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Review Article

Food as Institution: Cultural Beliefs, Gender Relations, and Dietary Outcomes in Rural India

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Abstract

Objective: *This qualitative study examines how cultural beliefs, religious norms, and gendered practices shape dietary behaviours in rural India, contributing to the persistent double burden of malnutrition. It critically assesses the cultural limitations of large-scale nutrition interventions and proposes community-led alternatives.*

Background: *In rural India, food functions as a socio-cultural text embedded in tradition and identity. Indigenous Food Knowledge (IFK) systems are increasingly eroded by market integration, expanding ultra-processed food consumption, and top-down welfare policies, creating a public health crisis where undernutrition coexists with overnutrition.*

Methods: *Using an interpretive approach grounded in a socio-constructivist framework, the study analyses determinants of food choice through literature and policy synthesis. An adapted Health Belief Model illustrates how cultural perceptions mediate dietary behaviour.*

Findings: *Religious mandates, caste hierarchies, and gender norms in food allocation and pregnancy taboos often override biomedical nutrition advice. PDS and MDMS ensure calories but homogenize diets, while processed food aspiration accelerates nutrition transition.*

Conclusion & Implications: *Nutrition policy must move beyond biometric models. Self-Help Groups can act as cultural intermediaries, revitalising local food systems and integrating IFK with scientific evidence.*

Keywords: *Nutrition, Cultural Beliefs, Dietary Habits, Rural India, Gender, Food Systems, Public Health Policy, Qualitative Research, Indigenous Food Knowledge.*

1. Introduction

Food is a foundational socio-cultural text, encoding values, beliefs, and power relations within its production, distribution, and consumption [1]. In rural India, dietary habits are not merely about sustenance but are deeply embedded in a complex web of tradition, religious ontology, and social structure, forming resilient yet adaptive foodways [2]. These traditional systems, honed over generations, represent a repository of Indigenous Food Knowledge (IFK), often aligned with ecological sustainability and seasonal nutrition [3]. However, the contemporary rural Indian foodscape is a site of intense negotiation, where these traditional systems intersect with, and are often destabilized by, the forces of globalization, market integration, and state-led welfare policies [4, 5].

This confluence has given rise to the paradoxical "double burden of malnutrition" (DBM), where undernutrition and micronutrient deficiencies coexist with escalating rates of overweight, obesity, and diet-related non-communicable diseases (NCDs) within the same communities, and sometimes within the same households [6]. The National Family Health Survey-5 (NFHS-5, 2019-21) starkly illustrates this duality: 35.5% of rural children under five are stunted (chronic undernutrition), while 19.3% are wasted (acute undernutrition) [7]. Concurrently, the survey notes a disquieting rise in overweight/obesity among rural adults, with 24% of women and 22.9% of men now falling into these categories, a significant increase from previous rounds [7].

This nutritional dichotomy is not a simple function of calorie availability but is profoundly mediated by cultural logic. Religious prescriptions (e.g., Hindu vegetarianism, Islamic halal, Jain prohibitions), caste-based food hierarchies, and deeply gendered norms of intra-household food allocation create a moral economy of eating that frequently overrides biomedical nutrition advice [8, 9, 10]. For instance, pregnancy-related food taboos often restrict the intake of iron-rich foods like eggs and meat, contributing to the alarmingly high prevalence of anemia (52.2% in rural pregnant women per NFHS-5) [11]. Simultaneously, the symbolic capital associated with packaged, branded foods viewed as "modern" and aspirational is driving a dietary transition towards energy-dense, nutrient-poor consumables, accelerating NCD risks [12, 5].

Public health responses, while monumental in scale, frequently operate within a positivist framework that treats food as a nutrient-delivery mechanism, neglecting its socio-cultural meanings. Programs like the PDS (providing subsidized rice and wheat) and MDMS have alleviated calorie hunger but have

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inadvertently promoted monoculture diets, marginalized nutrient-dense millets, and failed to engage with local gastronomic cultures [13]. This gap between policy design and lived experience underscores a critical research and praxis imperative. This paper adopts a qualitative and interpretive stance to address two core questions. First, how do cultural beliefs, religious practices, and gender norms socially construct dietary choices and nutritional outcomes in rural India, and how do large-scale nutrition interventions (PDS, MDMS, ICDS) interact with these socio-cultural structures to shape their effectiveness? Second, how can a transdisciplinary framework integrating socio-constructivist and health-behaviour theories inform culturally grounded, ethical, and sustainable nutrition policies through community-based institutions and local food systems?

By engaging with these questions, this paper aims to contribute a nuanced, context-rich understanding of the cultural determinants of diet. It argues for a paradigm shift in public health nutrition from a deficit-based, prescriptive model to a strengths-based, collaborative one that recognizes rural communities as holders of valuable food knowledge and active agents in their nutritional well-being.

