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Kristina M. Boone

Karen Penner

Becky Johnson

Audrey Young

Charles Lubbers

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Hispanics are the largest minority population in the United States, according to the 2000 U.S. Census, and the fastest growing. If they are immigrants, they are often dealing with cultural issues as well as new technological applications and social systems. The need for education programs and dissemination of food safety information to this growing segment of the population is evident. This study sought to determine the group's knowledge of food safety and its primary channels for receiving such information. A questionnaire was developed and translated into Spanish. Face-to-face data collection facilitated by a trusted community partner proved to be a successful means of collecting data from this audience, who are often difficult to reach and may be unwilling to speak with people associated with government. Specific areas of lack of knowledge emerged. The respondents struggled most with questions about proper handling of leftovers containing meat, accurate water temperature for washing and rinsing dishes, handling frozen foods, and defrosting meat. From the attitude questions, the authors found that the target group felt food safety was important, was more threatened in food service outlets than in the home, and was overemphasized. The channel used most frequently and trusted most was television.

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# Targeting Hispanic Immigrants with Food Safety Communications

Kristina M. Boone, Karen Penner, Becky Johnson,  
Audrey Young, and Charles Lubbers

## Abstract

Hispanics are the largest minority population in the United States, according to the 2000 U.S. Census, and the fastest growing. If they are immigrants, they are often dealing with cultural issues as well as new technological applications and social systems. The need for education programs and dissemination of food safety information to this growing segment of the population is evident. This study sought to determine the group's knowledge of food safety and its primary channels for receiving such information. A questionnaire was developed and translated into Spanish. Face-to-face data collection facilitated by a trusted community partner proved to be a successful means of collecting data from this audience, who are often difficult to reach and may be unwilling to speak with people associated with government. Specific areas of lack of knowledge emerged. The respondents struggled most with questions about proper handling of leftovers containing meat, accurate water temperature for washing and rinsing dishes, handling frozen foods, and defrosting meat. From the attitude questions, the authors found that the target group felt food safety was important, was more threatened in food service outlets than in the home, and was overemphasized. The channel used most frequently and trusted most was television.

## Introduction

Food safety information generally originates from food safety specialists who may or may not be skilled in communication. While there is an abundance of food safety information, it must be packaged and presented in a form that can be understood. Some groups may be harder to reach than others, especially if a language barrier exists. A rapidly growing portion of the U.S. population fits into this category. Hispanics compose 12.5% of the U.S. population, making them the largest minority population group in the country and the fastest growing (Grieco & Cassidy, 2001). Since the 2000 Census,

## Research

the Hispanic population in the United States has grown 13%, almost four times faster than the total population (U.S. Census Bureau, 2004).

According to the Food Marketing Institute's Profile of the U.S. Hispanic Shopper, English is a second language to 86% of the Hispanic population with 70% speaking primarily Spanish in their homes. Forty percent of Hispanics five years or older claim they do not speak English well (FMI, 1998). Despite efforts to produce bilingual educational materials, a language barrier exists in the effort to educate this segment of the population about the importance of food safety and how to protect themselves from food-borne illness.

Food safety is particularly important for children and the elderly. Both groups become dehydrated more easily and faster than other age groups. Health problems can be greatly intensified by food-borne illness. Hispanic immigrants often have larger households with greater numbers of children and sometimes extended family members (FMI, 1998). Higher than any other ethnic group, 10% of Hispanics are preschool age (U.S. Census Bureau, 2004). Thirty percent of Hispanic households have five or more people living in them, as compared to slightly fewer than 12% for non-Hispanic white households.

Proportionally, Hispanics are younger than non-Hispanic whites; 36% of Hispanics are 18 years old or younger, while only 23.5% of non-Hispanic whites are in this age group. U.S. Census Bureau statistics also show that members of the Hispanic population in the United States are more likely to be unemployed, earn less, and have lower educational attainment than non-Hispanic whites. Hispanics are much more likely to live in poverty (22.8%) than non-Hispanic whites (7.7) (Therrien & Ramirez, 2001). Hispanics' access to media and education resources is lower because of lower incomes and less education, and they often face language barriers. Unfamiliarity with English increases among the older Hispanics in the United States. These factors make development of a food safety educational and promotional program directed toward the Hispanic population important.

