

Family Style Meal Service is Associated with Reduced Plate Waste in Nebraska Family Child Care Homes

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Background

- **Definition.** Family style meal service (FSMS): childcare providers allow children to serve themselves and select their own portions.
- **Evidence.** FSMS significantly improves children's self-regulation of intake and skill development. It is **nationally endorsed** to promote healthy eating habits among children (2-5 years).
- **Literature Gap.** Although FSMS influences eating habits which determine plate waste, the association of FSMS with plate waste is unknown.

Research Objective

Investigate the association between FSMS and plate waste in childcare homes in Nebraska.

Methods

Study Design:

- Cross-sectional

Participants:

- Family childcare homes (FCCHs) in Nebraska
- FCCH providers (n=46) and 3-5-year-old children attending these FCCHs (n=146)

Independent variable: FSMS score

- Data collected over one lunchtime
- Provider was scored on 11 items of the Mealtime Observation in Child Care observation tool
- Score was averaged to obtain an FSMS score

Dependent variable: Plate waste

- Data collected over one lunchtime
- Child's dietary intake was recorded using the Dietary Observation in Child Care method
- Food served to and consumed by the child was calculated for the five MyPlate food groups (whole grain, vegetable, fruit, dairy, and protein)
- Plate waste was calculated for each food group as percentage of the amount served that was wasted.

Scored FSMS Items

1. Children serve food themselves
2. Provider encourages self-service with subtle physical prompts
3. Provider encourages self-service with verbal assists
4. Food units are developmentally appropriate
5. A moment is taken to settle before eating
6. Serving bowls remain close by for second servings
7. Provider reduces messes at mealtime by keeping cleaning supplies such as paper napkins nearby
8. Provider maintains hygiene at mealtime by keeping extra helpings of food nearby in case of contamination
9. Provider uses verbal communication to maintain hygiene and safety
10. Provider involves children in clean-up
11. There is a tub provided for food waste



Figure 1. In FSMS, children serve themselves

Data Analysis

- Multivariate, multilevel regression in SAS (v. 9.4)
- Controlled for children's age, gender, ethnicity, and body mass index
- Accounted for setting-level effects (ICCs 11.3-31.2%)

For references, please contact rgeorge4@unl.edu

Results and Conclusion

Results

- The mean age of the sample was 3.9 years. 50% were girls and 95.9% identified as non-Hispanic white.
- **Vegetables were the most wasted food group.**
- **A higher FSMS score was associated with lower plate waste** for 4 food groups: vegetable, fruit, dairy, protein.

Table 1. Child demographics

Variable	Summary
Age (years)	3.9 ± 0.9
% Girls	50
% Non-Hispanic white	95.9
% Overweight/Obese	27.4

Table 2. Association of FSMS with plate waste

Variable	B	95% CI	p-value
Grain waste	-1.7	-4.7, 1.3	0.27
Vegetable waste	-5.3	-9.0, -1.5	0.009
Fruit waste	-3.7	-6.5, -0.9	0.01
Dairy waste	-3.8	-7.5, -0.1	0.04
Protein waste	-4.3	-7.0, -1.6	0.003

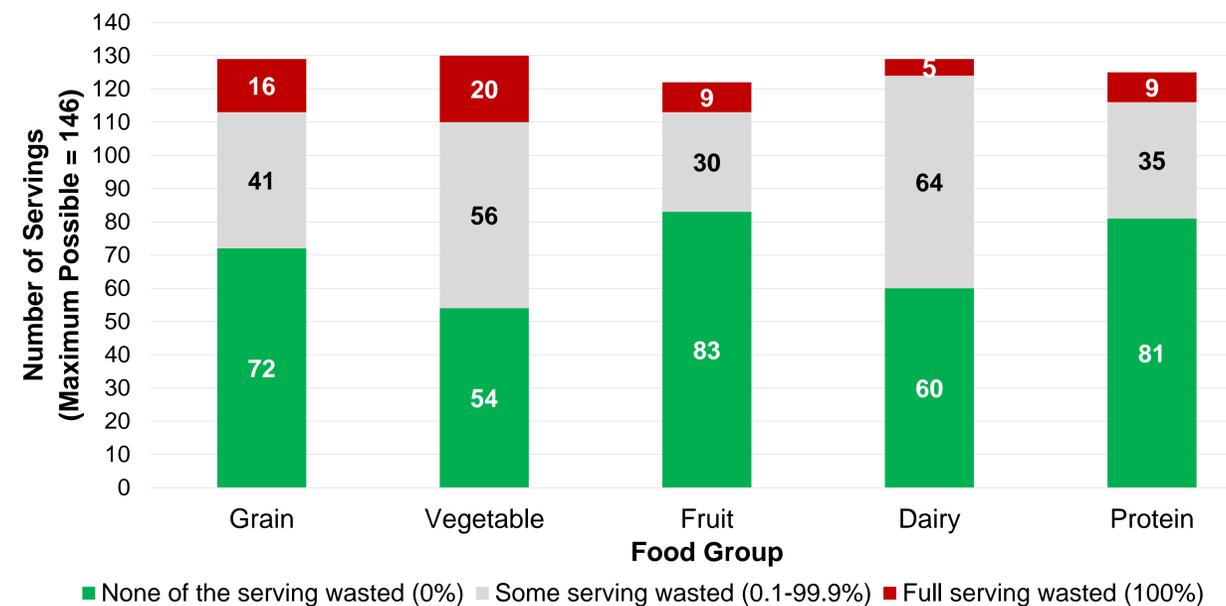


Figure 2. Number of servings of each food group that was wasted

Conclusion

- FSMS is one of the least implemented best practices, despite its numerous benefits on children's diet.
- Further research is warranted in identifying strategies to improve the structure and implementation of FSMS (e.g., combining it with role modeling or serving vegetable/fruits-first strategies) in diverse childcare settings.
- Next steps should aim to leverage the benefits of FSMS to address childhood obesity among vulnerable populations such as American Indian, Alaska Native, non-Hispanic Black and Hispanic children.