how nourishment supports safer deliveries, or pointing to neighbours who thrived on fuller diets, changes minds faster than warnings alone [14].

Evidence is slowly catching up with experience. Upadhyay et al. (2024) found that a phone-based Garbh Sanskar programme correlated with lower stress and fewer preterm births. Such findings invite cautious optimism: when research confirms what communities long sensed, trust deepens on both sides.

Many hospitals now blend yoga, music, or short prayers into antenatal sessions, easing mothers into medical routines like scans and vaccinations [17]. Still, integration has limits. Some herbal tonics contain heavy metals or purgatives; these should be replaced, ideally through joint decisions with midwives or healers [14].

In community meetings, elders often explain why a ritual matters while clinicians share new data. One local group even blesses iron tablets before distribution, a small act that turns medicine into meaning. When science speaks gently, and tradition listens back, prenatal care becomes not only effective but deeply human [14][17][24].

9 Conclusion

Cultural approaches to prenatal care and scientific thinking are often cast as opposing paths, yet as this paper shows, they can overlap and reinforce each other. Garbh Sanskar and comparable traditions offer a holistic orientation that complements contemporary evidence on how a mother's body and mind influence fetal development. Conventional rituals emphasise nutritious food, calm affect, and moral cultivation before birth; science corroborates much of this focus. Appropriate nutrition and key micronutrients matter for maternal and infant health; maternal stress can shape neurodevelopment; and fetuses perceive sound and taste, laying foundations for later preferences and behaviours [1][7][26].

Gaps remain. Not all ancestral lore survives empirical testing, and not all evidence-based guidance is communicated in culturally meaningful terms. Cultural intuition long assumed the uterine environment mattered, but only recently have epigenetics and developmental neuroscience clarified plausible mechanisms for such influence [26][27]. Conversely, while the value of iron and folic acid has been established for years, prohibitions, misinformation, or access barriers still produce deficiencies in many pregnancies [14][17]. Correcting these imbalances requires education and mutual respect. Clinicians should learn the cultural paradigms their patients inhabit and adapt

counsel to reinforce desirable practices; communities, in turn, benefit from understanding the scientific evidence behind protocols that share the same basic aim as tradition: maximising the well-being of both mother and fetus.

When an expectant woman can hold her grandmother's counsel, stay calm, eat well, alongside her clinician's advice, meditation, balanced diet, iron–folate, as complementary rather than competing voices, she gains both scientific knowledge and cultural confidence. Therefore, traditions like Garbh Sanskar testify to centuries of experiential understanding. Modern science frequently reinforces that wisdom and sometimes recalibrates it where necessary. Combining the two produces prenatal plans that are psychologically reassuring, culturally relevant, and physiologically sound, with benefits for families and for population health through habits that foster healthier pregnancies and children [14][17][26]. An ideal pregnancy is shaped by a thoughtful blending of tradition and contemporary understanding that passes on not only genes but also care, insight, and hope for a healthy life.

References

1. R. Arya, M. Chansoria, R. Konanki, and D. K. Tiwari, "Maternal Music Exposure during Pregnancy Influences Neonatal Behaviour: An Open-Label Randomized Controlled Trial," International Journal of Pediatrics, vol. 2012, pp. 1–6, 2012, doi: 10.1155/2012/901812.
2. M. Bentley, L. Gavin, M. M. Black, and L. Teti, "Infant feeding practices of low-income, African-American, adolescent mothers: An ecological, multigenerational perspective," Social Science & Medicine, vol. 49, no. 8, pp. 1085–1100, 1999, doi: 10.1016/S0277-9536(99)00198-7.
3. B. Bittman, L. Berk, M. Shannon, M. Sharaf, J. Westengard, K. J. Guegler, and D. W. Ruff, "Recreational music-making modulates the human stress response: A preliminary individualized gene expression strategy," Medical Science Monitor, vol. 11, no. 2, pp. BR31–BR40, 2005.
4. R. E. Black et al., "Maternal and child undernutrition and overweight in low-income and middle-income countries," The Lancet, vol. 382, no. 9890, pp. 427–451, 2013, doi: 10.1016/S0140-6736(13)60937-X.
5. N. L. Collins, C. Dunkel-Schetter, M. Lobel, and S. C. Scrimshaw, "Social support in pregnancy: Psychosocial correlates of birth outcomes and postpartum depression," Journal of Personality and Social Psychology, vol. 65, no. 6, pp. 1243–1258, 1993, doi: 10.1037/0022-3514.65.6.1243.
6. P. Deadman, "Taijiao (Foetal Education)," Journal of Chinese Medicine, pp. 48–54, 2014.
7. J. DeCasper and M. J. Spence, "Prenatal maternal speech influences newborns' perception of speech sounds," Infant Behavior and Development, vol. 9, no. 2, pp. 133–150, 1986, doi: 10.1016/0163-6383(86)90025-1.
8. J. A. DiPietro, "Maternal Stress in Pregnancy: Considerations for Fetal Development," Journal of Adolescent Health, vol. 51, no. 2, 2012, doi: 10.1016/j.jadohealth.2012.04.008.
9. P. J. Feldman, C. Dunkel-Schetter, C. A. Sandman, and P. D. Wadhwa, "Maternal Social Support Predicts Birth Weight and Fetal Growth in Human Pregnancy," Psychosomatic Medicine, vol. 62, no. 5, pp. 715–725, 2000, doi: 10.1097/00006842-200009000-00016.

