

Research and Professional Briefs

Development and Validation of Stages-of-Change Questions to Assess Consumers' Readiness to Use a Food Thermometer When Cooking Small Cuts of Meat

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ABSTRACT

Consumers' readiness to use a food thermometer when cooking small cuts of meat was assessed using Prochaska's Transtheoretical Model of Behavior Change. Face, content, and concurrent validity were assessed by peer review, cognitive interviews, and mail surveys. The self-administered mail survey was sent to two groups of Washington and Idaho residents: 1,000 randomly selected consumers (41% return rate), and 231 employees and volunteers of Cooperative Extension involved in food and nutrition education (60% return rate). Two-stage classification questions were compared with a behavior question about thermometer use, and validated using Cronbach's α if-item-deleted option for α . Concurrent validity was assessed using cross-tabulation χ^2 test. The detailed classification question more accurately classified respondents in both Consumer and Extension groups. Cronbach's α of the detailed question with the behavior question showed a consistency level of $\alpha = .73$ compared to $\alpha = .35$ for the simple question format. As expected, Con-

sumer and Extension groups differed significantly in their stages of change ($P < 0.0001$), verifying concurrent validity. We recommend use of the detailed classification question when staging persons related to food thermometer use. The process used for development and testing can be used to refine instruments for use in other types of interventions.

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More than 3 million cases of foodborne illness annually are attributed to pathogens associated with inadequate cooking of meats (1-3). Some ground-beef patties look done at internal temperatures as low as 135°F (4,5), while the recommended temperature for destruction of most pathogens in ground-beef patties is 160°F (6,7). However, <5% of consumers use thermometers to check endpoint temperature of small cuts of meat, such as ground-meat patties (8,9).

The process of changing a health behavior is complex. Prochaska's Transtheoretical Model of Behavior Change (TTM, also known as stages of change) postulates that individuals engaging in a new behavior advance through predictable stages of Precontemplation, Contemplation, Preparation, Action, and Maintenance (10). Several successful health-oriented intervention programs based on TTM have been conducted (11-14). However, there is a paucity of data on the use of TTM for food-safety behaviors, especially regarding thermometer use.

This article describes use of TTM in development and validation of two questions to assess consumers' readiness to use a food thermometer when cooking small cuts of meat. We hypothesized that almost all consumers were in Precontemplation (had never used a food thermometer for small cuts of meat). To assure respondents from every stage of change, we surveyed a group who had received food-safety education and participants from the general population.

METHODS

Design and Administration of the Survey

A questionnaire was designed to assess consumers' readiness to use a food thermometer with small cuts of meat. Two questions were developed to estimate stages of change regarding food thermometer use, based on research applying the TTM to dietary behaviors (12-14).

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