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Review Article

VISUAL NUDGES FOR HEALTHIER FUTURES: A POLICY ANALYSIS OF INDIA'S 'SUGAR AND OIL LIMIT BOARDS' IN SCHOOLS

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ABSTRACT

India faces an alarming and escalating burden of non-communicable diseases (NCDs), with unhealthy dietary practices particularly excessive intake of sugar, salt, and oil as a primary driver. This crisis is increasingly prevalent among school-aged children exposed to obesogenic environments. In response, the Central Board of Secondary Education (CBSE), in collaboration with key national health and education ministries, mandated the installation of "Sugar and Oil Boards" in all affiliated schools in 2025. This initiative uses low-cost, visual nudges to promote mindful consumption based on scientific guidelines from the Indian Council of Medical Research–National Institute of Nutrition (ICMR–NIN). This narrative review applies the Walt and Gilson Policy Triangle Framework to analyse the evolution of India's school-based dietary policies between 2011 and 2025. It examines the policy's context, content, process, and the actors involved. The review identifies critical implementation gaps, including disparities in adoption and insufficient teacher training, and proposes recommendations for strengthening the initiative through curriculum integration, robust monitoring, and stakeholder engagement to ensure its sustainability and impact on national health.

KEYWORDS: Non-communicable Diseases, School Health Policy, Dietary Behaviour, Behavioural Nudges, Sugar and Oil Consumption, Nutrition Policy, Childhood Obesity, India.

Introduction

India is confronting a silent epidemic of nutrition-related non-communicable diseases (NCDs), which now account for nearly 63% of all deaths in the country[1]. A key modifiable risk factor is the dietary transition from traditional, home-cooked meals to energy-dense, nutrient-poor processed foods, a shift that has been particularly rapid among children and adolescents[16]. This trend, compounded by sedentary lifestyles, has accelerated the onset of metabolic disorders at younger ages, making schools a critical intervention setting[2].

Recognizing this urgency, the Ministry of Education (MoE) and the Central Board of Secondary Education (CBSE) introduced a directive in July 2025 mandating the display of "Sugar Limit" and "Oil Limit" boards across all affiliated schools[3]. These visual nudges display scientifically grounded daily intake limits recommended by the Indian Council of Medical Research–National Institute of Nutrition (ICMR–NIN) and are designed to educate children, teachers, and parents about mindful consumption. This review applies the Walt and Gilson Policy Triangle Framework to analyse the context, content, process, and actors that shaped this initiative and other related school-based dietary policies from 2011 to 2025.

Objectives

This narrative review aims to:

1. To describe the context of national policy measures targeting the reduction of dietary sugar, salt, and oil consumption among school-aged children.
2. To analyse the content of key regulatory frameworks and school-based initiatives implemented between 2011 and 2025.
3. To examine the processes and actors involved in formulating, coordinating, and implementing these policies.
4. To identify gaps and propose recommendations for strengthening school dietary behaviour change communication and sustainability.

Methods

A narrative policy review was conducted using official policy documents, circulars, guidelines, and reports obtained from the Ministry of Health and Family Welfare (MoHFW), Ministry of Education (MoE), Central Board of Secondary Education (CBSE), Food Safety and Standards Authority of India (FSSAI), and the Indian Council of Medical Research–National Institute of Nutrition (ICMR–NIN). Global guidance documents from the World Health Organization (WHO) and UNICEF published between 2011 and 2025 were also reviewed.

Relevant literature and policy documents were identified through manual searches of official government and institutional websites, supplemented by searches of Google Scholar and PubMed using keywords such as "school nutrition policy," "behavioral nudges," "childhood obesity," "sugar boards," "oil boards," "school health," and "India." Documents were included if they addressed school-based nutrition interventions, dietary guidelines, childhood NCD prevention, or behavioral approaches relevant to dietary behavior change. Duplicate, unrelated, and non-English documents lacking policy relevance were excluded.

The selected documents were chronologically mapped and thematically analyzed using the four domains of the Walt and Gilson Policy Triangle Framework: context, content, process, and actors.

Results

Policy Analysis using the Walt and Gilson Framework

Context: The Rising Burden of Childhood NCDs

The impetus for the "Sugar and Oil Boards" initiative is rooted in India's profound nutritional and epidemiological transition. The prevalence of overweight among children under five has doubled in 15 years, from 1.9% (NFHS-3, 2005–06) to 4.0% (NFHS-5, 2019–21)[3]. Data from the Comprehensive National Nutrition Survey (CNNS, 2016–18) further reveal that among adolescents (10–19 years), 5.1% are overweight and 1.8% are obese, with prevalence in urban areas nearly double that of rural areas.