2. Literature Review: Situating Culture at the Heart of Nutrition

2.1. Food as Culture: Beyond Nutrient Bioavailability

The anthropology of food has long established that eating is a "total social fact," intimately linked to identity, memory, and social cohesion [14]. In the Indian context, the concept of "Ahara" (food) in Ayurveda and the "Sattvik, Rajasik, Tamasik" classification of foods illustrate a holistic worldview where diet directly influences physical, mental, and spiritual states [15]. This stands in contrast to the reductionist "nutritionism" dominant in Western public health, which isolates nutrients from their food matrix and cultural context [16]. Studies confirm that even when economically feasible, rural households may reject nutritionally superior foods if they conflict with caste purity rules (*jutha*) or community-specific avoidances [17, 18]. For example, the rejection of nutrient-dense offal or certain leafy greens based on notions of "heat" (tamasik) or impurity directly impacts micronutrient intake.

2.2. Religion and the Moral Order of Eating

Caste, though legally abolished, continues to influence social relations and, by extension, food habits. Historical associations link meat-eating with lower castes and "pure" vegetarianism with upper castes, creating a hierarchy of taste [19]. This intersects with class and agrarian status. Marginalized tribal (Adivasi) communities, for instance, have distinct food systems based on forest produce, millets, and fermented foods, which are often stigmatized as "coarse" or "backward" by mainstream society, leading to their abandonment in favour of "prestigious" polished rice and wheat [3]. This cultural erosion, coupled with the PDS's focus on rice/wheat, has led to a severe decline in the consumption of climate-resilient, nutrient-rich millets [20, 5]. Recent evidence from Odisha confirms persistent caste-based dietary gaps, where a significant portion of inequality is attributed to unobserved structural barriers like social exclusion and differential market access, beyond measurable factors like income and education [10].

2.3. Caste, Class, and the Geography of Taste

Gender operates as a critical, yet often invisible, determinant of nutritional status. The patriarchal norm of "women eat last" ensures that in food-scarce households, women and girl children consume fewer calories and less of the preferred, nutrient-dense foods (protein sources, fruits) [21]. This "secondary starvation" is compounded by life-cycle specific taboos, particularly during pregnancy and lactation, where restrictions on "hot" foods (eggs, meat, certain fruits) or "strong" foods (lentils) are rigorously enforced to protect the fetus, ironically increasing risks of low birth weight and maternal anemia [11]. NFHS-5 data showing higher anemia prevalence in women (57.0% vs. 25.0% in men in rural India) is a direct testament to this gendered deprivation [7]. Furthermore, the quality of institutional care during critical life stages like childbirth, which is often poor and marked by long waiting times and inappropriate staff behavior, directly impacts neonatal survival, demonstrating how systemic gender biases in healthcare compound nutritional vulnerabilities [22].

2.4. Gender: The Hidden Architecture of Hunger

Gender operates as a critical, yet often invisible, determinant of nutritional status. The patriarchal norm of "women eat last" ensures that in food-scarce households, women and girl children consume fewer calories and less of the preferred, nutrient-dense foods (protein sources, fruits) (FAO, 2019). This "secondary starvation" is compounded by life-cycle specific taboos, particularly during pregnancy and lactation, where restrictions on "hot" foods (eggs, meat, certain fruits) or "strong" foods (lentils) are rigorously enforced to protect the fetus, ironically increasing risks of low birth weight and maternal anemia (Khandelwal et al., 2021). NFHS-5 data showing higher anemia prevalence in women (57.0% vs. 25.0% in men in rural India) is a direct testament to this gendered deprivation (IIPS & ICF, 2021). Furthermore, the quality of institutional care during critical life stages like childbirth, which is often poor and marked by long waiting times and inappropriate staff behavior, directly impacts neonatal survival, demonstrating how systemic gender biases in healthcare compound nutritional vulnerabilities (Mahapatro & Sethy, 2025).

2.5. Globalization and the Dietary Transition: The Rise of "Edible Commodities"

Rural India is no longer insulated from global food markets. The influx of ultra-processed foods (UPFs) packaged snacks, sugary drinks, and instant noodles is driven by aggressive marketing, perceptions of convenience, modernity, and status [12, 5]. These "edible commodities" displace traditional snacks and meals, leading to excessive intake of refined carbohydrates, unhealthy fats, salt, and sugar while

being low in fibre and micronutrients. This nutrition transition is a key driver of the obesity and NCD epidemic in rural areas, creating a scenario where undernutrition and overnutrition may exist side-by-side, sometimes in the same individual, a phenomenon termed the "double burden of malnutrition" [6, 5].