10. K. M. Godfrey, P. D. Gluckman, and M. A. Hanson, "Developmental origins of metabolic disease: Life course and intergenerational perspectives," Trends in Endocrinology & Metabolism, vol. 21, no. 4, pp. 199–205, 2010, doi: 10.1016/j.tem.2009.12.008.
11. S. S. Gropper and J. L. Smith, Advanced Nutrition and Human Metabolism, 6th ed., Cengage Learning, 2012.
12. P. G. Hepper, "An Examination of Fetal Learning Before and After Birth," Irish Journal of Psychology, vol. 12, no. 2, pp. 95–107, 1991, doi: 10.1080/03033910.1991.10557830.
13. R. S. Khare, Ed., The Eternal Food: Gastronomic Ideas and Experiences of Hindus and Buddhists, SUNY Press, 1992.
14. C. H. Legare and F. A. Hashmi, "From counsel to consumption: Examining sociocultural influences on perinatal nutrition in rural India," Frontiers in Nutrition, vol. 12, Art. no. 1645528, 2025, doi: 10.3389/fnut.2025.1645528.
15. J. Loewy, K. Stewart, A.-M. Dassler, A. Telsey, and P. Homel, "The Effects of Music Therapy on Vital Signs, Feeding, and Sleep in Premature Infants," Pediatrics, vol. 131, no. 5, pp. 902–918, 2013, doi: 10.1542/peds.2012-1367.
16. O. Maggiulli, F. Rufo, S. E. Johns, and J. C. K. Wells, "Food taboos during pregnancy: Meta-analysis on cross cultural differences suggests specific, diet-related pressures on childbirth among agriculturalists," PeerJ, vol. 10, Art. no. e13633, 2022, doi: 10.7717/peerj.13633.
17. N. E. Marshall et al., "The importance of nutrition in pregnancy and lactation: Lifelong consequences," American Journal of Obstetrics and Gynecology, vol. 226, no. 5, pp. 607–632, 2022, doi: 10.1016/j.ajog.2021.12.035.
18. K. J. O'Donnell and M. J. Meaney, "Fetal Origins of Mental Health: The Developmental Origins of Health and Disease Hypothesis," American Journal of Psychiatry, vol. 174, no. 4, pp. 319–328, 2017, doi: 10.1176/appi.ajp.2016.16020138.
19. E. Partanen et al., "Learning-induced neural plasticity of speech processing before birth," Proceedings of the National Academy of Sciences, vol. 110, no. 37, pp. 15145–15150, 2013, doi: 10.1073/pnas.1302159110.
20. C. L. Patil, E. T. Abrams, A. R. Steinmetz, and S. L. Young, "Appetite Sensations and Nausea and Vomiting in Pregnancy: An Overview of the Explanations," Ecology of Food and Nutrition, vol. 51, no. 5, pp. 394–417, 2012, doi: 10.1080/03670244.2012.696010.
21. B. Patwardhan, G. Mutalik, and G. Tillu, Integrative Approaches for Health: Biomedical Research, Ayurveda and Yoga, Academic Press, 2015, doi: 10.1016/C2013-0-19395-6.
22. J. Singh, "Garbhsanskar Mental and Intellectual Development of Unborn Child," Journal of Neonatal Studies, vol. 1, no. 1, p. 03, 2018.
23. V. Team, K. Vasey, and L. Manderson, "Cultural Dimensions of Pregnancy, Birth and Post-Natal Care," Monash University, 2009.
24. H. Upadhyay, J. Upadhyay, P. Agrawal, and D. Agrawal, "The Impact of Garbh Sanskar Practice on Pregnancy Outcomes," International Journal of Creative Research Thoughts, vol. 12, no. 1, 2024.
25. B. Ustun-Elayan, J. Blissett, J. Covey, B. Schaal, and N. Reissland, "Flavor learning and memory in utero as assessed through the changing pattern of olfactory responses from fetal to neonatal life," Appetite, vol. 208, Art. no. 107891, 2025, doi: 10.1016/j.appet.2025.107891.
26. B. R. H. Van den Bergh et al., "Prenatal developmental origins of behavior and mental health: The influence of maternal stress in pregnancy," Neuroscience & Biobehavioral Reviews, vol. 117, pp. 26–64, 2020, doi: 10.1016/j.neubiorev.2017.07.003.

27. D. P. Verma, D. A. Shukla, and V. Rastogi, "Garbh Sanskar and Epigenetic Influences: A New Frontier in Prenatal Care," TIJER International Research Journal, vol. 12, no. 5, pp. b600–b606, 2025.
28. P. Wadhwa, C. Buss, S. Entringer, and J. Swanson, "Developmental Origins of Health and Disease: Brief History of the Approach and Current Focus on Epigenetic Mechanisms," Seminars in Reproductive Medicine, vol. 27, no. 5, pp. 358–368, 2009, doi: 10.1055/s-0029-1237424.
29. World Health Organization, "WHO recommendations on antenatal care for a positive pregnancy experience," Nov. 2016.