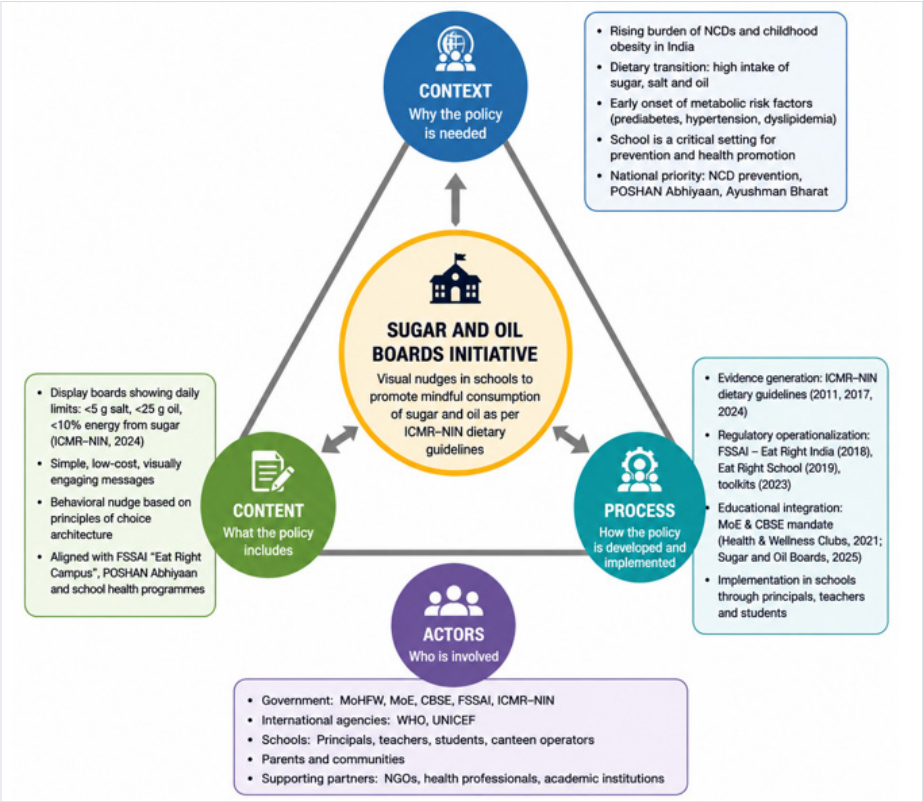

Figure 1: Walt and Gilson Policy Triangle Framework applied to the Sugar and Oil Boards initiative

Table 1: Burden of childhood obesity and NCD risk factors among Indian children and adolescents

Indicator	Age Group	Prevalence/Finding	Source (Year)
Overweight/Obesity Prevalence			
Overweight (Under 5 years)	<5 years	4.0% (doubled in 15 years from 1.9%)	NFHS-5 (2019–21) vs NFHS-3 (2005–06)
Overweight	10–19 years (Adolescents)	5.1%	CNNS (2016–18)
Obesity	10–19 years (Adolescents)	1.8%	CNNS (2016–18)
Overweight (Urban vs. Rural)	10–19 years (Adolescents)	Urban: 8.9%, Rural: 4.3%	CNNS (2016–18)
Obesity (Urban vs. Rural)	10–19 years (Adolescents)	Urban: 3.5%, Rural: 1.4%	CNNS (2016–18)
Overweight (Urban)	5–17 years	10.0-14.0%	Singh & Sharma (2021)
Obesity (Urban)	5–17 years	5.0-8.0%	Singh & Sharma (2021)
Overweight (Private vs. Govt Schools)	5–17 years	Private: 14.0%, Govt: 7.2%	Singh & Sharma (2021)
Combined Overweight/Obesity	School-going children	~11.3%	Gupta et al. (2023)
NCD Risk Factors			
Prediabetes (FPG >100 & <126 mg/dl or HbA1c 5.7%–6.4%)	School-age children & Adolescents	1 in 10	CNNS (2016–18)
Diabetes (FPG >126 mg/dl)	School-age children & Adolescents	1%	CNNS (2016–18)
High Total Cholesterol (≥200 mg/dl) & High LDL (≥130 mg/dl)	School-age children	3%	CNNS (2016–18)
	Adolescents	4%	CNNS (2016–18)
Low HDL (<40 mg/dL)	School-age children	26%	CNNS (2016–18)
	Adolescents	28%	CNNS (2016–18)
Hypertension (Systolic BP >139 mmHg or Diastolic BP >89 mmHg)	Adolescents	5%	CNNS (2016–18)
Behavioral Risk Factors (CNNS 2016–18)			
Less than 60 minutes of physical activity/ day	Adolescents	36%	CNNS (2016–18)
Screen time exceeding 3 hours daily.	Urban Adolescents	42%	CNNS (2016–18)