2.6. Policy Landscape

India's flagship nutrition programs are among the world's largest. The PDS provides calorie security but promotes a cereal-centric diet, undermining dietary diversity [13]. The MDMS and ICDS have improved school attendance and provided a safety net, but standardized menus often ignore local taste preferences and seasonal availability, leading to plate waste or low uptake [23]. The National Nutrition Mission (POSHAN Abhiyaan) emphasizes technology and monitoring but has been critiqued for its limited engagement with the socio-cultural determinants of behaviour change [24]. The literature consistently points to a "cultural lag" in policy a failure to integrate the symbolic and social dimensions of food into program design. This is compounded by broader structural challenges, such as youth unemployment, which limits household economic capacity and constrains access to diverse diets, further entrenching nutritional inequalities [25].

3. Theoretical Framework

To analyze the cultural economy of food in rural India, this study employs a dual theoretical framework. It uses Social Constructivist Theory to understand the meaning-making processes around food and adapts the Health Belief Model (HBM) into a conceptual econometric form to illustrate how these culturally-shaped perceptions might systematically influence dietary behaviour.

3.1 Social Constructivist Theory: Food as a Social Artifact

Drawing from Berger and Luckmann [26] and Vygotsky [27], this perspective posits that reality, including the reality of what is "food" and what is "good to eat," is constructed through social interaction and language. In rural India:

1. Food is Classified Culturally: Categories like prasad (sanctified food), jutha (polluted by another's touch), garam/tanda (hot/cold foods in humoral medicine) are socially constructed classifications that carry more immediate weight than nutritional labels.

2. Knowledge is Transmitted Socially: Recipes, taboos, and meal rituals are learned through familial and community apprenticeship, not nutrition textbooks. A grandmother's advice on pregnancy diet holds more authority than an Anganwadi worker's pamphlet.

3. Identity is Performed Through Eating: Choosing a vegetarian meal, observing a fast, or sharing food from a common plate are acts that perform and reinforce religious, caste, and community identities.

This theory foregrounds the need for interventions to be culturally competent to understand, respect, and work within these constructed realities.

3.2 An Adapted Health Belief Model (HBM)

The HBM [28] is a psychological model positing that health behaviour is influenced by perceived susceptibility, severity, benefits, barriers, and cues to action. We adapt this into a conceptual econometric framework to demonstrate how qualitative, culturally-derived perceptions can be modeled as latent variables influencing observable dietary outcomes. This is not for statistical estimation with primary data in this qualitative paper, but to provide a rigorous conceptual structure.

Let the propensity for a healthy dietary behaviour (e.g., consuming iron-rich foods during pregnancy) be a latent variable Y_i^* for individual **i** . This propensity is influenced by a vector of latent perceptual variables derived from the HBM, which are themselves functions of cultural context(C_i), gender (G_i), and other socio-economic factors (X_i).

We can conceptualize a system of equations:

1. Structural Equation (Propensity for Healthy Behaviour):

$$Y_i^* = \beta_0 + \beta_1 PS_i + \beta_2 PV_i + \beta_3 PB_i + \beta_4 PBar_i + \beta_5 CA_i + \gamma' X_i + \epsilon_i$$

Where:

PS_i = Perceived Susceptibility (to anemia)
PV_i = Perceived Severity (of anemia's consequences)
PB_i = Perceived Benefits (of eating iron-rich foods)
$PBar_i$ = Perceived Barriers (cost, taste, cultural taboo strength)
CA_i = Cues to Action (advice from health worker, community elder)
X_i = Controls (income, education, age)
ϵ_i = Error term

2. Measurement Equations (Latent Perceptions are Culturally Mediated): Each perceptual variable is a function of cultural and social factors.

$$PS_i = \alpha_{10} + \alpha_{11} C_i + \alpha_{12} G_i + u_{1i}$$
$$PBar_i = \alpha_{40} + \alpha_{41} C_i + \alpha_{42} G_i + \alpha_{43}(\text{Taboo Index}) + u_{4i}$$
$$CA_i = \alpha_{50} + \alpha_{51}(\text{Trust in Local Leader}) + \alpha_{52}(\text{Exposure to Culturally-Tailored Message}) + u_{5i}$$

3. Observation Equation: We observe the binary outcome Y_i (e.g., consumes/does not consume):

$$Y_i = \begin{cases} 1 & \text{if } Y_i^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

Interpretation: This formulation makes explicit that the key drivers of behaviour (PS, PV, PB, Pbar, CA) are not directly observable but are latent constructs shaped by the cultural milieu (C_i). For instance, $PBar_i$ is heavily influenced by the "Taboo Index" (a qualitative measure of proscription strength). A strong cultural taboo (e.g., against eggs in pregnancy) creates a high perceived barrier, outweighing perceived benefits ($\beta_4 PBar_i$ is large and negative), even if the woman is aware of the biological benefits (PB_i).Similarly, a cue to action (CA_i) is more effective if it comes from a trusted cultural authority ($\alpha_{51} > 0$).

