

NUTRITION THAT MATTERS

Shaping Children's Choice in Telangana



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Foreword

Children in India face a complex and evolving nutrition landscape, where undernutrition, micronutrient deficiencies, and the rising prevalence of overweight and obesity coexist. These multiple burdens are shaped not only by household factors but increasingly by the broader food environments children are exposed to in their daily lives. Addressing this spectrum of challenges requires a more comprehensive understanding of the determinants influencing children's dietary behaviours and nutrition outcomes.

Schools, where children spend a significant part of their formative years, are critical in this context. The food environments within and around schools directly influence what children eat, their food preferences, and long-term dietary habits. Recognizing and strengthening these environments is essential for designing effective, context-responsive public health interventions that promote healthy diets and improve nutrition outcomes among children and adolescents.

In this context, I am pleased to present this report on the School Food Environment Assessment conducted across Telangana in collaboration with the state education departments. The assessment contributes important evidence on how school ecosystems influence food choices and identifies opportunities to better nurture these environments to support healthier behaviours among children and adolescents.

The findings of this assessment highlight both encouraging progress and persistent gaps in creating enabling school food environments. It examines key dimensions, including food availability, adherence to existing guidelines, nutrition awareness among students, and the broader institutional and policy landscape. Importantly, the report brings forward perspectives from students, teachers, and school administrators, offering grounded insights into the behavioral and systemic factors that shape food choices.

UNICEF remains committed to supporting the governments of Andhra Pradesh/ Telangana/ Karnataka in translating these insights into actionable strategies. Strengthening policy frameworks, improving implementation mechanisms, and advancing nutrition education will be critical to ensuring that all children have access to safe, healthy, and nutritious food within school settings.

I commend the efforts of all partners, state departments and stakeholders who contributed to this assessment. It is my hope that this report will serve as a valuable resource for policymakers and practitioners, and as a catalyst for sustained action to improve nutrition outcomes for children and adolescents.

EXECUTIVE SUMMARY



School Food Environment Assessment in Telangana

1. Background and Rational

Adolescents represent a critical population group for advancing human capital and long-term public health outcomes in Telangana. The state continues to face a dual burden of malnutrition, characterized by persistent micronutrient deficiencies—particularly anaemia—alongside increasing exposure to ultra-processed foods and sedentary behaviours.

Schools provide a strategic entry point for shaping dietary practices, nutrition literacy, physical activity, and hygiene behaviours. While Telangana implements national programmes such as PM POSHAN, Anaemia Mukta Bharat, Weekly Iron and Folic Acid Supplementation (WIFS), and Menstrual Hygiene Management (MHM) initiatives, there has been limited consolidated evidence on how these interventions interact with the broader school food and health environment.

To address this gap, UNICEF supported the application of the Nutrition Environment Assessment Toolkit for Schools (NEAT-S) in Telangana to systematically assess school food environments, meal systems, WASH infrastructure, physical activity, nutrition education, and adolescent dietary behaviours.

2. Study Objectives

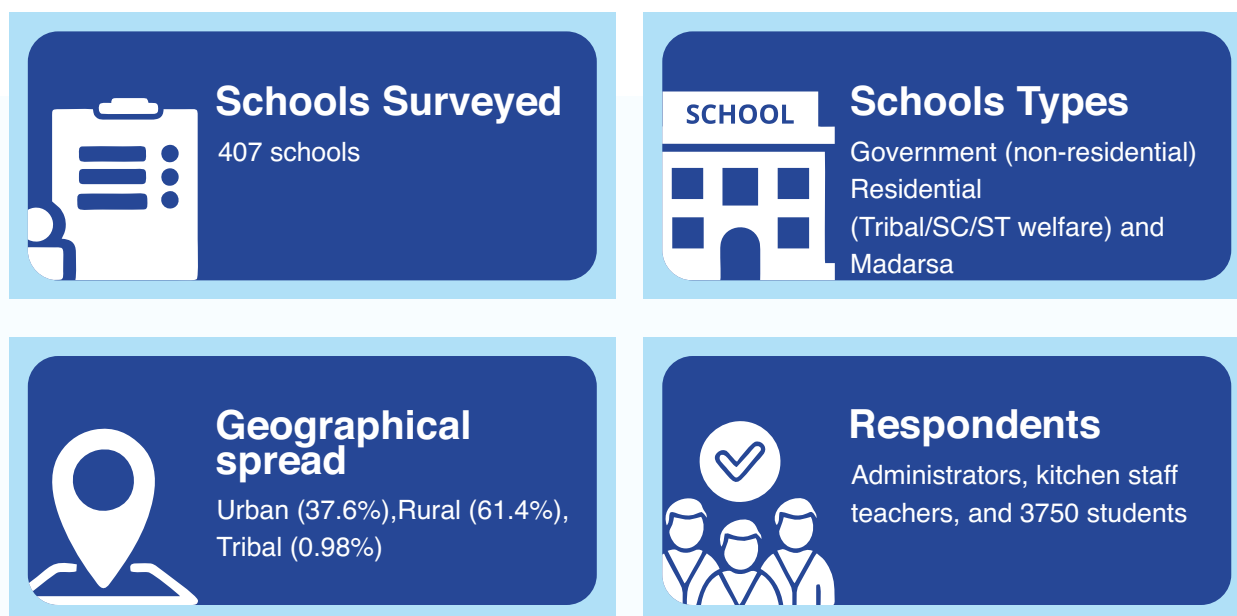
The study aimed to: - Assess the availability, quality, and management of school meal programs across government, private, residential, and Madaras schools. - Examine nutrition diversity, food safety practices, and use of fortified foods in school meals. - Evaluate the status of micronutrient supplementation, deworming, and health assessments. - Assess WASH infrastructure and menstrual hygiene management services in schools. - Examine food environments within and around school premises, including exposure to unhealthy foods. - Understand adolescent snacking behaviours, food preferences, and nutrition awareness. - Identify system-level gaps and opportunities to strengthen school-based nutrition and health interventions.

3. Methodology

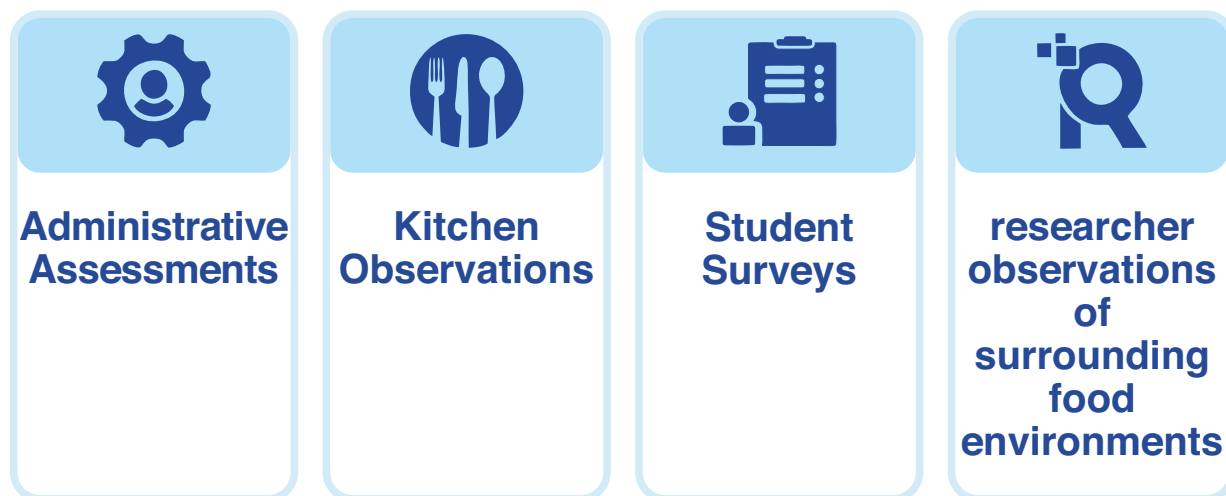
1. Study Design

A mixed-method, convergent parallel design was adopted using a contextualised NEAT-S toolkit.

Coverage and Sample



Data collection tools



4. Results

School Profile

The assessment covered 407 schools across Telangana, the majority of which were government (non-residential) institutions (61%), followed by residential schools (36.6%) and a small proportion of Madrasas (2.5%). Most schools were in rural areas (61.4%), with 37.6% in urban settings and a very small fraction in tribal areas. Over half of the schools offered upper primary education (52.1%), while nearly one-fourth provided both primary and upper primary levels. This distribution reflects strong representation of rural and government institutions in the sample.

School Meal Programme Implementation

The availability of school meal programmes was near universal, with 94% of schools reporting active meal provision. All schools operating a meal programme reported serving meals to all enrolled children, indicating strong equity in coverage once programs are in place. Student responses corroborated these findings, with 99% reporting meal availability in their schools.

Meals were predominantly staple based, with vegetables included in 89% of schools, pulses in 86%, and cereals in 70%. However, dietary diversity varied significantly by school type. Residential schools demonstrated more diverse meal composition, including high inclusion of pulses, vegetables, cereals, and dairy (75%), whereas government schools showed minimal inclusion of dairy (5%). The presence of deep-fried foods (6%) and sweets (10%) was relatively limited only in residential school in either snacks or weekend meals. Sugary beverages were observed in approximately 10% of schools, largely linked to traditional preparations such as ragi java with added jaggery.

Most schools (84%) prepared meals within on-site kitchens, while 14% relied on outsourced food providers. Procurement systems varied, with residential schools often receiving supplies through contractor agencies, while others procured ingredients locally or through government channels including fortified rice from the Public Distribution System. Despite the scale of implementation, only 5–10% of schools reported having a functional kitchen garden, indicating missed opportunities for experiential nutrition learning and dietary diversification

Monitoring mechanisms were reported to be strong at the administrative level, with 90% of schools conducting daily meal checks. However, formal laboratory testing of meals was extremely limited (1%), indicating weak external quality assurance despite high routine oversight



Cooking Infrastructure and Food Safety

A majority of schools (88%) had functional kitchens, and perceived adequacy of kitchen staffing was high (84%). However, infrastructure gaps were evident. Only 18% of schools had dining halls equipped with tables and chairs, while 34% reported that students ate meals in open playgrounds, often sitting on the ground. Approximately one-fifth of schools served meals inside classrooms.

While access to water and cleaning materials was generally adequate in kitchens, compliance with food safety standards was uneven. Only 22% of kitchen staff possessed updated medical certificates, and just one-third consistently used protective gear such as hair nets, gloves, or aprons. These findings suggest that although infrastructure exists, adherence to food safety norms requires strengthening

Use of Fortification Food products

The use of fortified ingredients in school meals was widely reported. Over 90% of schools used fortified rice, nearly 90% used fortified oil, and 85% used iodized salt. Researcher observations largely corroborated these reports, though slightly lower figures were observed for iodized salt usage in rural areas. Despite high adoption, around 15% of schools reported irregular supply and a similar proportion cited quality-related issues, highlighting supply chain reliability concerns.



Micronutrient Supplementation and Health Assessments

Health and nutritional monitoring systems were robust in coverage. Nearly all schools (97%) reported conducting health assessments, and a similar proportion implemented deworming programmes. Anthropometric assessments such as weight and height measurements were common, and two-thirds conducted haemoglobin testing. Assessment frequency varied, with many schools conducting evaluations every two months.

However, micronutrient supplementation coverage was more moderate. Approximately 60% of schools reported providing supplements, with higher availability in residential and tribal schools. Among those providing supplementation iron and folic acid (IFA) and calcium tablets were more common (46.5%). While 61% of schools distributed supplements universally, over one-third restricted supplementation to malnourished students, indicating variability in targeting approaches.



Water, Sanitation and Hygiene (WASH)

Access to drinking water was high, with the majority of schools relying on RO systems, municipal supply, or Mission Bhagiratha. However, nearly 4% reported lacking drinking water facilities. Around 63% of schools conducted water quality testing, though testing frequency and adherence varied.

Handwashing infrastructure was available in 89% of schools, yet only 74% ensured both water and soap availability. About one-quarter of schools had water but no soap, representing a key behavioural risk factor. Toilet coverage was strong overall, with most schools maintaining favourable student-to-toilet ratios and daily cleaning practices, though some rural and tribal schools reported infrastructural constraints.

Menstrual Hygiene Management programmes were present in one-third of schools overall. Where implemented, services varied between annual education sessions and integrated monthly sanitary pad distribution with MHM education. Coverage was stronger in residential and tribal schools but limited in government non-residential institutions.

