Beavers (continued)

**Objective:** This study describes the theory-based design of food preservation lessons for gardeners, evaluates these lessons with regard to influencing food preservation confidence and worry, and examines the perceived influences of food preservation on fruit and vegetable intake and aspects of food security.

**Use of Theory or Research:** These lessons were developed using the DESIGN process, a nutrition education program planning framework. Social cognitive theory was used to guide the lesson development.

**Target Audience:** Adult home or community gardeners in metro Lansing, Michigan.

**Program Description:** The program included in-person lessons on three types of food preservation: freezing, water bath canning, and pressure canning. Each lesson was about 90 minutes in length and consisted of PowerPoint presentations, demonstrations of food preservation equipment, and videos on portions of the canning process.

**Evaluation Methods:** The evaluation consisted of post-lesson surveys to examine knowledge of proper food preservation practices, confidence in preserving food, and worry about preserving food. Participants also completed a follow-up survey several months after the lesson to examine perceived influence of home food preservation on vegetable intake and aspects of food security.

**Results:** Most participants, between 73% and 83%, answered all food preservation knowledge questions correctly in the post-lesson survey. Average confidence scores increased and worry scores decreased following the lessons. At follow-up, 64% of participants agreed or strongly agreed that they ate more fruit and vegetables because of preserving food, 57% of respondents agreed or strongly agreed that they spend less money on food due to preserving, while 71% reported being better able to provide food for themselves and their family. Lastly, 93% reported feeling better about where their food comes from and wasting less food due to preserving.

**Conclusion:** The food preservation lessons improved confidence in and decreased worry about food preservation. This study also provides evidence that home food preservation may be beneficial in promoting fruit and vegetable intake and food security among gardeners.

**Funding:** Allen Foundation

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**Development and Validation of the Teaching Nutrition in Physical Education Survey (TNPES)**

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**Background:** Nutrition education is typically taught as part of the comprehensive school health education curriculum. However, nutrition education should be integrated into other subjects such as physical education to reinforce concepts learned in the health classroom. Currently, there are no instruments that measure physical education teachers’ beliefs relative to teaching nutrition as part of their curriculum.

**Objective:** To develop and validate a questionnaire that assesses physical education teachers’ intentions to teach nutrition as part of their physical education curriculum.

**Study Design, Setting, Participants:** The Teaching Nutrition in Physical Education Survey (TNPES) was developed utilizing the Theory of Planned Behavior (TPB). In phase one, a questionnaire was administered to a convenience sample (N = 54) of elementary physical education teachers in Florida. This version of the questionnaire included open-ended items that elicited participants’ salient beliefs and closed-ended items that assessed the direct measures of the TPB. In phase two, the 60-item TNPES was developed which measured behavioral beliefs, normative beliefs, control beliefs, attitude toward the behavior, subjective norms, perceived behavioral control, and behavioral intention. The TNPES was administered to 57 physical education teachers attending a state conference in Florida.

**Measurable Outcome/Analysis:** The direct measures of the TPB were analyzed for reliability based on internal consistency using Cronbach’s alpha. Principal component analysis, a content analysis by experts, and a test of concurrent validity were used to determine the validity of the TNPES. Additionally, the test-retest method was used to establish the temporal stability of the belief-based measures.

**Results:** Only items with a factor loading of 0.60 or higher were retained. Cronbach’s alpha was 0.906 for the direct measures of attitude toward the behavior, 0.705 for subjective norm, and 0.917 for perceived behavioral control. Pearson’s correlation coefficients for the test-retest reliability analysis of the belief-based measures were as follows: behavioral beliefs (r = 0.532), normative beliefs (r = 0.845), and control beliefs (r = 0.898).

**Conclusion:** The TNPES demonstrated evidence of both reliability and validity based on multiple analyses. The instrument can be used to assess physical education teachers’ intentions to teach nutrition and examine their beliefs that influence those intentions.

**Funding:** None

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**Development of a Theory-Based Three-week Whole-Food Plant-Based Diet Intervention for College Students**

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**Objective:** Using an interdisciplinary approach, develop a 3-week, theory-based, whole-food plant-based (WFPB) diet intervention for use in a feasibility study to assess the impact of a WFPB diet on college students’ physical and mental health and determine if the type of teaching modality (i.e., interactive-experiential vs. lecture-based) improves diet adherence and outcomes.

**Use of Theory:** Theory of Planned Behavior (TPB) and Social-Cognitive Theory (SCT) were used to develop the theoretical model and supporting materials for three 75-minute intervention sessions that will be delivered using two different teaching modalities.

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