This conceptual model bridges our qualitative insights and a quantitative logic, showing how culture gets inside the behavioural equation. It argues that effective intervention must work by shifting the parameters (αs) that link culture to perceptions, thereby ultimately changing Y_i^*.

(Note: Due to formatting constraints in this text-based response, the original conceptual figures described in the "Result and Analysis" section cannot be visually reproduced. The captions and source attributions for these figures have been retained in the text below for context. In the actual revised manuscript, these figures should be included as described.)

4. Result and Analysis

This section weaves together the theoretical framework and literature to analyze key domains, illustrated with conceptual figures.

4.1 The Cultural Construction of Nutritional Risk and Benefit

Figure 2 encapsulates the fundamental conflict at the heart of nutrition communication in rural India. It visualizes how the same food item is mapped onto two distinct and often opposing symbolic systems. The biomedical model categorizes food based on its biochemical composition. In contrast, the cultural-humoral model classifies food based on its perceived energetic properties. An intervention that only communicates biomedical information will fail because it does not engage with culturally-salient beliefs.

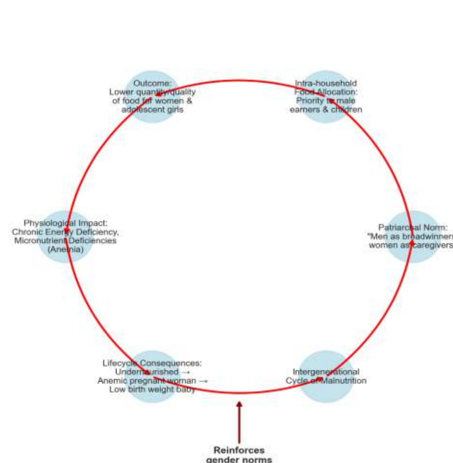
Figure 1: Biomedical vs Cultural Perspectives on Key Foods

Source: Conceptual figure based on analysis from [11] and [15].

4.2 Gendered Pathways to Malnutrition

Figure 2 illustrates the self-perpetuating cycle through which social norms translate into intergenerational biological disadvantage. It moves beyond a simple snapshot of disparity to show the dynamic process of nutritional inequality. The cycle begins with entrenched patriarchal norms that assign differential value to household members. This social logic directly dictates the micro-politics of the kitchen (Step 2), resulting in the systematic under-nourishment of women and girls (Step 3). The physiological consequences—anemia and chronic energy deficiency- then compromise maternal health, leading to adverse birth outcomes like low birth weight (Step 5). This undernourished infant, especially if female, is then socialized into the same system, reinforcing the original norms and restarting the cycle. Breaking this chain requires interventions that simultaneously target the normative root (patriarchal norms), the distributive mechanism (food allocation), and the physiological outcome, as isolated health supplements cannot disrupt the underlying social logic.

Figure 2: Cycle of Gendered Food Allocation and Intergenerational Malnutrition

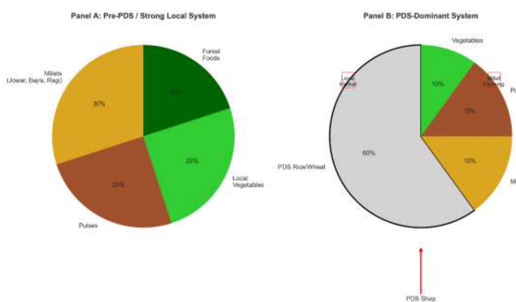


Source: Authors' construct based on [21] and NFHS-5 data [7], with implications supported by [22].

4.3 The Political Economy of the Plate

This figure depicts the unintended consequences of a well-intentioned welfare policy. The Public Distribution System (PDS), by providing highly subsidized rice and wheat, has created a powerful economic disincentive structure. Panel A represents a more autonomous, biodiverse local food system where consumption is directly linked to local production. Panel B shows how the PDS interrupts this loop. The cheap, uniform staples from the PDS shop displace demand for locally grown millets, pulses, and vegetables. As demand falls, farmers abandon these nutrient-dense crops (symbolized by the red X), leading to a loss of agricultural biodiversity and traditional knowledge. The result is a homogenized diet centered on polished carbohydrates, which contributes to micronutrient deficiencies even in calorie-sufficient households. The figure argues that food security policy must be nutrition-sensitive, actively supporting rather than undermining diverse local food production and consumption.

