Mixed Methods Study Investigating the Consumer Acceptance and Implementation of Spicy Vegetables Into School Lunch

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Background: By late adolescence, the average vegetable consumption is about half of the recommended intake range, and vegetables are the most wasted school meal component. To increase vegetable palatability and cater to various cultural taste preferences, chili pepper can serve as a healthy flavor enhancer, but its implementation into school lunch has not been studied.

Objective: This convergent parallel mixed method study has three objectives: to identify what degree of capsaicin pungency is the most liked among adolescents, to estimate the appropriateness and acceptability of spicy broccoli in school lunch, and to identify strategies to promote spicy vegetables in school lunch.

Study Design, Settings, Participants: In this convergent parallel mixed method study, 100 participants in central Illinois, ages 11-17, sampled four spice levels of steamed broccoli containing 0, 0.9, 2.0, and 4.0 grams of a cayenne and red pepper blend. Participants also completed a survey and a short interview which was audio recorded.

Measurable Outcome/Analysis: Participants rated their consumer acceptance on a 9-point hedonic scale for each broccoli sample. The survey assessed race, language, age, and gender, as well as validated chili liking, chili consumption patterns, spicy broccoli appropriateness, and spicy broccoli acceptability items on a 5-point agree/disagree scale. The interview assessed perspectives on spicy vegetables and their implementation into school lunch.

Results: Consumer acceptance ratings did not significantly differ between the four samples; however, sample 3 had the highest overall mean rating (6.69). Spicy broccoli had higher appropriateness ratings than acceptability ratings in school lunch. Participants rated the acceptability (4.0 + 1.0) of spicy broccoli in school lunch higher than the appropriateness (3.6 + 1.0). Thematic analysis results suggest most participants are in favor of incorporating spicy vegetables into school lunch. Suggested promotion strategies included posters, announcements, take-home menus, and parent emails.

Conclusion: Overall, spicy vegetables were liked among adolescents, but more research is needed to assess if spicy vegetables will successfully increase vegetable consumption and reduce waste during school lunch.

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