One study of Hispanic consumer response to integrated pest management benefits indicated the need for bilingual education programs on food safety to improve consumer perceptions (Diaz-Knauf, Lopez, Ivankovich, Aguilar, Bruhn & Schutz, 1995). Hispanics showed lower confidence ratings in the safety of California and U.S. produce in general, possibly because of a lack of information and awareness about the safety of the food supply (Diaz-Knauf et al., 1995). Hispanics also have been found to be traditional-minded and more resistant to change than non-Hispanic whites (Austin & Nelson, 1986; Diaz-Knauf et al., 1995).

Identifying Hispanics' knowledge about food safety messages was necessary to lay the groundwork for development of an educational and awareness program. Garden City, KS, provided an ideal site to study food safety perception and the effect of message exposure on the Hispanic population. According to the 2000 U.S. Census, the overall population of Garden City is 28,451, which is an increase of 22.5% from 1990. Almost 44% ( $n = 17,548$ ) of the population is of Hispanic origin (U.S. Census Bureau, 2001).

Garden City is a relatively isolated community. Located in southwestern Kansas, the city is 200 miles from the nearest metropolitan area and receives a limited number of outside mass media. Few television stations are received over the air, and newspapers and radio stations are also limited. An even smaller number of media outlets provide Spanish-language material, which can lead to low acculturation levels (Johnson, 1996). One of the major industries employing Hispanic immigrants in the area is beef packing. These plants coordinate educational programming for safe meat handling and processing.

Between 6.5 million and 33 million cases of food-borne illness occur each year (Council for Agricultural Science and Technology, 1994). Some estimates are higher, attributing 76 million illnesses as well as 325,000 hospitalizations, and 5,000 deaths to food-borne pathogens each year (National Center for Infectious Diseases, 2004). Because of the rapid increase of at-risk groups such as those who speak English as a second language, incidences may be higher in these groups unless effective methods to reach these populations are identified and developed. Increasing health disparities in the U.S. population are highly associated with race and ethnicity. Illness and death are experienced at much higher rates among African Americans, Hispanics, American Indians, Alaska natives, Native Hawaiians, and other Pacific Islanders. The greater rates of illness and death among these groups are attributed to interactions among genetic variations, environmental factors, and health behaviors (Office of Minority Health, 2004). Possible strategies to address potential food safety risks among this population include the implementation of targeted educational and media campaigns.

Mass media may provide a means of reaching the target population. Research has shown that the use of television and print media has led to a greater knowledge of food-borne disease and a willingness to change cooking practices (McIntonsh, Christensen, and Acuff, 1994). Hispanic audiences are likely to select television as their source of information for reasons such as convenience, low costs, familiarity, and low English-language fluency among the population. Providing information in Spanish and on Spanish television is important because less acculturated members of the population

## Research

may only view television in their preferred language (Johnson, 1996). Data were collected with the target population to focus the educational campaign. These findings were used to form a basis for a communications campaign related to food safety and targeted at Hispanics in Garden City, KS. The specific research questions were as follows:

1. What channels, especially media, were used and trusted most by the target population?
2. How knowledgeable was the target population about safe food handling in the areas outlined by USDA's Fight BAC campaign which emphasizes topics in the general areas of cooking, cleaning, chilling, and separation?
3. What attitudes does the target population hold regarding safe food handling?

### Materials and Methods

The population for this study, Hispanic immigrants, can be difficult to reach. Collecting data from this group is made somewhat difficult because they often are not registered with agencies, may lack mailing addresses, and frequently do not have telephones. The accessible population was Hispanics enrolled in programs at the Adult Learning Centers in Garden City, KS. While these individuals were actively seeking educational offerings, they were also members of the target population and were accessible.

Written questionnaires were developed for face-to-face data collection. The questionnaires collected information about demographics, media usage, knowledge of food safety principles using multiple-choice questions, and attitudes toward food safety issues using Likert-type scales.