Food Environment Around Schools

Less than half of schools reported having a formal healthy school policy. Nearly one-third reported the presence of food stalls outside school premises, and awareness of government or FSSAI guidelines restricting the sale of unhealthy foods near schools was limited. Researcher observations identified widespread availability of traditional Kirana shops (74%) selling chips, biscuits fried snacks, sugary beverages, and chocolates and local bandis (33%) selling fried snack items around school premises.

Students themselves reported that the presence of outside vendors made it difficult to maintain healthy eating habits. Although most schools restricted outside food during school hours, the lack of healthy, affordable alternatives within school premises remains a concern.

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Nutrition Education and Physical Activity

Nutrition education was widely reported, with 93% of schools indicating the presence of a curriculum. However, delivery often relied on teachers without formal nutrition training. Sessions were conducted with varying frequency, and while monitoring was reported in most schools, structured evaluation mechanisms were inconsistent.

Physical activity policies were present in 88% of schools, and most had playgrounds. However, only 68% had trained physical education teachers, and fewer than one-third provided structured one-hour play sessions. This gap between policy and structured implementation was particularly evident in government schools.



Adolescent Snacking Behaviours

More than half of students reported consuming snacks in addition to regular meals, and nearly half consumed snacks daily. Biscuits and chips were the most consumed processed snacks, while fresh fruits and homemade snacks were also widely reported. A significant proportion of students purchased snacks from outside vendors or brought them from home, with most reporting receiving ₹100 or more per week for discretionary spending.

Despite high awareness of healthy food choices—particularly traditional foods such as peanut chikki, idli, and dosa—regular consumption of processed snacks persists. This suggests that availability, peer influence, taste preference, and purchasing power play a strong role in shaping adolescent dietary behaviour, beyond knowledge alone.



Actionable Recommendations For Strengthening School Nutrition Systems

1. Strengthen Enforcement of FSSAI Guidelines

To ensure availability of healthy foods near schools, it is critical to implement and strengthen the regulations from Food Safety and Standards Authority of India (FSSAI) that prohibit the sale, marketing, and distribution of High Fat, Salt, and Sugar (HFSS) foods within a 50-meter radius of school premises. While these provisions are clearly laid out in the Gazette, their on-ground enforcement remains limited. Monitoring mechanisms should therefore be reinforced by actively involving School Management Committees (SMCs), local health departments, and designated school-level health and wellness teams to ensure sustained compliance and accountability. Enforcement efforts may be further strengthened through convergence with local governance structures (Urban Local Bodies/Panchayats) and law enforcement agencies, particularly for regulating vendors operating outside school premises, where schools alone may have limited authority.

2. Enhance Nutrition Education

Nutrition awareness should be integrated into the school curriculum through age-appropriate, interactive modules that empower students to make informed dietary choices. Teachers must be trained to deliver engaging sessions across subjects, fostering a school-wide culture of health that goes beyond traditional science lessons.

3. Improve PM Poshan Implementation

The PM Poshan scheme should incorporate robust quality control measures, including institutionalised external food safety testing to maintain hygiene and nutritional standards. Addressing supply chain gaps in fortified product delivery and integrating menu diversity based on regular student feedback can enhance both the nutritional value and acceptability of school meals.

4. Promote Healthy Snacking and Kitchen Gardens

Schools should be supported to establish kitchen gardens using local produce, promoting farm-to-table awareness and practical nutrition education. Healthy snack kiosks, backed by peer-led promotion and school-led initiatives, can provide affordable, culturally relevant alternatives to processed snacks while reinforcing positive dietary habits.

INTRODUCTION

Adolescents represent a key demographic in India's public health agenda, yet they continue to face significant nutritional challenges. In Telangana, anaemia remains a major concern, with NFHS-5 indicating that nearly 60% of adolescent girls aged 15–19 years are anaemic, alongside substantial prevalence among adolescent boys. At the same time, emerging evidence suggests rising levels of overweight and early metabolic risk factors among adolescents, reflecting increasing exposure to ultra-processed foods, sedentary behaviours, and changing dietary patterns. These trends point to a dual burden of malnutrition—persistent micronutrient deficiencies co-existing with growing risks of diet-related non-communicable diseases.

Schools, where adolescents spend a substantial part of their day, offer a strategic platform to influence nutrition-related behaviours, physical activity patterns, and long-term health outcomes. Existing interventions in Telangana—including PM POSHAN and Anemia Mukh Bharat—primarily focus on meal provision and iron-folic acid supplementation. While these programs provide a strong institutional foundation, integration of broader food environment strategies remains limited. Regulations restricting the sale of unhealthy foods near schools are in place; however, enforcement and awareness vary across settings. Furthermore, there is limited consolidated information on adolescents' actual food choices, purchasing behaviours, and exposure to unhealthy food environments, making it challenging to design context-specific and behaviorally responsive interventions.

Although national programs and regulatory frameworks aim to improve school nutrition across India, the school food environment in Telangana exhibits variability across government, residential, and Madarsa schools, as well as across urban and rural areas. Differences in infrastructure, vendor presence, implementation intensity, and institutional priorities affect program effectiveness. Adolescents' increasing autonomy in food decisions, combined with peer influence and easy access to processed snacks, further complicates efforts to promote healthier dietary behaviours. Critically, there has been no standardized, state-wide application of tools to comprehensively assess school food environments and their interaction with adolescent dietary patterns.

To address this gap, the Nutrition Environment Assessment Toolkit for Schools (NEAT-S) was globally developed to systematically assess and optimize school food environments and promote healthier dietary practices in middle childhood and adolescence. UNICEF supported the adoption of the NEAT-S tool in Telangana to generate robust evidence on school nutrition systems, identify implementation gaps, and inform context-sensitive policy strengthening. The study seeks to strengthen program integration, improve implementation quality, and support the creation of enabling school environments that foster healthier dietary behaviours among adolescents.

METHODOLOGY

Phase 1: Contextual Adaptation

An exploratory qualitative approach was adopted to adapt NEAT-S for southern Indian contexts. A desk review examined national policies, regulatory frameworks, and evidence related to school nutrition, including guidelines from education departments, FSSAI, and public health programs.

Findings informed semi-structured in-depth interviews (IDIs) exploring school food procurement systems, institutional norms, dietary practices, and enforcement challenges. Insights were used to refine tool constructs and indicators.

Phase 2: Pilot Testing

The adapted toolkit was pilot tested in 5 government schools across 2 districts. Three instruments were administered:

School Administrator Questionnaire

Kitchen Checklist

Student Attitudes and Perceptions Survey

Respondents included 5 administrators, 5 kitchen staff, and 10 students (Grades 6–12). Tools were administered through interviews and classroom surveys using Kobo Toolbox for digital data capture.

Feedback highlighted the need to simplify terminology, add locally relevant food examples, and improve question flow. Revisions were incorporated to enhance clarity and feasibility while retaining core domains.

Data collection tool

The digital data collection platform Kobo Toolbox was utilized across both phases of the study, including the pilot testing of tools and the subsequent large-scale survey implementation, to ensure standardized, efficient, and real-time data capture.

Phase 3: Large-Scale Implementation

Following validation, the refined toolkit was implemented across three states using a mixed-methods convergent parallel design. Quantitative school assessments and surveys were conducted alongside qualitative inquiry to enable triangulation.

Coverage included:

Telangana: 407 schools (3,750 respondents) across 14 districts from 7 administrative zones

Government, private, and residential schools in rural and urban areas were included. A multi-stage sampling strategy ensured geographic and institutional representation. Administrators were purposively selected, and students were randomly sampled within eligible grades.

Data collectors received structured training on tool administration, observation protocols, ethics, and quality assurance. Formal approvals were obtained from state and district authorities, and written institutional consent was secured at school level and individual level. Student surveys were anonymous, and confidentiality was maintained.

Structured observations documented infrastructure, WASH facilities, meal preparation areas, and vendors within a 50-meter radius of schools. Quantitative data were digitized and cleaned, with quality checks including back-verification and logical validation.

Qualitative data were transcribed and thematically analyzed under NEAT-S domains to interpret findings, identify implementation bottlenecks, and highlight behavioral and governance challenges.

Results

School Characteristics

The majority of the surveyed schools were government (non-residential) institutions (61%), 37% were residential schools, and 10 were Madrasa. In terms of curriculum, over half of the schools (52.1%) offered upper primary education, and about one-fourth (23.6%) provided education up to primary and upper primary levels. A smaller proportion offered both upper primary and high school education (20.4%), with a few extending from primary to high school (3.2%) and a very small fraction catering exclusively to high school students (0.7%). Geographically, most schools were in rural areas (61.4%, 4 schools), followed by urban (37.6%) and a small proportion in tribal locations (0.98%) (Table 1).

Table 1 : Characteristics of schools

Characteristics	%	n
School type		
Residential (Tribal welfare SC/ST)	36.6	149
Government (non-residential)	60.9	248
Madrasa	2.5	10
Curriculum offered		
Primary and upper primary	23.6	96
Only upper primary	52.1	212
Both (Upper primary & High school)	20.4	83
High school	0.7	3
Primary to high school	3.2	13
Location		
Urban city	37.6	153
Rural	61.4	250
Tribal	0.98	4
Total		407

Qualitative data were transcribed and thematically analyzed under NEAT-S domains to interpret findings, identify implementation bottlenecks, and highlight behavioral and governance challenges.

Theme 1: School meal program management and services

Availability of meal program

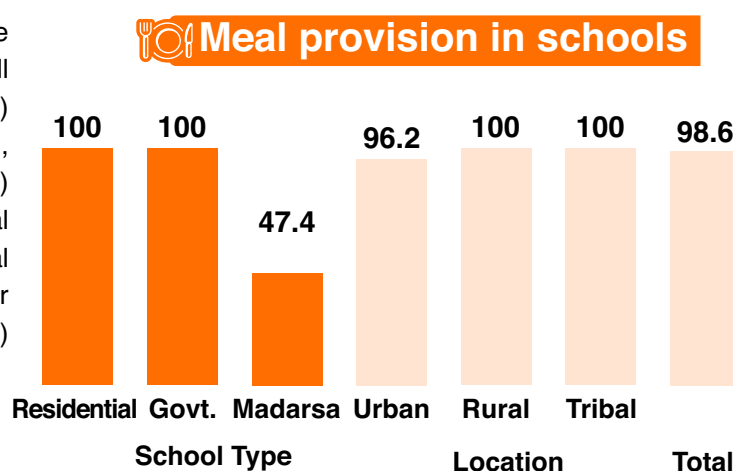
Most schools (94%) reported having a school meal program. Among these, the majority operated under a government-funded scheme (63%), while 36% provided regular meals at residential schools. All schools with a meal program indicated that every enrolled child receives meal at school (Table 2).

Table 2 : Availability and type of school meal program (Admin tool)

About school meal program	%	n
School meal program available	93.6	381
Type of meal program*		
Govt. funded scheme	63.3	243
Regular meals at residential schools	36.2	138
NGO/CSR supported scheme	0.6	2
Beneficiaries*		
All children	100.0	381

Note: Among those schools where meal programs available (381)

Almost all interviewed students also reported the availability of the school meal program (99%). All residential and government (non-residential) schools were reported to provide meals (100%), whereas less than half of Madrasas (47%) reported the same. By location, students in rural and tribal schools consistently reported full meal availability (100%), while a slightly lower proportion of urban school students (96%) indicated receiving meals in schools (Figure 1).



Meal diversity and food group inclusion

The meals served in schools most commonly included vegetables (89%), pulses (86%), and cereals (70%), reflecting a predominance of staple and plant-based foods. Dairy products were present in nearly one-third of schools (31%), while less healthy items such as deep-fried foods (6%), and sweets (10%) were observed less frequently. By school type, residential schools provided a more diverse and nutritious meal composition, with high inclusion of pulses (94%), vegetables (99%), and cereals (78%), alongside greater use of dairy (75%). In contrast, government schools showed lower inclusion of nutrient-rich items such as dairy (5%). Madrasas showed consistent inclusion of cereals (80%) and pulses (100%) but limited variety otherwise. Across locations, the pattern reflects broader access to traditional, staple-based meals, with relatively limited exposure to processed foods (Table 3).

Table 3 : Type of food included in the meal in schools (Admin tool observation)

Type of food	Residential	Govt.	Madarsa	Total %(N)
Cereals	77.7 (108)	64.6 (153)	80.0 (4)	69.6 (265)
Pulses	94.2 (131)	81.4 (193)	100.0 (5)	86.4 (329)
Vegetables	99.3 (138)	82.7 (196)	80.0 (4)	88.7 (338)
Dairy	74.8 (104)	4.6 (11)	40.0 (2)	30.7 (117)
Deep fried foods	14.4 (20)	1.3 (3)	20.0 (1)	6.3 (24)
Sweets	20.1 (29)	3.4 (8)	20.0 (1)	9.9 (38)
Total	139	237	5	381

Note: Multiple response; Among those where meal program available (381)

In about 10% of schools, the serving of sugary drinks and deep-fried foods (6%) was observed, which may include ragi java and evening snacks provided to students in residential schools. Although ragi java is typically regarded as a nutritious beverage, its substantial jaggery content may have led to its classification as a sugary drink.

