

Fruit and Vegetable Intake Among Children: Social Cognitive Theory Applications

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Background and Purpose: The quality of many US children's diets is suboptimal in several aspects. Environments in the US have been described as effective at promoting obesity. Large portions of energy intake are obtained from calorie-dense, nutrient-poor foods; discretionary fat and added sugar can contribute to up to forty percent of total daily energy intake. Inadequate fruit and vegetable (FV) consumption contributes considerably to the poor diet quality of US children. Unfortunately, few US children meet recommendations for 5-8 daily servings of FV. The USDA estimated only 25% of US children aged 6 to 11 years consumed the minimum number of FV servings per day. Traditional programs have attempted to address the problem of poor dietary quality among US children but these programs are limited and only a small fragment are considered successful. The purpose of this paper was to conduct a literature review to describe the use of a promising behavioral theory, the Social Cognitive Theory, and how it has been utilized in interventions designed to improve FV intake.

Methods: Data sources were obtained from a search of multiple databases including PubMed, Science Direct, Academic Search Premier, and Google Scholar. Study inclusion criteria were publication in the past ten years and utilization of Social Cognitive Theory to increase FV intake among children primarily 6-12 years old. Eight studies were included in order to thoroughly discuss potential strategies for health professionals when designing FV intake improvement programs for children.

Results: The majority of interventions were school-based. Increased FV consumption was often seen at meals over which children had control; successful methods to influence the largely adult-controlled home environment remain elusive. The need for a theoretical framework and clear messages targeting a specific health behavior was apparent.

Conclusions: Creative informational components utilizing modern technology such as computer games, and promotion of activities for bolstering social skills, self-management skills, and self-efficacy were often included in successful programs. Other successful components included role-modeling and used trained paraprofessionals for message delivery. In conclusion, child-focused, multi-component interventions have been successful, however modestly, in increasing FV intake among children.

**Utilization of Social Cognitive Theory Constructs to Increase
Fruit and Vegetable Intake in Children**

Construct	Definition	Application for Increasing Fruit and Vegetable Intake
Environment	Factors physically external to a person	Increase availability & accessibility at home and school; Parent focus; Sustainable changes in foodservice
Behavioral Capacity	Knowledge and skill to perform a given behavior	Participatory activities including skill development for preparing fruits and vegetables and asking skills; Use of peers or paraprofessionals; Tailored, reinforced messages; Repeated multimedia approach; Parental involvement
Expectations	Anticipated outcomes of a behavior	Multiple, repeated messages; Taste testing; Use of recognizable or relatable role models including parents
Expectancies	Values placed on a given outcome	Discussion of social impact, media influence; Use of recognizable or relatable role models; Focused messages highlighting fruit and vegetable benefits and alleviating concerns regarding peer acceptance
Self-Control	Self-regulation of a behavior	Goal-setting; monitoring using food journals; feedback; Role-playing; Problem-solving activities
Observational Learning	Behavioral acquisition by observing outcomes of others' behavior	Use of credible, recognizable or relatable role models; Participatory skill development activities
Emotional Coping Responses	Strategies used to manage emotional stimuli	Monitoring & feedback; Role-playing; Problem-solving activities
Reinforcement	Responses to behavior that will increase or decrease likelihood of behavior's occurrence	Monitoring & feedback; Regulated use of exterior incentives; Encourage self-initiated rewards and incentives
Self-efficacy	Confidence in the ability to perform the behavior	Clear, targeted messages; Role-playing for asking skills; Enhancing preparation skills; Use of recognizable or relatable role models; Approach behavior change in small steps to ensure success

Adapted from Glanz, et al. (2002).