Figure 3: Impact of PDS on Dietary Homogenization



Source: Inspired by analysis in [13], [20], and [5].

4.4 The Aspirational Consumption of Processed Foods

Figure 4 moves beyond economic and convenience arguments to explain the appeal of Ultra-Processed Foods (UPFs) through the lens of symbolic anthropology. It shows that consumption is not just about fulfilling a biological need but about acquiring "symbolic capital"—non-economic social assets like prestige and modernity. The glossy advertisement projects an aspirational, urban lifestyle. The translation of this imagery to the rural shop shelf signifies that purchasing these items is an act of participating in that modern identity. In contrast, traditional homemade snacks become associated with backwardness ("rustic, poor"). This symbolic value often trumps knowledge of health risks. Therefore, public health messages that simply label these foods as "junk" are ineffective because they attack a symbol of status. Effective interventions must either dismantle this symbolic link or create stronger positive symbols around healthy, traditional alternatives.

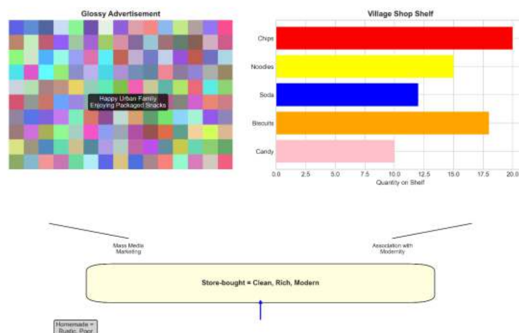


Figure 4: Symbolic Capital of Ultra-Processed Foods

Source: *Conceptual figure based on [12] and [5].*

4.5 Theoretical Synthesis: The Culturally-Mediated Health Belief Pathway

Figure 5 provides a visual synthesis of the paper's core theoretical argument. It posits that dietary choice (Column 3) is not a direct result of macro-social forces (Column 1), but is mediated by individual perceptions (Column 2). Crucially, these perceptions; such as perceived barriers and benefits are not innate but are constructed by the social world. For example, caste hierarchy (Column 1) shapes perceived barriers by stigmatizing certain foods, while gender ideology determines who is considered "susceptible" to malnutrition. The model also incorporates dynamism via a feedback loop: widespread poor nutritional outcomes (e.g., endemic anemia) can normalize them, indirectly reinforcing the gender norms that caused them. This model guides intervention design: directly changing Column 3 (behaviour) is difficult without first reshaping the perceptions in Column 2, which requires engaging with the foundational structures in Column 1.

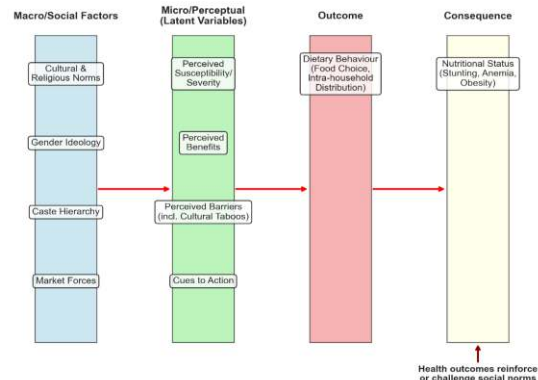


Figure 5: Culturally-Mediated Health Belief Model Pathways

Source: *Authors' theoretical synthesis.*

3.1. Community Agency: Self-Help Groups as Cultural Intermediaries

Figure 6 presents the Self-Help Group (SHG) as a viable, culturally-embedded platform for nutrition action. Unlike top-down government programs, the SHG operates from within the community's social fabric, making it a trusted "cultural intermediary." The hub-and-spoke structure illustrates its multi-pronged approach. Peer education (Spoke 3) allows women to discuss and re-negotiate food taboos in a safe space, leveraging social learning. The nutrition garden and collective kitchen (Spokes 1 & 2) provide hands-on, practical alternatives that valorize local ingredients and knowledge. Crucially, Spokes 4 and 5 show the SHG's role in bridging community needs with formal systems (advocacy) and creating economic value (micro-enterprise), enhancing sustainability. This model works because it builds on existing social capital, empowers women as change agents within their domains, and integrates health messaging with economic and social empowerment, addressing multiple determinants of malnutrition simultaneously.