Sources of food procurement (Admin tool)

The majority of schools (84%) reported that meals or snacks were prepared in the school kitchen, typically by staff or self-help groups. In contrast, 14% of schools relied on external agencies for meal preparation (Figure 2). Among schools where meal programs were operational, procurement practices varied considerably. About 43% of schools, primarily residential institutions, received all supplies from a contractor agency, while 24% procured all raw materials locally. Another 17% obtained fortified rice, oil, and salt through government provisions, and 16% sourced fortified rice from the Public Distribution System (PDS) while purchasing other ingredients from the market. Regarding kitchen gardens, most schools (85%) reported they did not have a functional garden (Table 4)

Figure 2 : Meals/Snacks preparation in schools

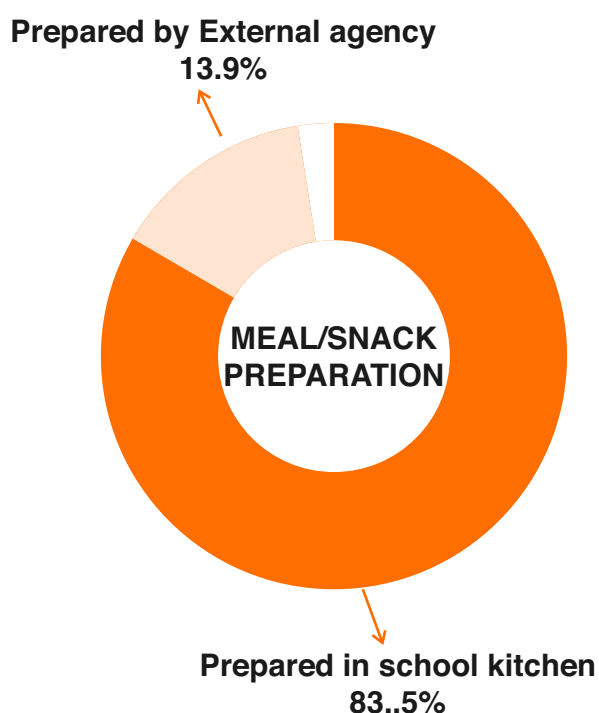


Table 4 : Sources of meal and snack preparation in surveyed schools

Procurement sources	%	n
Raw materials procured from		
*Everything from local market	23.5	77
Get all the supplies from the contractor agency	42.9	141
Receive fortified rice from the PDS shop	16.2	53
we procure all other things from market		
Receive fortified rice, oil salt from government	17.4	57
Kitchen garden		
School has functional kitchen garden	5.3	21
School has a functional kitchen garden	9.9	39
No kitchen garden	84.7	333
Total		328

Note: Among those schools where meals are prepared in school kitchen or by SHGs (328)

Monitoring of meal scheme

Meal supervision and quality monitoring were reported to be active in most schools. The majority (71%) indicated that school administration oversaw the meal program, while smaller proportions mentioned monitoring by school management committees (6%) or student management committees (22%). Daily monitoring of food was reported by 90% of schools. A few schools conduct spot checks twice a month (5%) or monthly reviews (2%). Formal laboratory testing of meals was rarely practiced, observed in only 1% of schools (Table 5).

Table 5 : Meal scheme supervision and quality monitoring practices (Admin)

Meal scheme monitoring	Residential	Govt.	Madrasa	Total % (N)
Monitoring done by*				
School administration	70.5	71.7	60.0	71.1 (271)
School management committee	4.3	6.8	40.0	6.3 (24)
Student management committee	23.7	21.1	0.0	21.8 (83)
Don't know	1.4	0.4	0.0	0.8 (3)
Frequency of checking meals*				
Random spot checking - twice a month	5.8	4.7	0.0	4.9 (19)
Once in a month	2.2	2.5	0.0	2.4 (9)
Daily sampling & monitoring quality	91.9	90.7	80.0	90.3 (344)
No checking	0.0	2.1	20.0	2.4 (9)
Lab test for meals*				
Yes	2.2	0.8	0.0	1.3 (5)
No	97.8	99.2	100.	98.7 (376)
Total	139	237	05	381

Note: Among those schools where meal program available

Theme 2: Meal preparation and cooking infrastructure (Kitchen tool)

Cooking facilities and structure

About 88% of schools had kitchens for preparing meals, and 12% outsourced food from external agencies. Across type of schools, kitchens were available in all residential schools, Madrasa and schools located in tribal areas (100%). A high proportion of rural (92%) and Government schools (83%) also reported having kitchen for preparing meals for students (Figure 3).

Figure 3 : Type of food facility in schools (Kitchen tool)

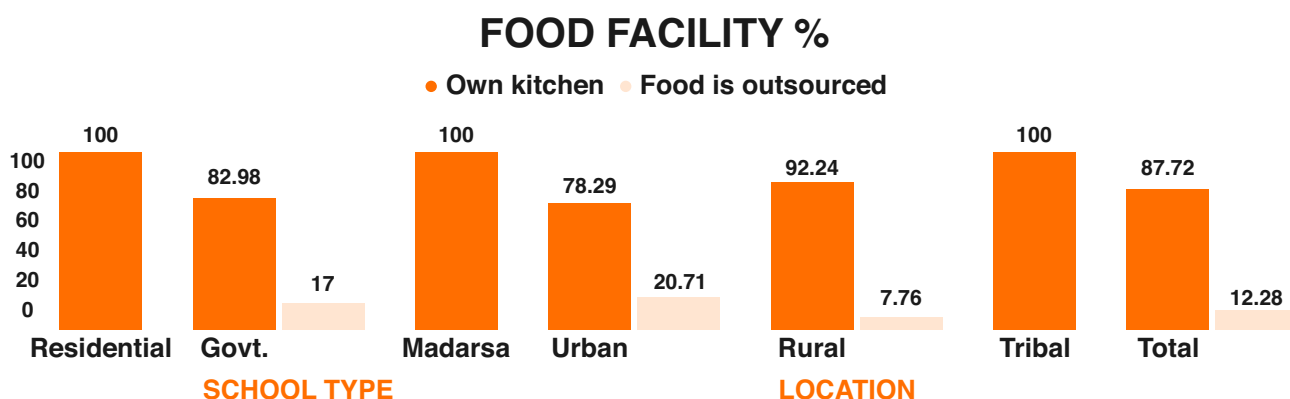


Table 6 : Kitchen structure and meal preparation in schools

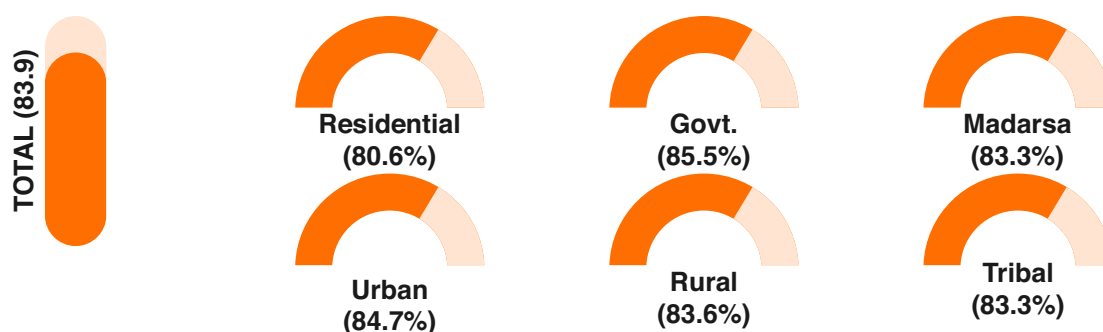
Kitchen infrastructure	%	n
No. of staff		
3 (Head cook, Helper, Serving member)	58.0	199
5 (2 Head cooks, 1 helper, 2 serving members)	27.9	96
More than 7 staff	9.6	33
Don't know	4.7	15
No. of children served daily		
<100 students	32.7	112
100-200 students	22.5	77
200-300 students	23.3	80
More than 400 students	20.4	70
Don't know	1.2	4
No. of meals cooked daily		
One meal (lunch only)	50.4	173
Two meals (breakfast and lunch)	7.0	24
Three meals (breakfast, lunch and evening snacks)	13.1	45
Four meals (breakfast, lunch, snacks and dinner)	29.5	101
Total		343

Note : Among those where kitchen is available (343)

Among schools with a functional kitchen, more than half (58%) operated with three staff members, typically a head cook, helper, and serving member, while 28% had five staff, and about 10% reported more than seven staff members involved in meal preparation. In terms of student coverage, nearly one-third (33%) of schools served fewer than 100 students daily, and around 23% each served 100–300 students, while one-fifth (20%) catered to more than 400 students per day. About half of the schools (50%) provided one meal (lunch only), whereas 30% offered four meals including breakfast, lunch, snacks, and dinner (Table 6).

Perceived adequacy of kitchen staff was high across all groups, with overall adequacy at 84%. By school type, government schools reported the highest adequacy (86%), followed by Madrasa and tribal schools (both 83%) and residential schools slightly lower (81%). By location also, perceptions of kitchen staff adequacy were uniformly high- 85% of urban schools reported adequacy, 84% rural schools, and 83% tribal schools (Figure 4).

Figure 4 : Perceived adequacy of kitchen staff by school type and location (kitchen tool)

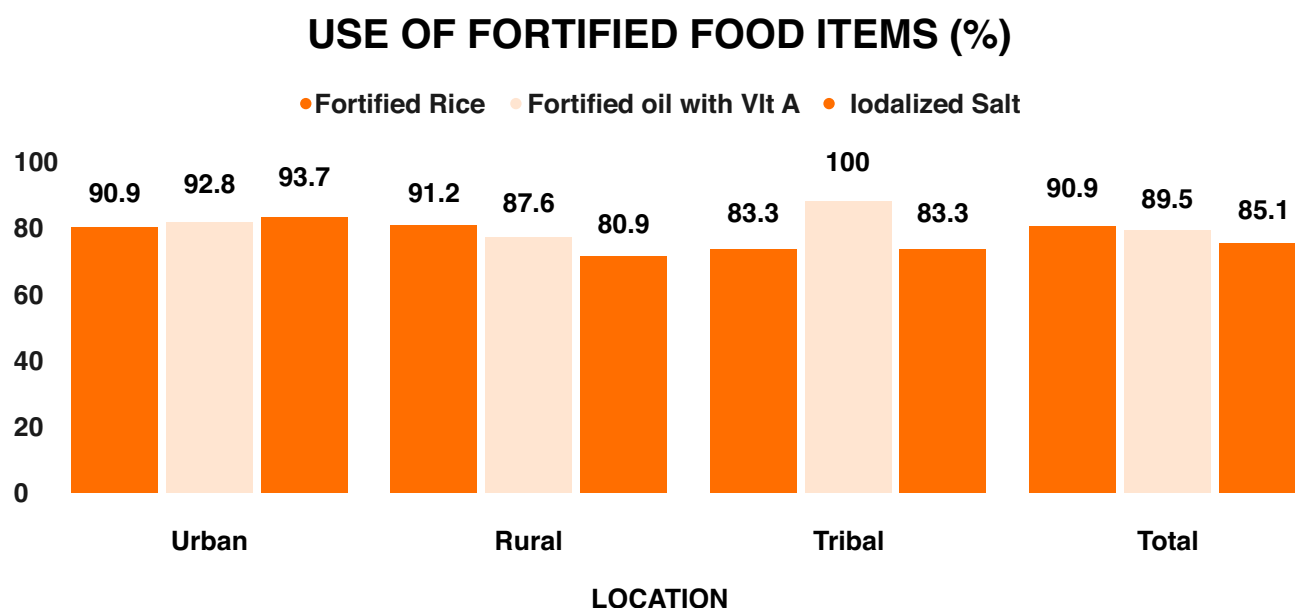


Note : Among those where kitchen is available (343)

Use of fortified items in cooking

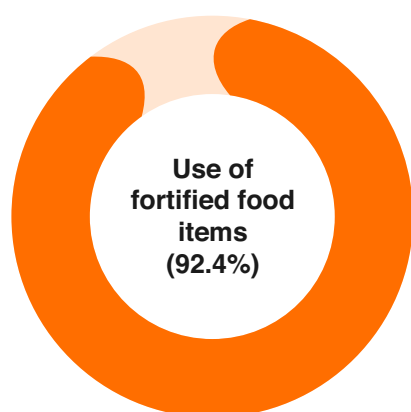
Across all schools, the use of fortified and iodized ingredients was generally high. Overall, 90.9% of schools used fortified rice, 89.5% used fortified oil with Vitamin A, and 85.1% used iodized salt. Urban schools demonstrated relatively better use of all three fortified ingredients compared to schools located in rural and tribal areas. However, rural and tribal schools showed slightly lower adoption, particularly for iodized salt (80.9% and 83.3%, respectively) (Figure 5).

