

The Correlation Between the Addition of a Condiment and Plate Waste in an Elementary School Meal Program Serving Students Ages 5-12

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Abstract

Background: There have been many food waste studies done in elementary schools around the country. Several studies have determined that main entrées contribute significantly to plate waste in elementary school food programs, but studies relating the use of condiments and their influence on food waste need further exploration.

Objectives: Determine the correlation between the addition of condiments and the amount of plate waste from a chicken entrée in an elementary afterschool meal program.

Methods: In Phase I, data was collected in an elementary afterschool meal program. Researchers evaluated plate waste for the chicken entrée once a week for a total of four weeks. Chicken entrée plate waste was evaluated by weight and visual assessment. The waste weight was compared to the weight of one serving of the chicken entrée. A photograph of the total plate waste was taken each week for visual comparison. Researchers compared the total number of servings prepared to the number of servings leftover. In Phase II of the study a condiment (ketchup) was added to the menu when the chicken entrée was served. A marketing campaign was implemented with flyers to advertise the addition of the condiment. For the remaining four weeks, plate waste was documented using the same methods utilized during Phase I. Data was analyzed using Microsoft Excel.

Results: In Phase I, an average of 26.7% of chicken entrées was wasted. In Phase II, an average of 20.8% of chicken entrées was wasted. No statistically significant difference was found in the percentage of food leftover between Phase I and Phase II ($p < 0.06$). After adjusting for differences in initial portion size, there was still no statistically significant difference in weight of entrée left over ($p < 0.3$).

Conclusion: Though there was no statistically significant difference, the percentage of entrée plate waste was large enough to draw attention to the amount of waste in school foodservice. More research is needed to determine what factors are contributing to food waste in this setting.

Background

There have been many food waste studies done in elementary schools throughout the United States. Previous research has determined that the main components of plate waste in school foodservice were from the main entrée, milk, and vegetables. While the research on plate waste is extensive, there have been limited studies concerning the influence of condiments on plate waste. Therefore, this study centered on plate waste related to the entrée component of the meal, as well as the impact of the addition of a condiment on entrée consumption, with the potential to reduce waste and improve cost effectiveness in an elementary school foodservice program. Previous research also indicates that the implementation of a marketing campaign in schools can positively influence intake of fruits, vegetables, and milk products. Based on this research, a marketing campaign was conducted to advertise the addition of the condiment to the entrée.

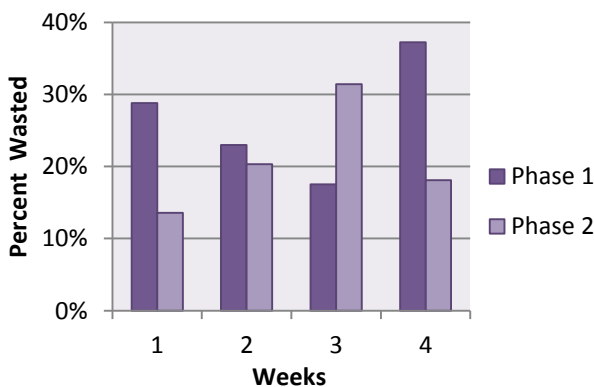
Methods

In Phase I, data was collected in an elementary afterschool meal program. Researchers evaluated plate waste for the chicken entrée once a week for a total of four weeks. Chicken entrée plate waste was evaluated by weight and visual assessment. The waste weight was compared to the weight of one serving of the chicken entrée. A photograph of the total plate waste was taken each week for visual comparison. Researchers compared the total number of servings prepared to the number of servings leftover. In Phase II of the study a condiment (ketchup) was added to the menu when the chicken entrée was served. A marketing campaign was implemented with flyers to advertise the addition of the condiment. For the remaining four weeks, plate waste was documented using the same methods utilized during Phase I. Data was analyzed using Microsoft Excel.

Results

No statistically significant difference was found in the percentage of food leftover between Phase I and Phase II ($p < 0.06$). After adjusting for differences in initial portion size, there was still no significant difference in weight of entrée left over ($p < 0.3$). In Phase I, with no condiment, an average of 26.7% of chicken entrées was wasted. In Phase II, after addition of a condiment (ketchup), an average of 20.8% of chicken entrées was wasted. Though statistically insignificant, there was a 5.9% decrease in chicken entrée waste between Phase I and Phase II.

Comparison of Percentage of Entrée Wasted Between Phase I and Phase II



Phase I – 1 Day Sample Without Condiment



Phase II – 1 Day Sample With Condiment



Discussion and Conclusions

This study indicated that the addition of condiments, specifically ketchup, had no statistically significant impact on plate waste for the entrée component of an elementary afterschool meal program. Based on this information, school foodservice programs may be able to eliminate certain condiments from the menu as a cost saving measure and assess additional ways to increase entrée consumption. Though there was no statistically significant difference in plate waste between the two phases of the study, the percentage of entrée plate waste was large enough to draw attention to the amount of food waste in school foodservice. Food waste is an issue with varying contributing factors and influences that needs to be researched further in this setting. Limitations of this study included varying temperatures of food when served, classroom activities that may have influenced hunger levels of student participants, encouragement from cafeteria supervisors to increase food intake, and time constraints during mealtime. Future studies must be designed to limit these variables in order to determine the primary factors that are contributing to plate waste.