Beyond weight, the early onset of metabolic risk factors is a significant concern. Approximately one in ten children or adolescents is pre-diabetic, 5% of adolescents meet the criteria for hypertension, and low HDL ("good") cholesterol affects 26–28% of children and adolescents. This health crisis is driven by a triad of interrelated risks: unhealthy diets high in refined sugars and oils, insufficient physical activity (with 36% of adolescents not meeting WHO recommendations), and unsupportive environments where energy-dense foods are readily available. This compelling public health context created an urgent rationale for a scalable, school-based intervention.

Content: A Behavioral Nudge for Healthier Habits

The "Sugar and Oil Boards" initiative translates complex national dietary guidelines into a simple, school-based behavioral nudge. The content of the boards displays clear daily consumption limits derived from ICMR–NIN (2024) recommendations: less than 5g of salt, less than 25g of oil, and less than 10% of total energy from sugar. Designed

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to be low-cost and visually engaging, these boards act as continuous environmental reminders in high-traffic areas like canteens and classrooms[4,5].

The policy's design is explicitly rooted in behavioral economics, using subtle cues to influence healthier decision-making without restricting choice. By making nutritional information accessible and salient, the initiative aims to foster subconscious habit formation among students, teachers, and parents. This approach aligns with broader national frameworks, including FSSAI's "Eat Right Campus" program and the POSHAN Abhiyaan, creating a cohesive health promotion ecosystem within schools[6].

Process and Actors: A Multi-Sectoral Journey

The policy's evolution reflects a 14-year, multi-sectoral process. The journey began with a scientific foundation laid by ICMR–NIN, which first established dietary limits in 2011 and updated them in 2024. This was followed by regulatory operationalisation led by FSSAI through its "Eat Right India" and "Eat Right School" campaigns (2018–2023). The final phase involved educational integration, culminating in the July 2025 CBSE mandate for the display boards[7].

A convergence of institutional actors drove this process. The MoHFW provided strategic direction, while the MoE and CBSE served as the principal implementing agencies. FSSAI contributed regulatory expertise, and ICMR–NIN anchored the scientific basis for the policy. International organisations such as WHO and UNICEF provided advocacy support, while school principals, teachers, and parents acted as the primary change agents at the ground level[8,9]. However, implementation has been uneven, with urban and private schools showing faster adoption due to greater resources, highlighting a key challenge in the process[10]. The lack of a structured coordination mechanism among these actors has also been a persistent weakness[11,12].

Table 2: Major Policy Milestones for Dietary Regulation in Indian Schools (2011–2025)

Year	Milestone	Directive
2011	ICMR-NIN recommends quantified limits for sugar, salt, and oil in the general population.	ICMR-NIN
2017	ICMR-NIN updates dietary guidelines focusing on lifestyle diseases and child nutrition.	ICMR-NIN
2018	FSSAI launched the "Eat Right India" campaign to promote healthy diets across institutions.	FSSAI
2019	The "Eat Right School" program was introduced to promote safe and nutritious food in schools.	FSSAI
2020	ICMR-NIN reiterates the importance of limiting total energy intake from added sugar.	ICMR-NIN
2021	CBSE and MoE issue circulars to establish "Health & Wellness Clubs" in schools.	CBSE, MoE
2022	Expansion of "Ayushman Bharat School Health Programme" under MoHFW and MoE.	MoHFW, MoE
2023	FSSAI issues a comprehensive "Eat Right Toolkit" for schools.	FSSAI
May 2024	ICMR-NIN reiterates specific dietary limits: <5 g/day salt, <25 g/day oil, <5% energy from added sugar.	ICMR-NIN
July 2025	CBSE mandates "Sugar Limit" and "Oil Limit" display boards in all affiliated schools.	CBSE, MoE, FSSAI

Figure 2: Sugar and oil boards in schools [Source: FSSAI]

Key Implementation Gaps Identified

Implementation disparities were more commonly observed in resource-limited government schools and rural settings where awareness activities, monitoring systems, and infrastructure support were comparatively weaker. Variability in availability of trained teachers, multilingual educational materials, and healthy food environments within school canteens further contributed to inconsistent implementation across institutions. Similar operational challenges have also been described in school health promotion programs in other low- and middle-income settings.