Figure 5 : Use of fortified rice, oil and iodized salt in meals (kitchen tool)



Information from school administrators corroborate that fortified food items are incorporated in most schools (92%). Amongst the schools who use fortified food items, majority consistently used fortified items, with 89.8% reporting that they “always” use them, while 9.6% stated usage depends on availability. Regarding supply, 67.9% of schools reported a regular supply of fortified items, whereas 15.2% experienced irregular supply, and 15.8% reported quality-related issues despite regular supply (Table 7).

Table 7 : Use and supply of fortified food items (reported by school administrator)

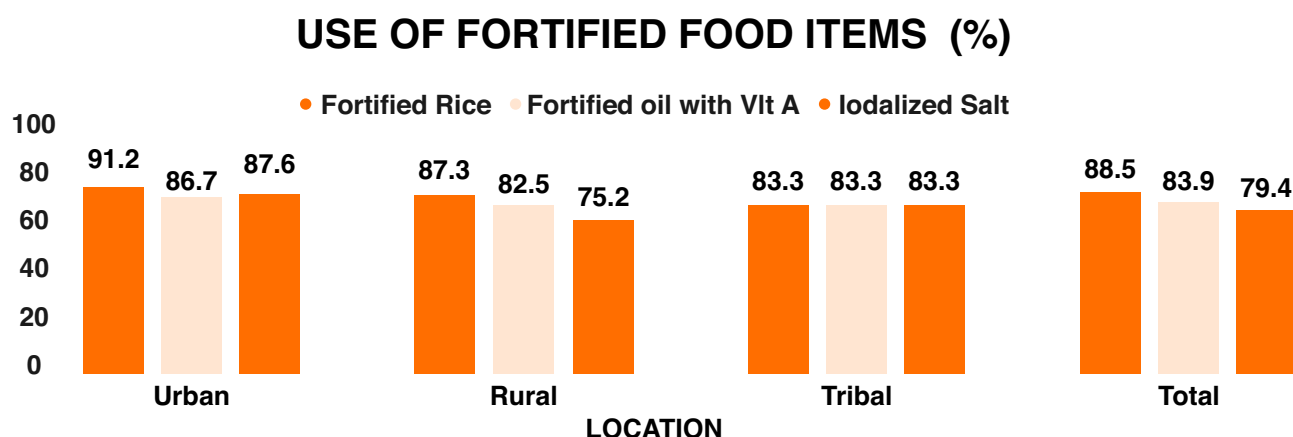


Use of fortified items	%	n
Frequency		
Use always	89.8	272
Depends on availability	9.6	29
Don't know	0.7	2
Supply		
Irregular supply	15.2	46
Regular supply	67.9	206
Regular supply but quality issues	15.8	84
Don't know	0.9	3

Note: Among those who use fortified cooking items (303)

According to researchers' observations, 88.5% of schools use fortified rice, 83.9% used fortified oil with Vitamin A, and 79.4% used iodized salt. The use of fortified foods was higher in urban schools compared to rural and tribal areas, particularly for iodized salt (87.6% vs. 75.2% in rural areas).

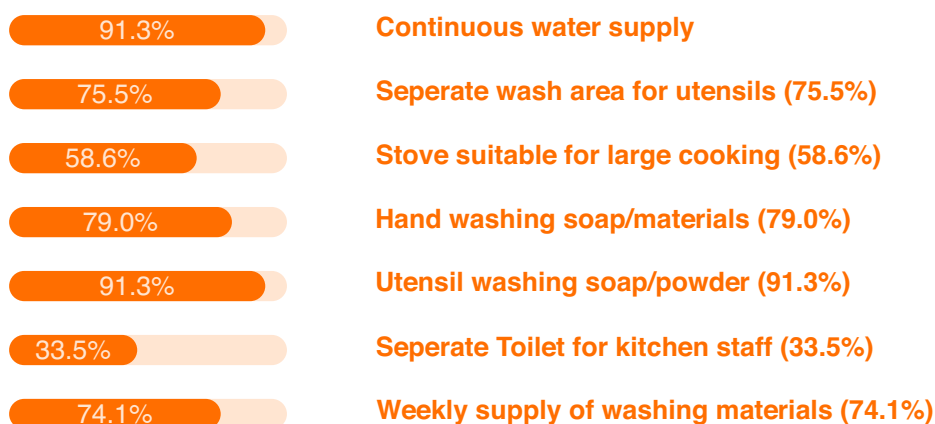
Figure 6 : Use of fortified rice, oil and iodized salt (Researcher observation)



Across all sources of information (school records, administrator reports, and supply/use data), the findings consistently indicate high adoption of fortified food items in schools, though with some variability. Kitchen staff slightly higher figures for fortified oil and salt than observed, suggesting a small perception gap between staff awareness and on-ground practices.

Kitchen equipment and sanitation facilities (Kitchen tool)

Figure 7 : Facilities available in school kitchen (kitchen tool)



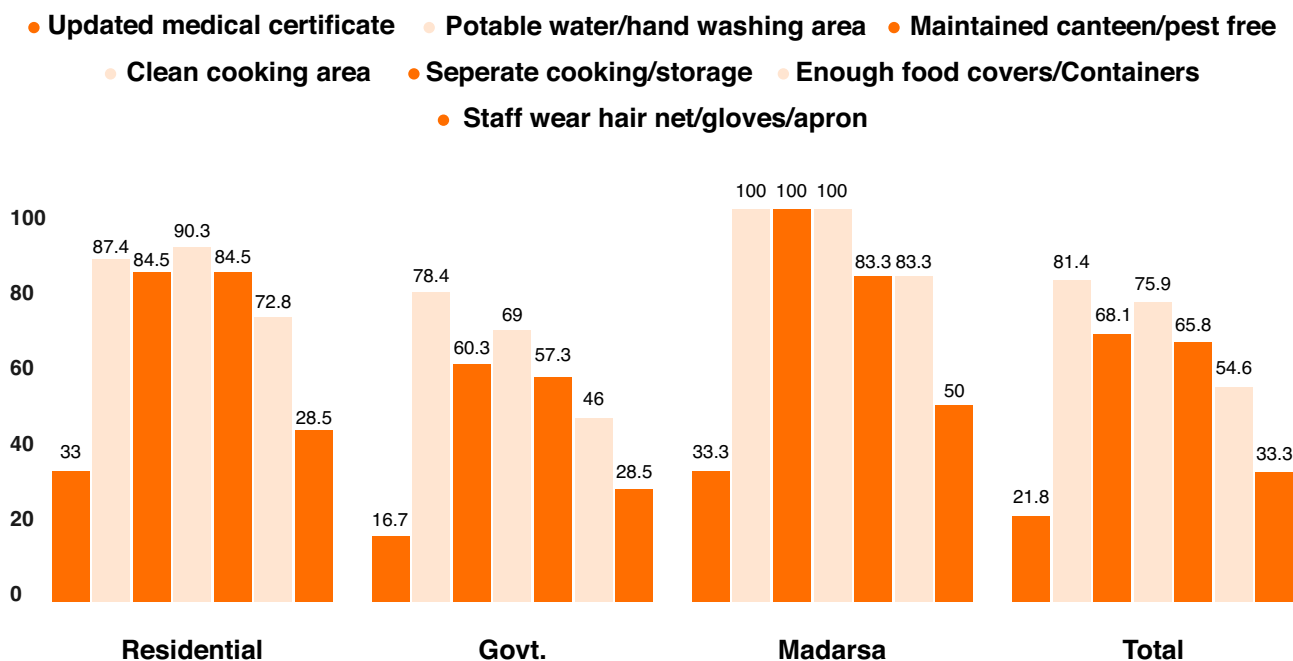
Most schools reported having basic facilities to support safe and hygienic food preparation. A continuous water supply and availability of utensil washing soap or powder were reported by 91.3% of schools, indicating good access to essential resources. Handwashing materials were available in 79% of schools, while three-fourths (75.5%) had a separate wash area for utensils and 74.1% received weekly supplies of cleaning materials. However, only 58.6% had a stove suitable for large-scale cooking, and just 33.5% provided a separate toilet for kitchen staff, highlighting gaps in infrastructure that could affect hygiene and staff welfare.

Adherence to safety guidelines in kitchen

The assessment of hygiene and safety practices in school kitchens shows moderate compliance, with notable variation by school type and location. Across all schools, 81.4% had potable water and handwashing facilities, 75.9% maintained a clean cooking area, and 68.1% had well-maintained, pest-free canteens. However, only 21.8% of kitchen staff possessed an updated medical certificate, and just 33.3% of schools reported that staff consistently wore protective gear such as hair nets, gloves, or aprons. By school type, residential schools and Madrasa demonstrated stronger compliance across most indicators, especially for clean and pest-free kitchens, separate cooking and storage areas, and hygiene practices, as compared to government schools, which lagged in nearly all areas. Similarly, urban and tribal schools performed better than rural schools in maintaining cleanliness and facility standards.

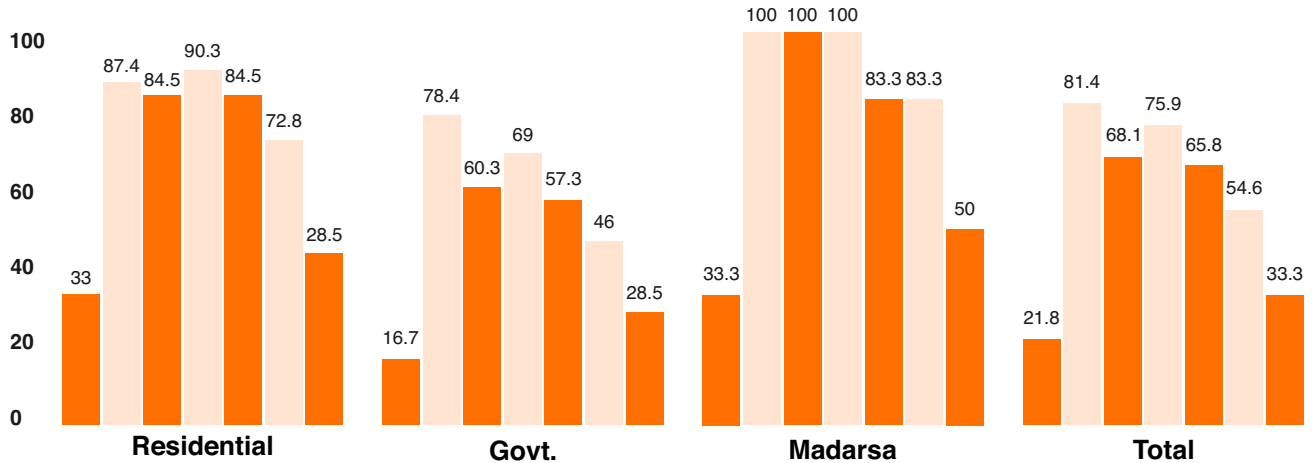
Figure 8 : Adherence to safety guidelines in kitchen (Researcher observation)

SAFETY GUIDELINES BY SCHOOL TYPE (%)



SAFETY GUIDELINES BY SCHOOL TYPE (%)

- Updated medical certificate
- Potable water/hand washing area
- Maintained canteen/pest free
- Clean cooking area
- Seperate cooking/storage
- Enough food covers/Containers
- Staff wear hair net/gloves/apron



Designated area to eat meals

The designated eating spaces are limited in many schools. Only 18.4% of schools had a dining hall equipped with chairs and tables, while 25.6% had a dining hall where students sat on the floor to eat. In 21.6% of schools, meals were taken inside classrooms, and the largest proportion, 34.4%, reported that students ate meals in open playgrounds while sitting on the ground (Table 8).

