

# Improved risk communication through assessment of Kentucky citizens' perception of environmental pollutants, health and nutrition behavior.



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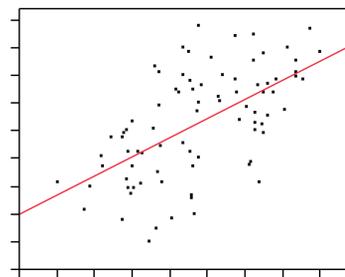
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## Abstract

Nutrition interventions are an effective way to improve the dietary habits and lifestyle choices known to impact health and reduce risk of chronic disease. The researchers in the UK-SRP Community Outreach Core develop and deliver nutrition programs to community members affected by environmental pollutants in Kentucky. Risk communication is a discipline that can be used to develop targeted nutrition interventions that will yield positive behavior change and prompt dialogue concerning people's beliefs, opinions, and willingness to take action. The purpose of the present study was to examine individuals' current knowledge, risk perception, and actions concerning both environmental pollutants and nutrition behavior. Data was collected using a modified survey instrument based on the validated Environmental Health Engagement Profile (EHEP). Survey participants from diverse regions of the state included 1) health educators from numerous counties (n=83); 2) residents from a nonmetropolitan-non-Appalachian area (n=96); 3) residents from a nonmetropolitan-Appalachian area (n=172); and 4) residents from a metropolitan area (n=429). Results indicated a significant, positive correlation in all four groups between perception of environmental pollutants in a person's surroundings and the extent of concern that pollutants cause adverse health effects ( $p < 0.01$ ). Recognizing that participants see a link between environmental pollutants and their health allows nutrition researchers to develop targeted, effective nutrition interventions. This information will be useful in the development of future nutrition programs to improve the health of Superfund communities.

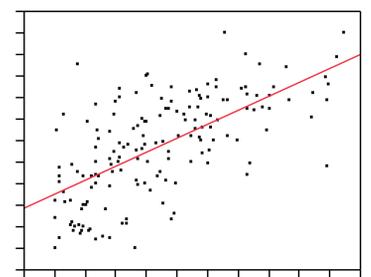
## Results

Health Educators



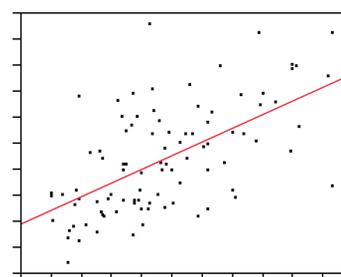
( $P < 0.01$ , estimate of coefficient is 0.69)

Non-metropolitan-Appalachian



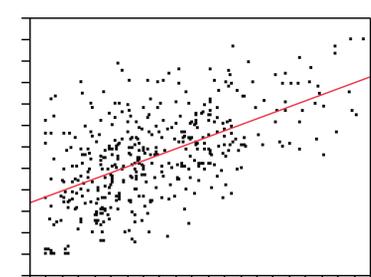
( $P < 0.01$ , estimate of coefficient is 0.64)

Non-metropolitan-non-Appalachian



( $P < 0.01$ , estimate of coefficient is 0.52)

Metropolitan



( $P < 0.01$ , estimate of coefficient is 0.56)

## Materials and Methods

Anonymous responses to an environmental health survey were collected throughout Kentucky. The survey is a modified version of the Environmental Health and Engagement Profile, an instrument validated by researchers at Yale University (Dixon JK, KC Hendrickson, E Ercolano, R Quakenbush and JP Dixon: The Environmental Health Engagement Profile: What People Think and Do About Environmental Health. *Public Health Nursing*, 26:460-473, 2009), and was developed in collaboration with these researchers to evaluate knowledge and perceptions of pollution, environmental health, and nutrition issues. Participants rated each item for relevance to Pollution Types, Concerns, and Actions. There were 18 items representing Pollution Types, 21 items representing Concerns and 19 items representing Actions. Response options ranged from 0 to 10 for all sections, with 10 always indicating greatest magnitude. For Pollution Types: 10=very serious problem, while 0=no problem at all in their own neighborhood. For Concerns: 10=agree completely, while 0=disagree completely. For Actions: 10=you always do this when it makes sense, while 0=you never do it. Five subscales were identified: Pollution Sensitivity, Pollution-Causes-Illness, Pollution Acceptance, Personal Environmental Action, and Community Environment Action. Demographics were also included. Appropriate approvals were obtained from the University of Kentucky Institutional Review Board. The survey data was analyzed using linear regression and nonparametric tests with SAS version 9.2. Statistical significance was determined at  $P < 0.05$ .

### Highest mean scores of pollutant types

Air pollution from trucks, buses, cars. (mean=4.95)  
Polluted rivers, harbors, lakes or ocean (mean=4.68)  
Pesticides, i.e. insect sprays, lawn chemicals (mean=4.60)  
Pesticides, hormones, antibiotics in our food (mean=4.42)

### Lowest mean scores of pollutant types

Radiation from nuclear power plants (mean=0.96)  
Toxic places like abandoned factories or dumps (mean=2.34)  
Contaminated drinking water (mean=2.34)  
PCBs from landfills or from discarded electrical equipment getting into water or food (mean=2.76)

•A positive significant correlation ( $p < 0.01$ ) was found for all four groups between level of risk perception to pollutants and the amount of personal protective actions taken, through diet behavior and measures to avoid pollution.

## Conclusions

Current health belief models include evaluating risk perception for predicting health behaviors. In this study, knowledge of pollutant types in people's neighborhoods varied. These results suggested topics that will be addressed in future environmental health and nutrition lessons. Increased knowledge showed an effect on concerns that pollution increases risks for adverse health effects. Risk perception of pollution led to actions that would help the individual and the community and lead to nutrition and health behavior changes.