Discussion

The present review demonstrates how the Walt and Gilson Policy Triangle Framework can effectively explain the development and implementation of school-based dietary interventions in India. The findings suggest that the rising burden of childhood obesity and associated metabolic risk factors created a strong policy context that necessitated preventive action[13].

The Sugar and Oil Boards initiative adopts principles of behavioural economics through the use of visual cues and environmental reminders. Repeated visual exposure may encourage healthier dietary practices by influencing habitual decision-making and increasing awareness regarding recommended dietary intake limits.[14] Similar approaches have demonstrated effectiveness in improving dietary awareness and promoting healthier food choices among children and adolescents.

Internationally, several countries have implemented school-based nutrition and behavioural interventions to address childhood obesity and unhealthy dietary practices. The United Kingdom introduced sugar taxation policies aimed at reducing sugar consumption through fiscal measures, while Denmark implemented regulatory restrictions on trans-fat content in processed foods. School-based nutrition labelling, healthy canteen policies, and visual behavioural cues have also been used in multiple settings to promote healthier food choices among children. Unlike fiscal strategies such as sugar taxation in the United Kingdom or trans-fat regulatory measures implemented in Denmark, India's approach emphasises health education and behaviour change within school settings.[15,16] Such an approach may be more feasible considering the scale, diversity, and resource constraints of the Indian education system.

However, successful implementation requires stronger inter-sectoral coordination, structured teacher training, active parental involvement, and systematic monitoring mechanisms. Integration of nutrition literacy into school curricula and strengthening school food environments may improve sustainability and long-term effectiveness.

Recommendations

To address identified implementation gaps and enhance the sustainability of the initiative, several measures are recommended. "Sugar and oil literacy" should be formally integrated into school health education curricula for Classes 4–10 to promote active learning, informed dietary choices, and long-term behavioural change among children and adolescents. Structured capacity-building programmes should be conducted to train teachers on ICMR–NIN dietary guidelines, nutrition communication, and behavioural change strategies so that they can effectively reinforce healthy practices within the school environment. Strengthening monitoring mechanisms through development of a digital dashboard, potentially integrated with the UDISE+ platform, may facilitate real-time tracking of implementation, compliance, and progress across schools.

Parent and student engagement should be enhanced through PTA meetings, awareness campaigns, quizzes, competitions, and participatory school-based activities to improve household-level awareness and encourage student ownership of healthy dietary behaviours. In addition, stricter implementation of FSSAI canteen guidelines is necessary to reduce the availability of foods high in fat, sugar, and salt (HFSS) within school premises and to create supportive food environments that reinforce healthy choices. Standardised multilingual educational materials and visual templates should also be developed to improve inclusiveness and consistency of messaging across diverse linguistic and socio-cultural settings. Furthermore, special emphasis should be placed on providing technical, financial, and infrastructural support to government and rural schools to minimise disparities in implementation and ensure equitable health promotion outcomes. Collaboration among educational institutions, health authorities, parents, and community stakeholders will be essential for ensuring long-term sustainability and effectiveness of the initiative in preventing childhood NCDs.

Conclusion

In conclusion, the "Sugar and Oil Limit Boards" initiative represents an innovative intersection of health, education, and behavioural policy in India. Despite implementation challenges, it provides a scalable and low-cost model for nutrition promotion and childhood NCD prevention. Institutionalisation through curriculum integration, capacity building, and robust monitoring systems may transform schools into sustainable platforms for promoting healthier dietary behaviours and improving long-term public health outcomes.

Limitations

This review has certain limitations. As a narrative policy review, the study does not employ a systematic review methodology and may therefore be subject to selection bias. The analysis primarily relied on publicly available policy documents, institutional guidelines, and secondary literature, which may not fully capture ground-level implementation

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experiences across all school settings. Additionally, limited published evidence is currently available regarding the long-term effectiveness of the Sugar and Oil Boards initiative, given its recent implementation.

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Conflict of Interest

None declared.

Ethical Approval

Not required because this review utilized publicly available policy documents and literature.

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