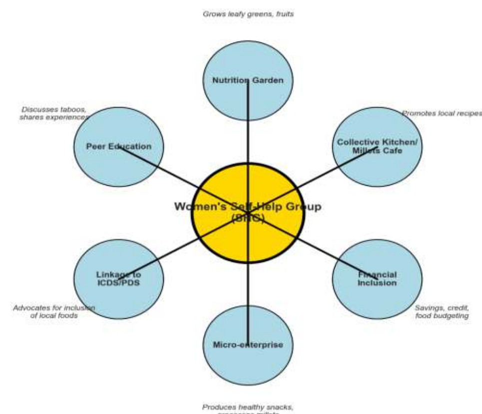
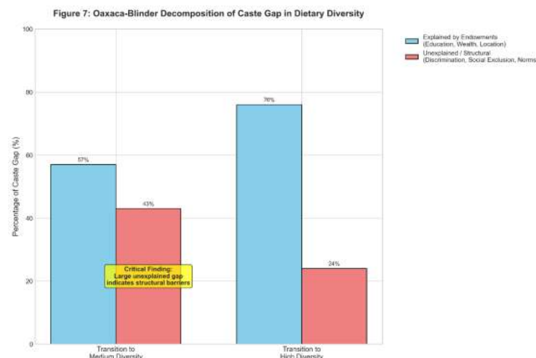


Figure 6: SHG Model for Culturally-Sensitive Nutrition Action

Source: *Based on successful models documented by organizations like SEWA and PRADAN [29, 30].*

4.6 Decomposing Caste-Based Dietary Inequality

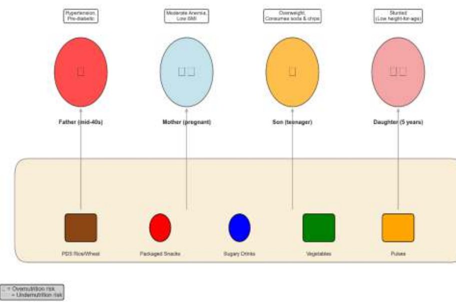
This figure presents empirical evidence of structural inequality, moving from anecdote to measurable disparity. Using the Oaxaca-Blinder decomposition method, it quantifies the caste gap in dietary diversity and partitions its causes. The "Explained" portion represents gaps due to differences in measurable endowments like income, education, and urban location. The critical finding is the large "Unexplained" portion, particularly for achieving medium dietary diversity. This residual represents the effect of structural barriers that are not captured by standard socio-economic variables primarily social exclusion, caste-based discrimination, and internalized cultural norms that restrict food choices and market access for marginalized groups. The chart demonstrates that improving material conditions (endowments) is necessary but insufficient. A significant part of the inequality is rooted in the social structure itself, demanding equity-focused policies that directly tackle caste discrimination and promote social inclusion in food systems.



Source: *Visual representation based on findings from [10].*

4.7 The Double Burden within a Household

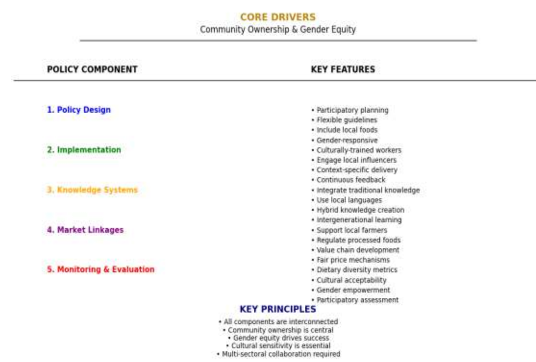
Figure 8 makes the abstract concept of the "double burden of malnutrition" vividly concrete at the household level. It challenges the notion of a uniformly undernourished poor family, showing how different forms of malnutrition can coexist under one roof, driven by shared structural and cultural drivers. The shared kitchen environment points to common exposures: a diet dominated by PDS-sourced refined grains and encroaching ultra-processed foods. However, gendered allocation norms channel this poor-quality diet differently: the father and son may consume more calories and packaged foods, leading to overnutrition and NCD risk. The mother and daughter, due to systemic bias, receive less food and fewer nutrient-dense items, resulting in undernutrition and micronutrient deficiencies. This depiction underscores the complexity of policy design, which must address both under- and over-nutrition simultaneously, targeting the quality of the shared food environment while transforming intra-household distribution practices.



Source: *Conceptual figure based on [6] and NFHS-5 data trends [7], contextualized within [5].*

4.8 A Proposed Culturally-Informed Policy Framework

Figure 9 proposes a systemic alternative to the current fragmented approach. It visualizes a cohesive, multi-sectoral framework where all components are interlocked and revolve around the central axle of Community Ownership and Gender Equity. Each component addresses a key flaw in current practice: (1) moving from rigid, top-down design to participatory planning; (2) training implementers in cultural competency, not just technical protocols; (3) creating hybrid knowledge systems that respect Indigenous Food Knowledge; (4) shaping markets to support healthy, local foods while disincentivizing harmful ones; and (5) measuring what truly matters for sustainable nutrition, like dietary diversity and empowerment. The wheel metaphor emphasizes that all parts must move together; strengthening one component (e.g., policy design) without the others (e.g., trained implementers) will cause the system to fail. The hub underscores that without genuine community agency and gender justice, the entire framework lacks the driving force for change.