Table 8 : Availability of designated place to eat meals (Admin observation)

Infrastructure to eat	%	n
Dining hall with chairs and tables	18.4	75
Dining hall, but students sit on floor and eat	25.6	104
No proper place, students take meals in classes	21.6	88
Open playground, students sit on ground and eat meals	34.4	140
Total		407

Note : Among those where meal program is available

Management of outsourced food

Most schools (56.3%) reported that meals were served directly in insulated utensils without reheating, while 22.9% served freshly prepared meals, and 20.8% stored and reheated food before serving. Regarding serving arrangements, only a small proportion had dedicated dining spaces such as halls (14.6%) or batch-based dining areas (8.3%). While, in most schools (64.6%) students sit in open areas and eat. Utensil availability was adequate in 64.6% of schools, but handling practices showed variation as about 66.7% sent utensils back to providers after cleaning with water, while only 29.2% washed utensils thoroughly after each meal. Researcher observations highlighted that most schools maintained basic hygiene in storage and packaging. Nearly 89.6% had a well-ventilated and pest-free area, and 77.1% followed good hygiene practices during preparation and serving. However, only 6.3% of food handlers used protective gear such as hair nets, gloves, or aprons, and less than one-third (29.2%) began serving promptly after receiving food stocks, indicating possible lapses in timeliness and food safety practices.

Table 9 : Management of outsourced food in schools

Outsourced food management	%	N
Storage process		
No storage- served hot fresh meals	22.9	11
Stored in kitchen, reheated and served later	20.8	10
Served directly in insulated utensils without re-heating	56.3	27
Serving place		
Dining area where students come in batches	8.3	4
Large hall, all students come once and served meals	14.6	7
Students take the meals to their classes from the kitchen	4.2	2
Meals served in classes	8.3	4
Students sit in open area in school	64.6	31
Availability of utensils		
Sufficient utensils for each meal serving	64.6	31
Limited utensils, clean every time before next meal	16.7	8
No serving utensils used and use of insulated utensils	18.8	9
Handling of utensils		
Utensils are washed after each meal	29.2	14
Utensils are cleaned with water and sent back to provider	66.7	32
Clean utensils with soap/water and providers take them back	4.2	2
Guidelines for packed meals (researcher observation)		
Well-ventilated, clean, and pest-free storage area for the received food packs	89.6	43
Food products are hygienically packed in environment-friendly bags	62.5	30
Highest standard of hygiene in the preparation and serving of food is being practiced	77.1	37
Feeding activities commence as soon as food stocks are received from the suppliers	29.2	14
Food handlers wear hair nets, face mask/mouth shield, aprons, disposable plastic gloves	6.3	3
Total		48

Note : Of those where food is outsourced (48)

Management of leftover food

Practices for managing leftover food in schools show a general emphasis on minimizing waste through accurate meal planning. In both in-house and outsourced food systems, the majority of schools prepare meals based on the head count of students (76.1% for in-house kitchens and 81.3% for outsourced arrangements), indicating effective portion management.

Table 10: Practices to manage leftover food in schools

Provision of leftover food	In-house kitchen		Outsourced food	
	%	n	%	n
The food is made according to head count of students	76.1	261	81.3	39
The kitchen staff takes it home	18.9	65	14.6	7
The food is served in the community	3.5	12	4.2	2
Don't know	1.5	5	0.0	0
Total	343		48	

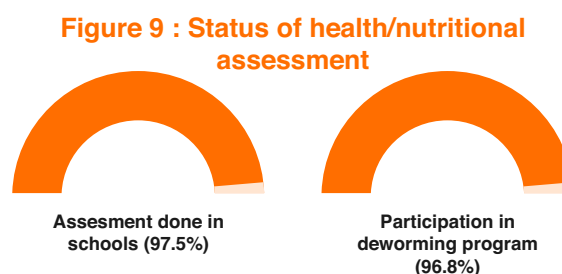
Qualitative Feedback from School Administration

The qualitative inputs indicate that the PM POSHAN program is generally functioning well, with many school administrators reporting no major issues; however, several recurring concerns highlight areas for improvement. Key feedback from schools' points to the need for better food quality and greater menu diversity, along with gaps in basic kitchen infrastructure such as cooking space, utensils, water supply, and dining facilities. Financial constraints and delays in fund disbursement were also noted as affecting smooth implementation. Observations from data collectors further reinforce these findings, drawing attention to inadequate sanitation facilities, limited dining space, and overall infrastructure deficits in some schools. While some schools demonstrate good management and a positive environment, the overall picture suggests that strengthening infrastructure, hygiene, and meal quality would significantly enhance the effectiveness of the program.

Theme 3: Micronutrient and deworming supplementation

Nutritional assessment

Nearly all schools reported conducting health and nutritional assessments, reflecting strong implementation of school-based health monitoring initiatives. Specifically, 97.5% of schools conducted regular assessments, and 96.8% participated in deworming programs (Figure 9)



Among the different types of assessments, the most common were weight and height measurements (89.4%) and general health check-ups (86.4%), followed by hemoglobin (HB) testing (66.3%), eye examinations (65.4%), and dental check-ups (49.1%). In terms of frequency, 43.3% of schools conducted assessments every two months, 38.3% did so biannually, and 18.1% conducted them once a year, suggesting varying schedules across institutions (Table 11).

Table 11 : Health and nutritional assessments conducted in schools (Admin)

Nutritional/health assessment	%	n
Type of assessment		
Weight and height	89.4	355
HB count	66.3	263
General health check ups	86.4	343
Eye examination	65.4	260
Dental examination	49.1	195
Frequency of assessment		
Biannually	38.3	152
Once a year	18.1	72
Every two months	43.3	172
Don't know	0.3	1

Availability of micronutrient supplements

Among the different types of assessments, the most common were weight and height measurements (89.4%) and general health check-ups (86.4%), followed by hemoglobin (HB) testing (66.3%), eye examinations (65.4%), and dental check-ups (49.1%). In terms of frequency, 43.3% of schools conducted assessments every two months, 38.3% did so biannually, and 18.1% conducted them once a year, suggesting varying schedules across institutions (Table 11).

Figure 10 : Availability of micronutrient supplements

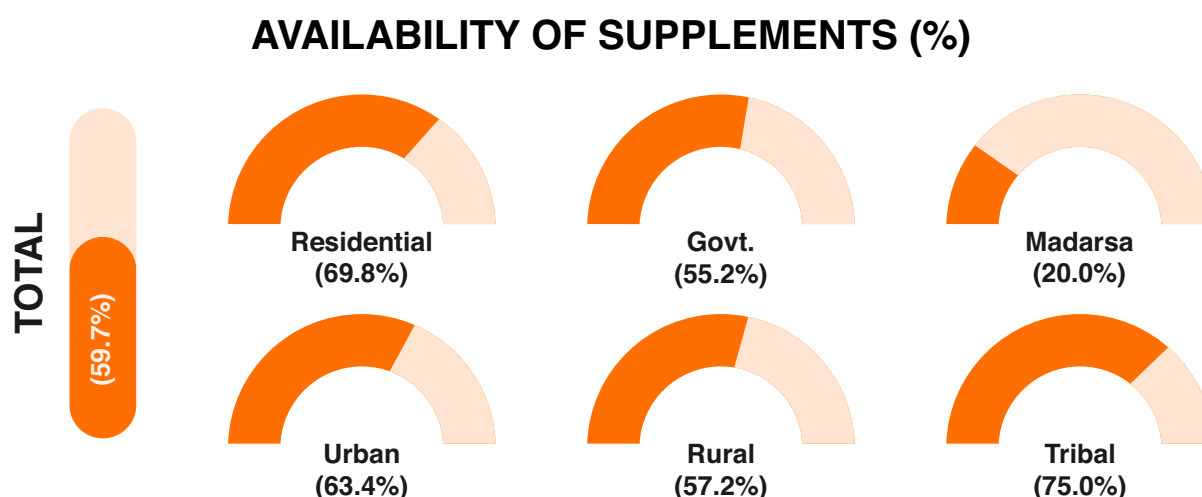


Table 12 : Provision and frequency of micronutrient supplementation (Admin tool)

Micronutrient supplements	%	n
Type of supplements		
Calcium tablets	37.5	91
IFA tablets	55.6	135
Multiple micronutrient supplements	62.9	153
Frequency		
Every week	9.4	23
Once a year	12.3	30
Bi-yearly	36.5	89
Once a month	20.1	49
Once in two months	16.8	41
Don't know	4.9	11
Beneficiaries		
All students with consent	61.5	150
Only malnourished students with consent	36.5	89
Don't know	2.1	4
Total	243	

Note : Among those where micronutrient supplements were available

Among schools providing micronutrient supplementation, a variety of supplements were reported, with multiple micronutrient tablets being the most common (62.9%), followed by iron and folic acid (IFA) tablets (55.6%) and calcium tablets (37.5%). The frequency of supplementation varied across schools. The majority administered supplements bi-yearly (36.5%), while others did so monthly (20.1%), once in two months (16.8%), or annually (12.3%). About 61.5% of schools reported providing supplements to all students (with consent), whereas 36.5% restricted them to malnourished students, reflecting variability in targeting approaches (Table 12).

Theme 4: WASH components – Water availability Sanitation practices

Water facilities

The majority of schools reported having access to safe drinking water, primarily through RO machines (50.9%). Municipal water supply and Mission Bhagiratha each accounted for 17.2% of schools, while 10.1% relied on handpumps. A small proportion (3.9%) reported having no drinking water facility, and 0.7% depended on wells, either protected or unprotected (Figure 11).

Figure 11 : Main source of drinking water in schools (Admin)

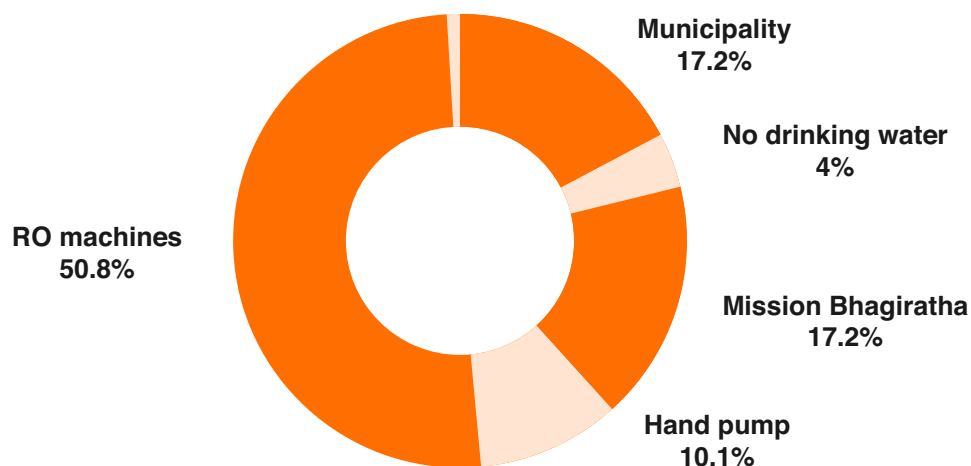
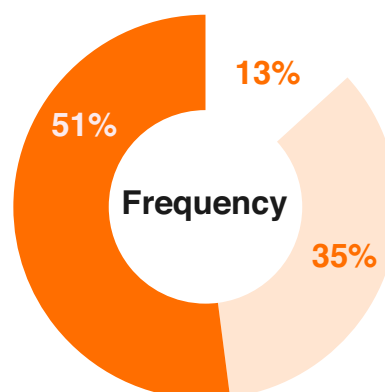
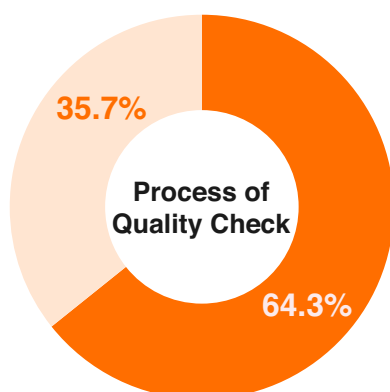
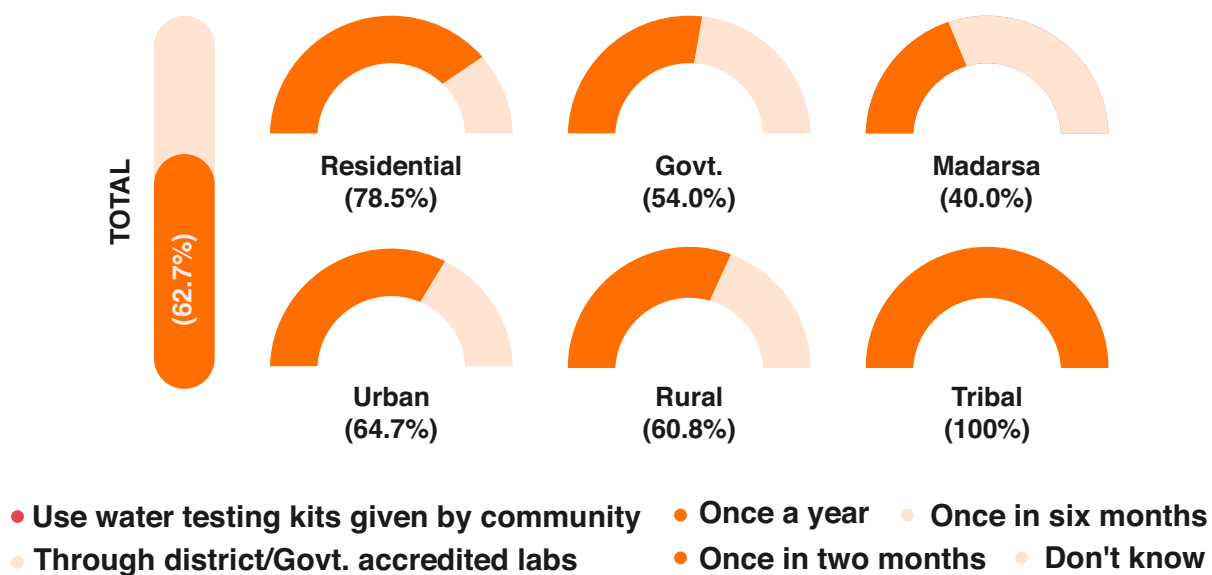


Figure 12 : Provision of checking water quality by school type and location (Admin tool)



Note : Among those where water quality in checked

Overall, 62.7% of schools reported conducting water quality checks. All tribal schools reported conducting water quality check (100%), followed by residential (78.5%), urban (64.7%), and rural (60.8%) schools. In contrast, government (54%) and Madrasa (40%) schools showed lower adherence to water testing practices. Regarding the process of testing, most schools (64.3%) relied on water testing kits provided by the community, while 35.7% sent samples to districts or government-accredited laboratories. Over half of the schools (51%) conducted water quality checks once in two months, 35% did so every six months, and 13% only once a year (Figure 12).

