Assessment of a cash-based pilot school meal program combined with nutrition-sensitive literacy education in Nepal

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Background:

School-based nutrition interventions offer a unique opportunity to simultaneously improve children's learning and nutrition outcomes. The government of Nepal implements a food- and cash-based school meals program (SMP), reaching about 600,000 school children. There is a need to improve program efficiency and move toward a sustainable nationally-owned home-grown school feeding program. This project therefore piloted alternative modalities to deliver school meals and complementary nutrition education. The modalities were designed by the Nepal government and the World Food Programme and tested in 30 schools in Bardiya and Sindhupalchok districts from August 2016 to March 2018.

Objective:

Assess operations and outcomes of the pilot SMP as compared to the regular cash-based SMP in Nepal.

Methods:

- One-time post-assessment using a combination of qualitative and quantitative research methods.
- Quantitative data were collected using a structured questionnaire survey among 762 students in grades one to five from 30 pilot SMP schools, and 750 students in the same grades from 30 control schools.
- Qualitative data were collected from 12 focus group discussions (FGD) and 28 key informant interviews (KII).
- Data on school meal menu and school meal cost were obtained from WFP.



Results:

School children in the pilot SMPs performed significantly better in terms of nutrition and education outcomes: (1) the availability of school meals was 20% higher for children in all grades and more children finished their meals; (2) children in grades 1-3 were better able to identify fruit and vegetables; (3) hygiene practices of children in all grades were better; (4) dietary practices and healthy food choices were better for children in grades 1-3.

Schoolchildren's knowledge, dietary practices, and snack preference scores (grades 1-3)

Variable	Pilot SMP (n=387)		Regular SMP (n=390)		p-value
	Mean	SD	Mean	SD	
Knowledge score on nutrition and hygiene (max. 10) ‡	8.0	1.6	7.9	1.5	0.403
Hygiene practice score	8.8	1.1	8.3	1.2	<0.001
Knowledge score of fruit and vegetable names (max. 10) ‡	8.9	1.7	8.5	1.6	<0.001
Dietary practice score (max. 8) ‡	6.6	1.1	6.1	1.3	<0.001
Snack preference score (max. 5) ‡	3.5	1.3	2.8	1.3	<0.001

‡, t-test

Schoolchildren's knowledge, dietary practice and hygiene practice scores (grades 4-5)

Variable	Pilot SMP (n=375)		Regular SMP (n=360)		p-value
	Mean	SD	Mean	SD	
Knowledge on nutrition and hygiene practice score (max. 10) ‡	8.4	1.5	8.2	1.5	0.095
Dietary practice score (max. 20) ‡	14.2	2.1	14.1	1.9	0.608
Hygiene practice score (max. 14) ‡	12.2	1.5	11.8	1.6	**0.001**

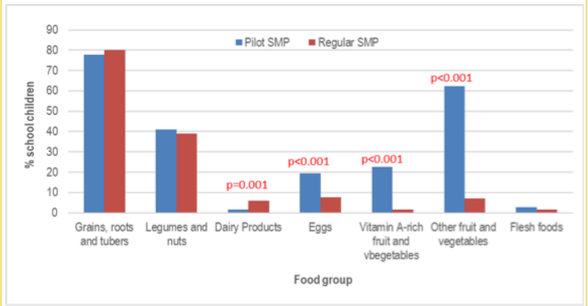
‡, t-test.

Estimated nutrient contribution from the school meals provided by pilot SMP to daily nutrient *requirements for girls at age 10-12 years*

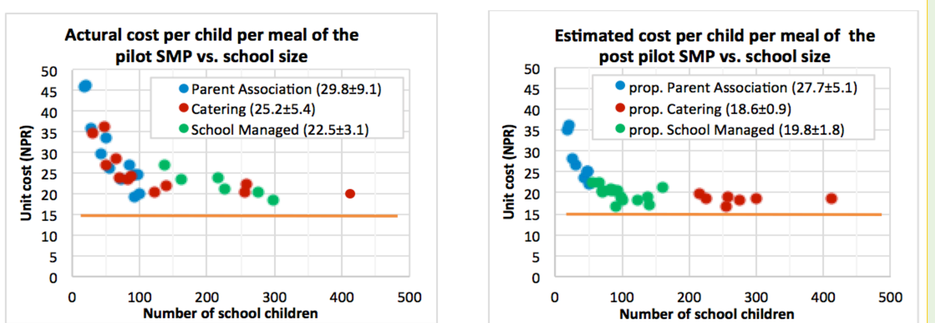
Most popular menu	Wt. g	Daily nutrient contribution (%)						
		Eng	Pro	Vit A	Nia	Thia	Ca	Fe
Nutritious porridge	156	17	18	23	19	23	6	6
Millet flour pancake	196	18	22	64	19	38	12	27 (8)[a]
Mix veg fried rice	117	15	16	20	16	15	6	5
Rice flake with chicken curry	111	25	24	0	19	4	17	54 (14)[a]
Mean	145	19	20	27	18	20	10	23 (8)[a]

Eng: energy; Pro: protein; Vit A: vitamin A; Nia: niacin; Thia: thiamine; Ca: calcium; Fe: iron. Estimated nutrient contribution: (nutrient content of a meal)/(RDA of the nutrient). [a]Iron contribution: data in parentheses calculated from non-iron fortified rice flake and wheat millet

Comparison of food groups consumed by schoolchildren from pilot and regular SMP schools during school meal (grades 4-5)



Comparison of the cost per child per meal of the pilot SMP (left) and estimated cost of post-pilot SMP scenario (right) by the three types of school meal modalities



- The pilot SMP used a standard set of 13 menus and the most commonly chosen menus provided 20% of children's daily requirement of energy, protein, niacin and thiamine, 10 % of minerals (calcium and iron), and 27% of vitamin A.
- The qualitative findings showed clear improvements in operations, management and resource allocation in the pilot SMPs particularly through the use of trained cooks to ensure meal quality, the use of standard menus, the involvement of agricultural cooperatives to link the SMP to local farmers, and improved budget management.
- The cost of the pilot SMP is about Rs 20-35/child/day depending on school size, which is higher than that of the regular SMP (Rs 15/child/day).

Conclusions:

The results of the study point at opportunities to improve the current cash-based SMP in Nepal, particularly by using trained cooks, using set menus and involving agricultural cooperative to supply locally produced food. However, these improvements may require an increase in the current allocation of Rs 15/child/day.

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