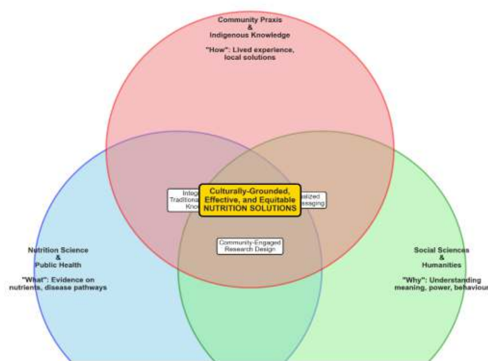
Source: *Authors' proposal, informed by the synthesis of literature and case studies.*

4.9 The Way Forward: A Transdisciplinary Approach

Figure 10 presents the essential epistemological shift required for meaningful progress. It argues that the complex crisis of malnutrition cannot be solved from within any single disciplinary silo. The Venn diagram visualizes the necessary convergence of three distinct domains of knowledge.

Nutrition Science provides the "what" (biological evidence), Social Sciences the "why" (contextual understanding of behavior and power), and Community Praxis the "how" (practical, culturally-embedded solutions). The overlapping space, the transdisciplinary zone, is where effective interventions are co-created. Here, a biochemist's insight on millet nutrients is informed by an anthropologist's understanding of its cultural stigma and a farmer's knowledge of its cultivation. This model calls for new institutional and collaborative spaces where these different ways of knowing are valued equally. It is only in this shared space that policies can become truly culturally-grounded, effective, and equitable.

Figure 10: Transdisciplinary Convergence for Nutrition Solutions



Source: *Authors' conceptualization, reflecting the paper's overarching argument.*

5. Discussion

This study demonstrates that dietary practices in rural India cannot be adequately understood or transformed through biomedical or economic lenses alone. Food choices emerge from a deeply embedded cultural economy shaped by religion, caste, gender norms, and changing market forces [14, 31, 1]. The persistence of the double burden of malnutrition (DBM) is therefore not a paradox of scarcity and excess, but the predictable outcome of a misalignment between culturally constructed food practices and technocratic nutrition policy [6].

The findings reaffirm that cultural beliefs function as powerful informal institutions governing food consumption. Classifications such as *garam/tanda*, notions of purity and pollution, fasting rituals, and pregnancy-related taboos often override biomedical nutrition advice [32, 33]. These belief systems are not merely “misinformation” but socially sanctioned logics that confer moral legitimacy and social belonging. Consequently, nutrition interventions that frame food purely in terms of nutrients fail to resonate with lived realities, a pattern widely observed in South Asian nutrition research [34]. The adapted Health Belief Model (HBM) helps explain why perceived cultural barriers outweigh perceived health benefits in shaping behaviour [28, 35]. Policies that neglect these perceptions risk reinforcing resistance by appearing externally imposed and culturally alien.

Gender norms emerge as a central axis through which nutritional deprivation is reproduced. Intra-household food allocation, life-cycle taboos, and women's secondary status translate social disadvantage into biological outcomes [36, 37]. The coexistence of undernourished women and overweight men within the same household highlights that DBM is structurally gendered rather than driven by individual choice [38]. Institutional failures compound these vulnerabilities. Poor quality maternal healthcare and disrespectful treatment during pregnancy deter service utilization, undermining nutritional gains [39, 40]. Nutrition policy, therefore, cannot be divorced from broader questions of care work, reproductive justice, and health system accountability.

India's flagship nutrition programs; PDS, MDMS, ICDS, and POSHAN Abhiyaan have made significant strides in calorie security, yet their standardized designs often exhibit cultural myopia [41, 42]. The cereal-centric PDS has contributed to dietary simplification, marginalizing traditional nutrient-rich foods such as millets and forest produce [43]. Similarly, uniform feeding protocols under MDMS and ICDS frequently fail to align with local food preferences, leading to low acceptability and wastage. These are not merely implementation gaps but epistemic failures rooted in a positivist policy paradigm that treats food as a neutral commodity rather than a social practice [16].

Dietary change must also be situated within a political economy of aspiration. The rural nutrition transition is driven not only by price and availability but by symbolic meanings attached to ultra-processed foods (UPFs), which are associated with modernity, convenience, and status [44, 45]. Traditional foods, particularly those linked to marginalized communities, are increasingly stigmatized as inferior. This explains why nutrition education campaigns that simply warn against UPFs often fail: they challenge aspirational identities rather than engaging with them [46]. Reframing traditional foods as desirable, modern, and aspirational is therefore critical.