Hand washing facilities

Hand washing facilities were available in almost all schools. Hand washing stations were available in 89.4% of schools, with the highest presence in tribal schools (100%), followed by urban (94.1%) and rural schools (86.4%). A small proportion of schools relied on bucket or basin arrangements (6.9%) or hand pumps (2.5%), indicating infrastructural limitations in certain areas. About three-fourths of schools (73.9%) had both water and soap available for hand washing, while 24.3% had only water but no soap, and 1.7% lacked both. Notably, tribal schools consistently reported adequate water and soap (100%), reflecting better hygiene provision compared to rural (71.2%) and urban (77.8%) schools (Table 13).

Table 13 : Hand washing facilities in schools (admin)

Hand washing facilities	Urban	Rural	Tribal	Total (N)
Place of washing hands				
Hand washing station	94.1	86.4	100.0	89.4 (364)
Bucket/mug, basin/mug	4.6	8.4	0.0	6.9 (28)
Hand washing in toilet/bathroom	1.3	1.2	0.0	1.2 (5)
Hand pump	0.0	4.0	0.0	2.5 (10)
Availability of water and soap				
Both water and soap available	77.8	71.2	100.0	73.9 (301)
Water available but no soap	20.9	26.8	0.0	24.3 (99)
No water and soap is available	1.3	2.0	0.0	1.7 (7)
Total	153	250	04	407

Toilet facilities

Most schools reported access to toilet facilities. Indian-style squatting toilets were predominant, available in 80% of schools overall, while western toilets were comparatively rare (5.4%). About 12.5% of schools had both types. A small fraction (1.9%) of rural schools lacked formal toilets, relying instead on open areas such as fields or rivers. Regarding adequacy, a majority (81.5%) of schools maintained a favorable student-to-toilet ratio (≤ 50 students per toilet), though 5% of schools—particularly in tribal areas (25%), had ratios exceeding 100 students per toilet. Maintenance practices were generally positive, with 82.8% of schools cleaning toilets and handwashing stations daily. However, some variation was noted as urban schools (85.6%) had slightly higher daily cleaning frequency compared to rural (81.6%) and tribal (50%) schools (Table 14).

Table 14 : Toilet facilities in schools (Admin tool)

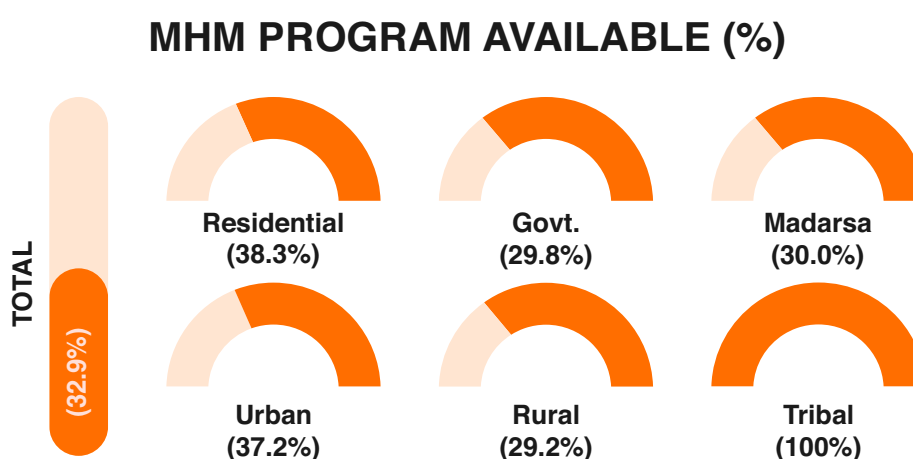
Toilet facility	Urban	Rural	Tribal	Total (N)
Type of toilet				
Western toilet/commode	7.8	3.6	25.0	5.4 (22)
Squatting Indian/pan toilet	78.4	81.2	75.0	80.1 (326)
No toilet (bush, field, river)	0.0	3.2	0.0	1.9 (8)
Both western and Indian toilet	13.7	12.0	0.0	12.5 (51)
Student toilet ratio				
*100 students or higher per toilet	4.6	4.9	25.0	5.0 (20)
50 to 100 students per toilet	11.8	13.6	0.0	12.8 (51)
50 students or less per toilet	83.0	80.6	75.0	81.5 (325)
Don't know	0.7	0.8	0.0	0.8 (3)
Frequency of cleaning toilets and hand-washing station				
Daily	85.6	81.6	50.0	82.8 (337)
Every other day	6.5	6.8	50.0	7.1 (29)
Twice a week	5.9	7.6	0.0	6.9 (28)
Once a week	1.9	4.0	0.0	3.2 (13)

Note : Among those where water quality in checked

Menstrual health management

Menstrual Hygiene Management (MHM) programs were available in nearly one-third (32.9%) of schools overall. Among school types, residential schools (38.3%) reported the highest MHM program availability, followed by Madrasa (30.0%) and government schools (29.8%). Location-wise, urban schools (37.2%) had slightly higher coverage compared to rural schools (29.2%), indicating better program outreach in urban areas. Remarkably, all tribal schools (100%) reported having MHM programs (Figure 13)

Figure 13 : Availability of MHM program in schools



Among schools with an existing Menstrual Hygiene Management (MHM) program, the majority (44.0%) provided free sanitary napkins monthly along with MHM education. Another 35.1% of schools conduct gender-based MHM education sessions once a year. By school type, residential schools (56.1%) had the highest provision of sanitary napkins with education, while Madrasa (66.7%) also demonstrated good service coverage despite smaller numbers. In contrast, government schools (33.8%) showed relatively lower integration of education and supply components. Across locations, tribal schools (75.0%) reported the strongest implementation of combined MHM services, followed by urban (49.1%) and rural (38.4%) schools (Table 15).

Table 15 : Type of services available under menstrual hygiene program

MHM program services	Type of school			Location			Total (N)
	Residential	Govt.	Madrasa	Urban	Rural	Tribal	
Only gender MHM education once a year	35.1	36.5	0.0	29.8	39.7	25.0	35.1 (47)
Free provision of sanitary napkins monthly with MHM education	56.1	33.8	66.7	49.1	38.4	75.0	44.0 (59)
Provision of sanitary napkins twice a year without MHM education	1.8	6.8	33.3	8.8	2.7	0.0	5.2 (7)
Don't know	7.0	22.9	0.0	12.3	19.2	0.0	15.7 (21)
Total	57	74	3	57	73	4	134

Theme 5: Healthy environments around school – Availability of unhealthy foods outside the school, access of healthy foods to students

Healthy school food and physical environment

Overall, 44.9% of schools reported having a healthy school policy, while 31.9% noted the presence of stalls selling food outside school premises, and 28.5% were aware of relevant Government or FSSAI directives. By school type, residential schools (49.7%) most frequently reported having a healthy school policy, followed by government (42.7%) and Madrasa (30%). However, Madrasa (50%) showed the highest occurrence of food stalls outside their premises, which may counteract healthy food efforts. Across locations, urban schools (52.3%) were most proactive in implementing healthy school policies, while rural schools (40.4%) lagged slightly behind. Tribal schools (50%) stood out for both higher awareness of the FSSAI/Government order and the presence of healthy school policies (Figure 14).

According to school administrators, 73.8% of schools reported the presence of small shops selling chips, fried snacks, tetra pack juices, and chocolates, followed by shops selling seasonal fruits (47.6%) and small bandis selling fried foods (33.8%). About 20% mentioned ice-cream carts or ice Gola vendors. Researcher observations reflected a similar trend but provided a broader picture. Traditional small food stores or Kirana shops (74%) were most frequently found near schools, followed by fresh vegetable or fruit markets (45.3%), local bandis selling fried foods (33.1%), and mobile or street food vendors (20.9%). A smaller proportion (15.4%) had access to fast food outlets like pizza or burger shops (Table 16).

Figure 14 : Healthy food policy and environment around schools (Admin tool)

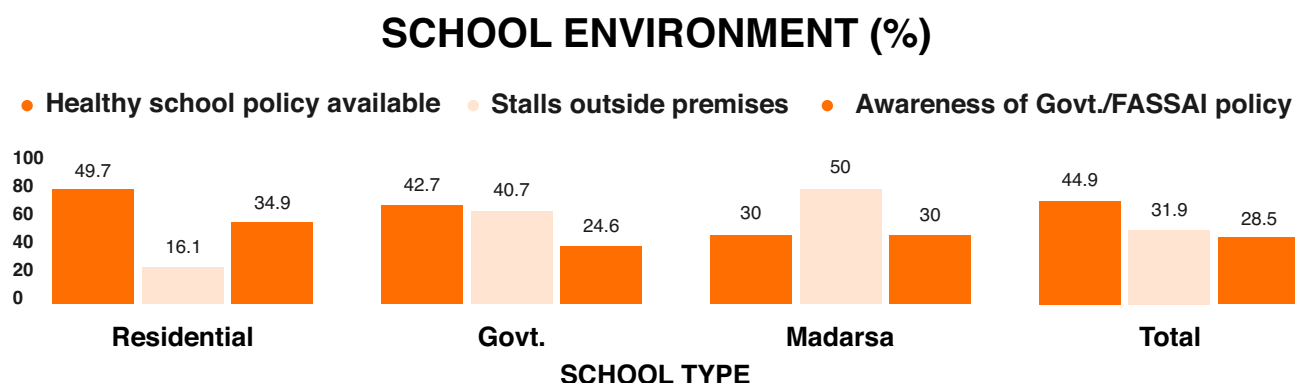


Table 16 : Type of food stalls/shop available outside schools (Admin tool)

Type of Food stalls/shop	%	N
Reported by Admin		
Small bandis selling fried food items	33.8	44
Shops selling seasonal fruits	47.6	63
Small shops selling chips, fried snacks tetra pack juices, chocolates	73.8	97
Ice-cream carts, seasonal ice Gola etc.	20.7	28
Observed by Researcher		
Local bandis selling fried food items	33.1	61
Traditional small food stores, Kirana shops	74.0	135
Mobile vendors/ street food vendors	20.9	39
Fresh vegetable/ fruit market	45.3	83
Fast food restaurants (ex. Pizza hut, burger shops etc.)	15.4	29
Total	407	

Nutrition education

Findings from Table 17 highlight that most schools have integrated nutrition education into their programs, with 93.1% reporting the availability of a nutrition education curriculum. Moreover, 79.8% of schools conduct nutrition education sessions for parents at least once a year, and 39.1% celebrate Poshan Maah. In terms of nutrition education, a wide range of sources contribute to nutrition education such as schoolteachers without formal nutrition training (50.7%) remain the most common facilitators, followed by local PHC or community health workers (43.5%), and health and nutrition teachers (37.9%). Only 3.2% of schools reported that nutrition education was not conducted at all. About 42.8% of schools conduct sessions once every two months, 21.3% twice a year, and 14.7% quarterly showing variability in implementation intensity. Monitoring of these education sessions is reported in 72.6% of schools, whereas 27.4% lack a structured monitoring schedule.

