

Nutrition Environment Food Pantry Assessment Tool (NEFPAT): Development and Evaluation

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ABSTRACT

Objective: To develop and evaluate a nutrition environment assessment tool to assess the consumer nutrition environment and use of recommended practices in food pantries.

Methods: The Nutrition Environment Food Pantry Assessment Tool (NEFPAT) was developed based on a literature review and guidance from professionals working with food pantries. The tool was pilot-tested at 9 food pantries, an expert panel assessed content validity, and interrater reliability was evaluated by pairs in 3 pantries. After revisions, the NEFPAT was used in 27 pantries.

Results: Pilot tests indicated positive appraisal for the NEFPAT and recommendations were addressed. The NEFPAT's 6 objectives and the overall tool were rated as content valid by experts, with an average section rating of 3.85 ± 0.10 . Intraclass correlation coefficients for interrater reliability were >0.90 .

Conclusions and Implications: The NEFPAT is content valid with high interrater reliability. It provides baseline data that could be valuable for interventions within the nutrition environment of food pantries.

Key Words: at-risk population, emergency food, food pantries, nutrition environment, measure development (*J Nutr Educ Behav.* 2018;■■:■■-■■.)

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INTRODUCTION

Food insecurity, a state of limited or uncertain access to sufficient nutritious food, affects 12.7% of American households,¹ with highest rates among households with incomes below the federal poverty level. Food insecurity is associated with poor dietary quality² and elevated chronic disease risks.³

Food pantries, also known as food shelves, food cupboards, and food banks,⁴ distribute free grocery items to over 46.5 million people annually.⁵ Estimations of food insecurity among

pantry clients range from 50% to 84%.⁵⁻⁷ Pantries are commonly used to augment *Supplemental Nutrition Assistance Program* benefits and assist in meeting immediate food needs.^{7,8} However, for some clientele, pantries are a sole food source.⁹

The nutritional quality of foods available in emergency food settings has been characterized with various tracking systems,^{10,11} and evidence consistently indicates that foods available at pantries are insufficient to meet client needs.¹² Information about types and quantities of foods available at pan-

tries is valuable because it indicates available options. However, the broader consumer nutrition environment (CNE), including additional characteristics such as price, promotions, placement, range of choices, freshness, and nutritional information,¹³ has been supported as a greater reflection of factors that influence patrons' food selections.

Interventions modifying the CNE have improved health-related outcomes of low-income populations,¹⁴ but pantries are often overlooked. The food pantry CNE could have a major role in their capacity to address the needs of their clients¹⁵ at high risk for food insecurity and poor diet quality.^{12,16} Previous studies demonstrated that modifications within pantries or programs to improve food banks can lead to positive outcomes.^{10,17,18} This work has, in part, stimulated efforts from different organizations to develop assessment tools for food pantries.^{19,20} However, evaluating the influence of pantries on health has been hindered by the lack of CNE assessment tools for food pantries that have been psychometrically tested.

The objective of this study was to develop a content valid and reliable tool that could be used to assess the

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CNE and implementation of recommended practices within food pantries. The tool was designed to be completed by external observers who complete a standardized training to increase uniformity of reporting and reduce self-report biases. Areas of priority included brevity, ease of use by field professionals, and flexibility to assess pantries that range in size and that use various service models.

METHODS

The tool development and evaluation were conducted in 5 steps: (1) review of relevant literature to create the initial draft of the tool; (2) pilot-test of the initial draft by professionals working with food pantries; (3) review by experts to establish content validity; (4) assessment of interrater reliability using sets of cross-sectional observations; and (5) use of the final tool to create a comprehensive baseline cross-sectional assessment of food pantries across 5 counties in Illinois.

Literature Review

The initial Nutrition Environment Food Pantry Assessment Tool (NEFPAT) was constructed by 2 of the researchers based on a narrative review of relevant research, gray literature, and previous unpublished tools.^{19,20} Revisions and prioritizations of content were made based on larger group discussions among researchers and meetings with professional staff who had partnered with food pantries.

Pilot-Testing

The draft of the NEFPAT was pilot-tested by 4 professionals, who worked for cooperative extension, at 9 pantries. The pantries served a variety of audiences across 4 Illinois counties, including both urban and rural locations. The pilot-testers included master's-trained extension professionals with previous experience conducting environmental assessments, who spent at least 50% of their time committed to emergency food programs, as well as 1 research assistant who provided insight for those who had limited experience with the topic. The pantries were selected based on interest, or established partnerships, with extension

offices. After completing the assessments, pilot-testers provided feedback in semistructured interviews with 1 researcher, using Web-based video conferencing software (version 16, Skype for Business, Microsoft Corporation, Redmond, WA, 2016).

Content Review

After revisions from the pilot-testing, the NEFPAT was sent to topic experts to assess the content validity of the tool. Experts included extension staff who were familiar with environmental assessments and worked with food pantries, as well as academic researchers working in the field. They were asked to assess the overall tool and each section based on its relevance to quantifying the CNE of food pantries in Illinois. Five food pantry experts who had experience working with low-income populations and/or directly with food pantry clientele evaluated content validity. Evaluations were quantified with a content validity index²¹ in which each item on the tool was assessed on a standardized scale of 1–4 (from *not relevant* to *extremely relevant*). At least 80% of evaluators needed to assess each item as content valid, a *selection of relevant but needs minor alterations* or *extremely relevant*, to establish validity.²¹ If <80% of evaluators considered an item to be relevant, the item was dropped, and if experts indicated that an item or topic was missing, a new item was added to the tool.

Interrater Reliability Assessment

Pantries chosen to establish interrater reliability were in counties different from those used for the final evaluation. Pantries were contacted based on interest or established partnerships with extension offices. These sites were in both rural and urban areas, and pantries served a range of audiences (ie, university students, families with children, and older adults). To assess interrater reliability, 2 pairs of raters individually assessed 3 food pantries. Before completing assessments, raters participated in a 1-hour online training session. Interrater reliability was evaluated using intraclass correlation coefficients (ICCs) that were calculated independently for each

pair of raters. The ICCs, calculated using StatsToDo software (StatsToDo, Sha Tin, Hong Kong, 2014), were considered to be strong if they were >0.7.²²

Five-County Cross-Sectional Assessment

To identify the sample of food pantries comprehensively within 5 Illinois counties, online directories and community stakeholders were consulted. This initial list was refined by extension professionals working within each community and resulted in 42 pantries. Of these, 11 no longer had active food pantries and 4 were unable to accommodate research staff during data collection periods (winter, 2017); the result was a final sample of 27 pantries. Included counties contained both urban and rural regions. Pantries in the sample varied with regard to the audiences they served; some provided services to families and older adults whereas others served primarily university students.

Assessors were extension professionals with prior environmental assessment experience. All professionals completed an online webinar before assessments and were provided an accompanying guide to encourage consistency in assessments. Descriptive analyses from the final assessments were conducted in Stata/MP (version 14.1, StataCorp LLC, College Station, TX, 2015). The University of Illinois Institutional Review Board approved the study protocols.

RESULTS

As a product of the literature review steps, 6 objectives were identified that provided the most promise for promoting healthier choices: (1) increasing client choice, (2) nudging healthful foods, (3) diversifying fruit/vegetable (FV) forms, (4) diversifying FV types, (5) promoting additional resources, and (6) accommodating alternative eating patterns. Several strategies were listed under each objective and served as indicators of a pantry's CNE. The rationale for inclusion of the strategies is outlined subsequently; the full NEFPAT with each strategy listed is provided in this article's [Supplementary Data](#).

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