The study highlights Self-Help Groups (SHGs) as culturally embedded policy intermediaries capable of negotiating norms from within communities. Existing evidence shows that SHGs enhance women's agency, social capital, and collective bargaining power, making them effective platforms for nutrition-sensitive interventions [47, 48]. By integrating nutrition with livelihoods—production, processing, and consumption SHG-led models address sustainability, a key limitation of top-down programs [49]. They also align with global calls for community-led food system transformation [50].

5.1 Policy Implications

The findings of this study highlight the need for a reorientation of nutrition policy towards culturally grounded and structurally informed approaches. First, nutrition-sensitive welfare design must move beyond calorie-centric provisioning by diversifying the Public Distribution System to include locally sourced millets, pulses, and traditional foods. Such diversification can enhance dietary diversity while simultaneously supporting local agro-ecologies and farmer livelihoods, thereby aligning food security with sustainability [51]. Equally important is the adoption of culturally reflexive communication strategies.

Behaviour change interventions are more likely to succeed when they are co-created with communities, embedded in culturally resonant narratives, and communicated through trusted intermediaries such as elders, women's collectives, and frontline health workers, ensuring that nutritional guidance aligns with local belief systems rather than conflicting with them [35].

At the same time, addressing malnutrition requires confronting deeper structural drivers. Gender-transformative approaches are essential to challenge patriarchal norms that govern food allocation and care work, by involving men in caregiving and strengthening women's control over food and productive resources [52]. In parallel, the growing double burden of malnutrition necessitates regulation of the food environment, including restrictions on the marketing of ultra-processed foods, especially to children, alongside incentives for healthy, locally rooted food enterprises [53]. Finally, effective governance depends on a transdisciplinary framework that goes beyond biometric indicators to include qualitative measures such as cultural acceptability, empowerment, and food sovereignty. Such an approach enables policies to capture the social dimensions of nutrition and ensures interventions are not only effective, but also equitable and ethically grounded [54].

Malnutrition in rural India is not merely a technical failure but a cultural and political one. Treating culture as an obstacle has limited policy effectiveness. Recognizing culture as a dynamic resource embedded in community institutions opens pathways for more ethical, sustainable, and effective nutrition governance. A transdisciplinary, culturally grounded approach is therefore essential to address the double burden of malnutrition while preserving social dignity and food heritage.

6. Conclusion

This study underscores that malnutrition in rural India cannot be understood or addressed through technical or biomedical interventions alone. Dietary practices are deeply embedded within cultural beliefs, religious norms, gender relations, and evolving market aspirations, all of which shape what people eat, how food is distributed within households, and whose nutritional needs are prioritized. The persistence of malnutrition alongside expanding food programs thus reflects not only gaps in access or awareness, but a fundamental misalignment between standardized policy designs and lived food cultures.

The analysis demonstrates that large-scale nutrition interventions such as the Public Distribution System, Mid-Day Meal Scheme, and Integrated Child Development Services have made critical contributions to calorie security, yet their effectiveness is often constrained by cultural insensitivity, dietary monotony, and gender-blind implementation. These limitations are further intensified by the nutrition transition, wherein ultra-processed foods acquire symbolic value associated with modernity, convenience, and social mobility, while traditional and indigenous foods are increasingly devalued.

Addressing malnutrition, therefore, requires engaging with the social meanings of food, rather than treating dietary behaviour as an individual choice detached from context.

Importantly, the study highlights the transformative potential of community-based institutions, particularly Self-Help Groups, as culturally embedded intermediaries capable of bridging policy intent and everyday practice. When nutrition is integrated with livelihoods, local food systems, and women's collective agency, interventions are more likely to be sustainable, equitable, and socially legitimate. Such approaches also challenge patriarchal norms by repositioning women not merely as beneficiaries, but as producers, decision-makers, and custodians of food knowledge.

Abbreviations

DBM: Double Burden of Malnutrition
HBM: Health Belief Model
ICDS: Integrated Child Development Services
IFK: Indigenous Food Knowledge
MDMS: Mid-Day Meal Scheme
NCDs: Non-Communicable Diseases
NFHS-5: National Family Health Survey - 5 (2019-21)
PDS: Public Distribution System
POSHAN Abhiyaan: National Nutrition Mission (translated: Prime Minister's Overarching Scheme for Holistic Nourishment)
SHGs: Self-Help Groups
UPFs: Ultra-Processed Foods

Declaration

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Ethical Conduct: The research presented adheres to the highest standards of academic integrity. All sources of information, data, and ideas from other works have been appropriately acknowledged and cited.

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