Table 17 : Availability of nutrition education curriculum and delivery (Admin tool)

Nutrition education	%	N
Nutrition curriculum available	93.1	379
Nutrition education to parents at least once yearly	79.8	325
Celebration of Poshan Maah	39.1	159
Source of nutrition education*, #		
School teacher not trained in nutrition	50.7	192
Health and nutrition teacher	37.9	144
Local PHC medical officer/ASHA/ANM/AWT	43.5	165
Nutrition education is not delivered	3.2	12
Frequency*		
Yearly once	13.2	50
Yearly twice	21.3	81
Once every quarter	14.7	56
Once in every two months	42.8	163
Don't know	7.6	29
Monitoring of education sessions*		
Yes, every year	72.6	275
No specific schedule for monitoring	27.4	104

Note: Among those where nutrition education curriculum was available (379); Multiple response

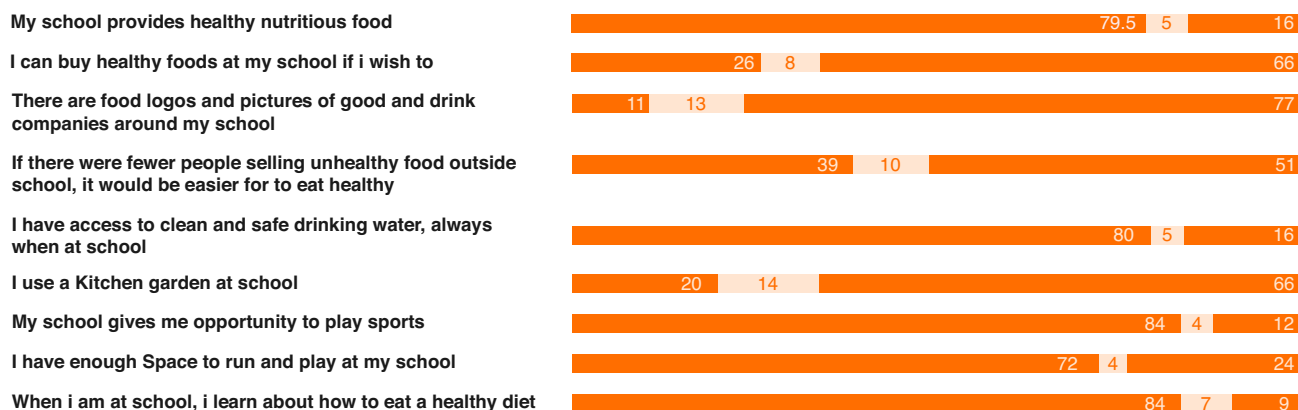
Student's perception on school environment

A large majority of students (79.1%) agreed that their schools provide healthy and nutritious food, and a similar proportion (79.5%) reported access to clean and safe drinking water. Likewise, 83.8% indicated that they learn about healthy eating at school, showing strong integration of nutrition education into the learning environment. However, only 26% felt that they could buy healthy food at school, while 66.1% disagreed, indicating limited availability of healthy purchasing options. A significant 76.5% also disagreed that food logos or company advertisements were visible around schools. In terms of the physical environment, 83.7% of students felt they had opportunities to play sports, and 72.4% reported having enough space to run and play. Yet only 19.9% mentioned using a school kitchen garden, reflecting missed opportunities for experiential nutrition learning. Additionally, over half (51%) agreed that the presence of unhealthy food vendors outside school makes it difficult to eat healthily, pointing to an external environmental challenge (Figure 15).

Figure 15 : Student's opinion on school food and physical environment

OPINION ON SCHOOL ENVIRONMENT (%)

● Agree/Strongly agree ● Neutral ● Disagree/Strongly disagree



Theme 6: Physical education – Availability / accessibility of physical education, exercise environments

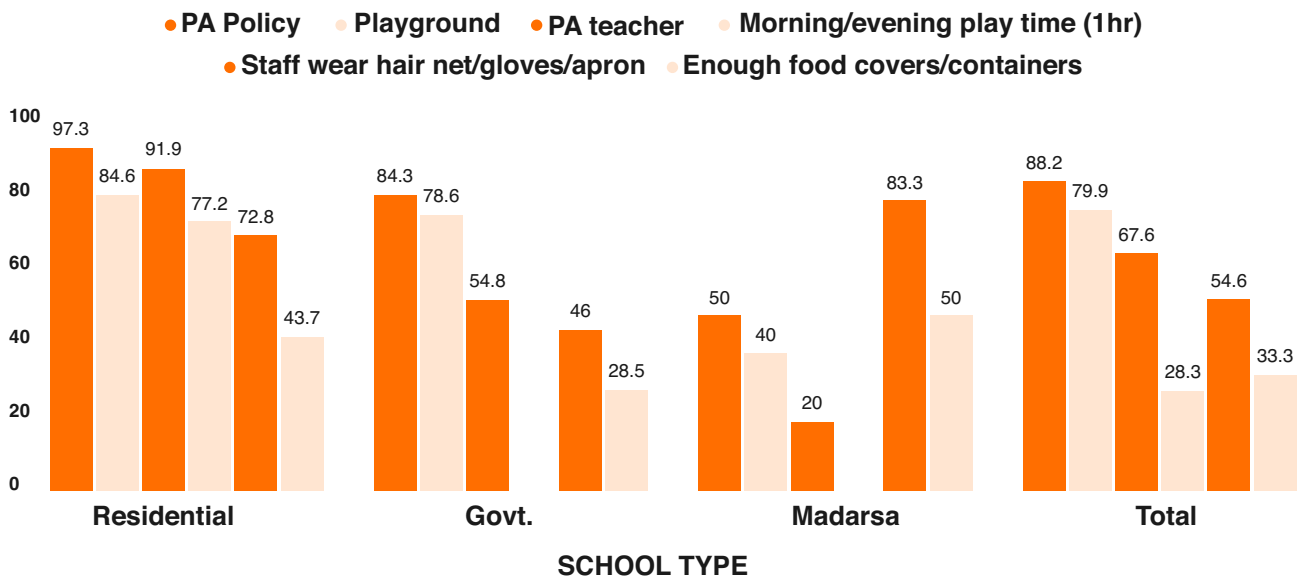
Physical education

Overall, 88.2% of schools reported having a physical activity policy, and 79.9% had a designated playground. However, only 67.6% had a trained physical education teacher (PET), and a much lower 28.3% provided one hour of morning or evening playtime. By school type, residential schools demonstrated the strongest PA environment, with nearly universal implementation of policy (97.3%) and high availability of playgrounds (84.6%) and PETs (91.9%), alongside the highest rate (77.2%) of dedicated playtime. In contrast, government schools had relatively high policy coverage (84.3%) but limited staff (54.8% PETs) and no structured playtime. Madrasa lagged significantly behind, with only 50% reporting a PA policy and 20% having a PET.

Despite the presence of Physical Education (PE) policies, designated playground infrastructure, and allocated playtime within school schedules, qualitative findings indicate that over 80% of students are unable to utilize this time effectively. This gap is primarily attributed to competing academic pressures, including curriculum demands and deadline-driven workloads, which limit student participation in structured physical activity.

Figure 16 : Physical education and activities policy in schools

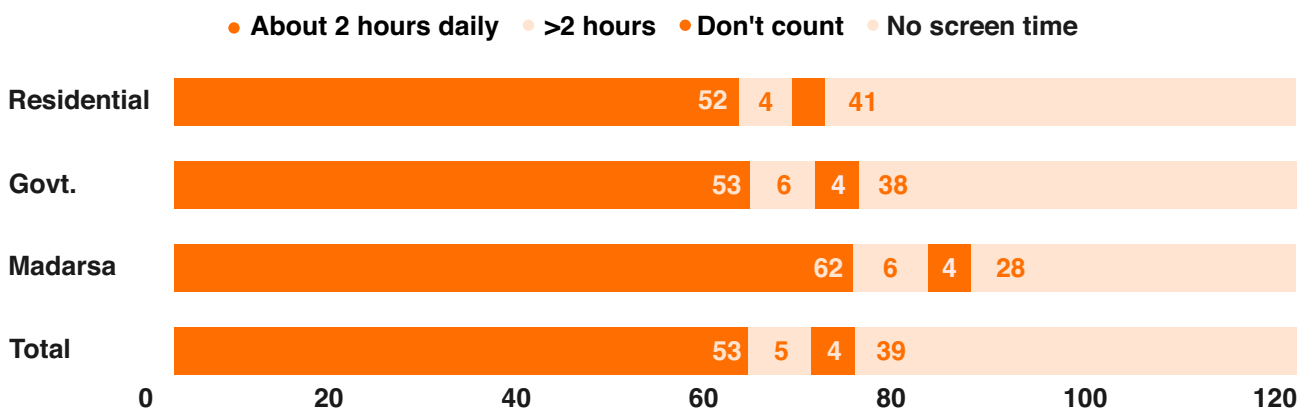
PHYSICAL EDUCATION FACILITIES (%)



Findings on students' screen time habits reveal that the majority engage in daily screen use, though patterns differ by school type (Figure 17). Overall, 52.7% of students reported spending about 2 hours daily on screens, while 5.1% exceeded 2 hours per day. A small proportion (3.6%) did not keep track of their screen time, and 38.7% reported having no screen time at all. BY school type, a higher proportion of students in Madrasas (62%) reported about two hours of daily screen use as compared to Government (53%) and residential schools (52%).

Figure 17 : Screen time reported by students

SCREEN TIME (%)



Theme 7: Student's eating habits, knowledge and perception towards healthy eating

Snacks eating among students

Figure 18 illustrates students' snacking behavior apart from regular meals. Overall, 55.1% of students reported consuming snacks apart from meals. Snacking patterns were almost identical across school type, with 56% students from Government schools, followed by 54% from residential schools 49% from Madrasas, reporting snack consumption. Students reported they most consumed biscuits (77.1%), followed by chips (51.2%) and fresh fruits (49.9%) as snack choices. Homemade snacks were also relatively popular, reported by 42.4% of students. In contrast, consumption of sugar-sweetened beverages like coke or fruit juices (8.2%) and items such as ice Gola or ice cream (10.6%), popcorn (8.4%), and cotton candy (4.5%) was comparatively lower. Around one-fourth (26.9%) reported eating chocolates or toffees (Table 18).

Figure 18 : Snacks eating behaviour among students

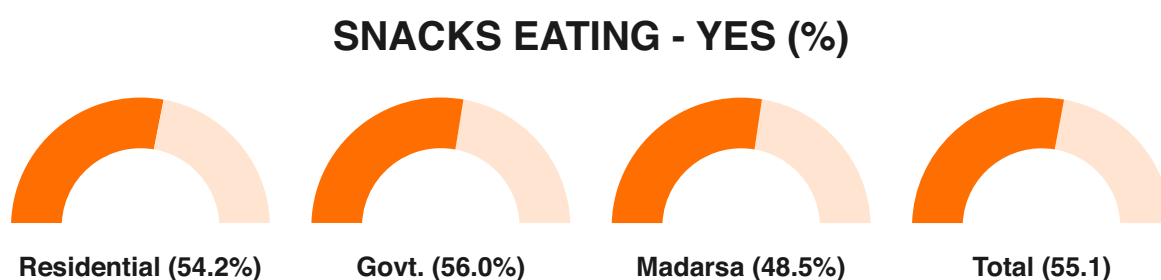


Table 18 : Type of snacks consumed by students (Student tool)

Snacks	%	N
Chips	51.2	838
Biscuits	77.1	1262
Coke/sodas/fruit juice	8.2	134
Ice gola, ice creams	10.6	174
Popcorn	8.4	137
Cotton candy	4.5	73
Fresh fruits	49.9	818
Chocolate/toffies	26.9	440
Homemade snacks	42.4	694
Total	1637	

Note : Among those who reported eating snacks (1637); Multiple responses

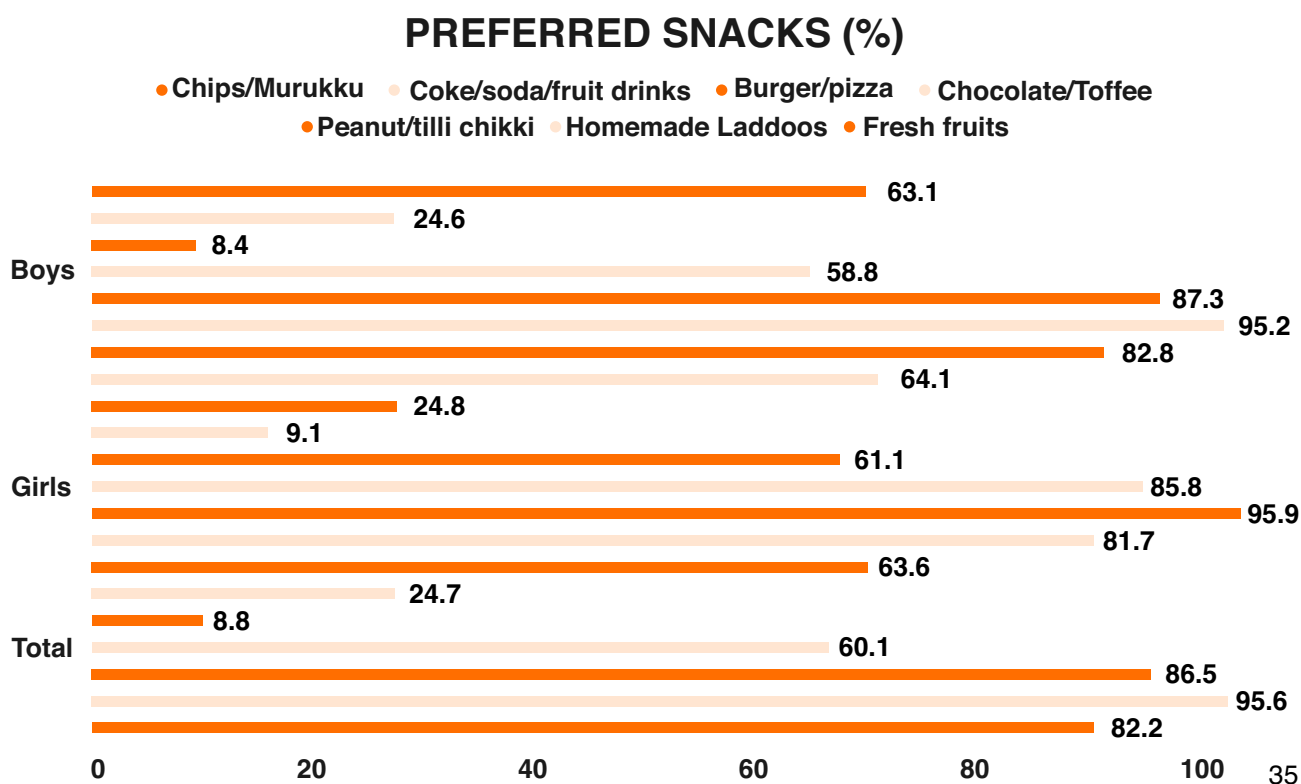
Nearly half (46.2%) consume snacks daily, followed by 19.8% who snack twice a week, and 11.3% once a week. About 45.8% of students bring snacks from home, and 41.8% purchase them from outside the school, highlighting both home and commercial influences on snacking behavior. Only a small share reported depending on parents (4.3%) or friends (2.7%) for snacks. A large majority (85.5%) reported receiving ₹100 or more per week for buying snacks, suggesting significant discretionary spending on snack foods (Table 19).

Table 19 : Snacking practices among students

Snacking behaviour	%	N
Frequency		
Everyday	46.2	756
Twice a week	19.8	324
Once a week	11.3	185
Every alternate day	7.6	124
Rarely	15.2	248
Source		
Buy from outside the school	41.8	684
Bring from home	45.8	749
Parents buy everyday	4.3	70
Friends	2.7	44
Parents but whenever I want to eat	5.5	90
Total	1637	
Amount received to buy snacks		
Rs. 50 per week	7.6	95
Rs. 100 or more per week	85.5	1065
Rs. 50 twice a week	6.8	85
Total	1245	

Note: Among those who buy snacks from outside school or bring from home and reported to have frequent consumption (rarely excluded)

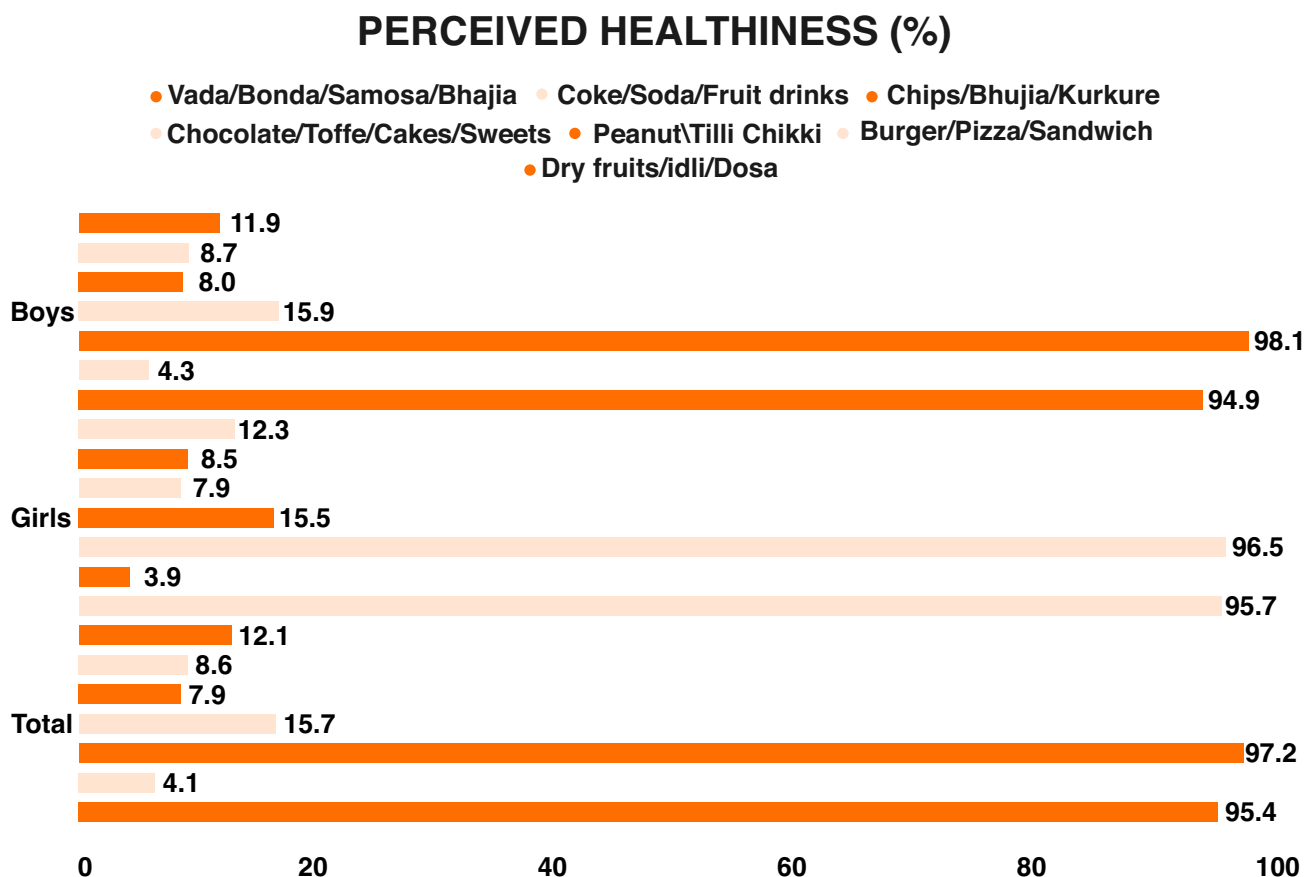
Figure 19 : Preferred types of snacks among students



Fresh fruits (95.6%) and peanut/tilli chikki (86.5%) are the most consumed snack items among students, followed by homemade laddoos (82.2%), reflecting a preference for traditional and relatively healthier snacks. At the same time, chips or murukku (63.6%) and chocolates/toffees (60.1%) remain popular processed snack options, while consumption of coke/soda/fruit drinks (24.7%) and burgers/pizzas (8.8%) is comparatively lower. Gender-wise, snacking patterns are largely similar (Figure 19)

Awareness of healthy food items

Figure 20 : Perception of studentes on healthiness of different snack items



The findings reflect students' perceptions of the healthiness of different snack items. A vast majority considered peanut/tilli chikki (97.2%) and dry fruits or traditional foods such as idli/dosa (95.4%) to be healthy options, indicating strong awareness of the nutritional value of traditional and natural snacks. In contrast, only a small proportion perceived fried snacks like vada, bonda, samosa, or bhajia (12.1%), chips/bhujia/kurkure (7.9%), and chocolates, toffees, cakes, or sweets (15.7%) as healthy. Similarly, very few students regarded coke/soda/fruit drinks (8.6%) or burgers/pizzas/sandwiches (4.1%) as healthy choices. Perceptions were largely consistent across genders, with boys and girls sharing similar views on the healthiness of various snacks (Figure 20)

Qualitative analysis from Focused Group Discussions

A total of 12 Focus Group Discussions (FGDs) were conducted across six selected districts with both heterogeneous and homogeneous groups of adolescent boys and girls. Participants were randomly selected from grades 6 to 12, with approximately 10 students included in each FGD. The discussions were guided by a semi-structured framework and explored key domains including individual food choices, dietary preferences and their underlying determinants, snacking patterns and frequency, as well as eating behaviours within school and home environments.

Findings : Adolescent dietary habits

The FGD findings indicate a clear disconnect between nutrition awareness and dietary practices among adolescents. Students in residential schools reported limited access to on-campus snacks due to stricter regulations; however, they frequently consume processed and packaged foods during home stays, often daily. While approximately 70% of adolescents demonstrate awareness of the distinction between healthy and unhealthy foods, consumption patterns continue to be driven by taste preferences and habitual behaviours. A significant proportion (85%) correctly identified items such as chips, bhujia, and similar snacks as unhealthy, yet 68% reported a strong preference for these foods. Similarly, although 63% recognized sweets and bakery products (e.g., chocolates, biscuits, cakes) as unhealthy, their consumption remains high due to taste appeal. Notably, 34% of respondents perceived such items as healthy or moderately healthy, often attributing this to the presence of ingredients like dry fruits, indicating gaps in nutritional understanding. Additionally, around 25% of adolescents considered fruit juices, colas, and sodas to be healthy, largely due to the perception that they contain real fruit, reflecting misconceptions regarding processed beverages. Overall, the findings highlight the persistence of misperceptions and the dominant influence of taste over knowledge in shaping adolescents' food choices with influence from TV advertisements, celebrity endorsements and increasing penetration of food delivery apps even in rural areas and widespread availability of fast food near residential as well as school areas driving food choices and preferences amongst adolescent students.

CONCLUSION

The School Food Environment Assessment conducted across 407 schools in Telangana provides comprehensive evidence on the strengths and gaps within school-based nutrition, health, and food systems affecting adolescents. Overall, the findings demonstrate that Telangana has a strong institutional foundation for adolescent nutrition through national programmes such as PM POSHAN, Anaemia Mukht Bharat, and school-based health services. The PM Poshan and residential school meal programs, high adoption of fortified foods (including fortified rice, oil, and iodized salt), and widespread implementation of health assessments and deworming initiatives reflect robust program coverage across diverse school types and geographic settings.

Despite these strengths, several structural and behavioural gaps remain that may limit the overall impact of school nutrition initiatives. Dietary diversity in school meals remains uneven, particularly in government schools where the inclusion of nutrient-dense foods such as dairy, vegetables and protein are limited. While most schools have kitchens and basic infrastructure, gaps in food safety practices—such as limited use of protective gear by kitchen staff and minimal laboratory-based food testing—highlight the need to strengthen quality assurance mechanisms. Similarly, although WASH infrastructure is generally available, consistent access to soap for handwashing and broader implementation of menstrual hygiene management programs require improvement.

The broader school food environment also presents challenges. A substantial proportion of schools reported the presence of food vendors selling ultra-processed snacks near school premises. This external food environment, combined with adolescents' discretionary spending on snacks and frequent consumption of processed foods, contributes to dietary behaviours that may undermine school-based nutrition efforts.

At the same time, the assessment highlights important opportunities. Schools widely provide nutrition education and students demonstrate high awareness of healthy food choices, particularly traditional and locally available foods. However, translating knowledge into healthier dietary practices requires supportive environments, including improved access to healthy snack options within and around schools.

Strengthening school nutrition systems in Telangana will require a comprehensive approach that integrates programme implementation, regulatory enforcement, and behaviour change strategies. Priority actions include improving dietary diversity in school meals, strengthening food safety monitoring, expanding

micronutrient supplementation coverage, promoting school kitchen gardens and healthy snack initiatives, and enforcing regulations that limit the availability of unhealthy foods near schools. Collectively, these actions can help transform schools into enabling environments that support healthier dietary behaviours and improved nutrition outcomes among adolescents.

For Further Information

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