The questionnaire was evaluated for face and content validity by a panel of experts at Kansas State University and K-State Research and Extension. The questionnaire was translated into Spanish, using translations most common to Mexican Spanish. Most of the Hispanics in Garden City emigrated from Mexico. The translations were triple-checked for readability. Data were collected in Garden City in November 1998 and January 2000.

The food safety knowledge questions concentrated on four basic areas—cleaning, separating, cooking, and chilling. These topics are the principal messages of "Fight Bac! A National Public Education Campaign to Reduce Foodborne Illness" developed by the Partnership for Food Safety Education in 1997. Three multiple-choice questions about each basic area were included on the survey. Based on their experiences with the target population, a local panel of consultants suggested areas of concern or problems in food handling.

Ten questions addressed attitudes about food safety. Likert scales were used for these items, which included statements about the perceived importance of food safety and how often they consider the issue.

The questionnaires were administered in Garden City at English-As-a-Second-Language classes. Respondents could select from an English or Spanish version of the survey. Data were analyzed in the Department of Communications at Kansas State University using the Statistical Package for the Social Sciences.

## Results

Response to the questionnaire was strong with 369 Hispanics completing it, 55% of whom were female. Ninety-three percent cited Spanish as the language most often spoken in the home. Seventy percent worked outside of the home. Almost half (46%) had completed secondary education, and 17% had completed some form of post-secondary education. Most were educated in their home countries. Households averaged three adults and two children. Generally two adults in the household cooked.

The demographic data show the population to be transient. Sixty-four percent lived in Garden City for five years or less. Thirty-nine percent lived in Garden City two years or less.

Of the four food safety areas addressed by the questionnaire, respondents were most knowledgeable about the proper separation of food, followed by cooking questions, cleaning, and then chilling. Ninety-four percent of those surveyed correctly answered the questions regarding separation of raw chicken and pork in the refrigerator, and 85% answered the transporting and bagging questions correctly.

Respondents were well-informed that hamburgers should be cooked until well done; 93% answered the question correctly. Seventy-two percent also identified the need to maintain food temperature at large community dinners or family gatherings. Only 38% knew meat should be defrosted in the refrigerator versus on the counter or in warm water.

Two of the three cleaning questions also received a majority of correct responses. The need for cleaning surfaces (77%) or hands (70%) with soap and water after being in contact with raw meat was correctly identified by the respondents. The third cleaning question about correct temperatures for washing and rinsing dishes was only accurately answered by 31%.

Seventy-two percent of the respondents answered that eggs should be stored in the refrigerator immediately after returning home from the store. However, only 46% knew to buy frozen foods at the end of their shopping trip, and 21% understood the need to immediately refrigerate leftovers containing meat.

## Research

**Table 1.** Knowledge of Safe Food Handling Practices

Topic	Question	Percentage Correct Answers
Cooking	Cooking hamburger to proper doneness	92
	Defrosting meat correctly	34
	Serving food at events	73
Separating	Keeping raw meats in refrigerator	93
	Separating frozen foods from others	8
	Separating food types at store	85
Chilling	Purchasing frozen foods last at store	46
	Storing eggs	74
	Chilling leftovers containing meat	23
Cleaning	Cleaning surfaces after contact with meat	84
	Cleaning hands after contact with meat	75
	Washing and rinsing dishes in hot water	31

*Attitudes toward food safety.* Responses to questions regarding attitudes toward food safety in general showed a mixture of perspectives. Respondents agreed that food safety is an important concern, but they also indicated that it is talked about too much. They indicated that they did worry about food safety and were “careful” about the food they prepared. They were undecided about whether safe food was an issue at community dinners. Respondents generally agreed that people were more likely to become sick after eating in restaurants versus home, felt that identifying food-borne illness was easy, and that smell was a good indicator of food gone bad. The mean Likert score was almost neutral for response to the comment “I do not worry about food safety.”

Open responses to the biggest food safety concern centered on the freshness and quality of the food consumed as well as making sure food is nutritious for the family. Concerns were also expressed regarding lack of education on the subject. Many commented that they could practice better cooking and cleaning procedures in their homes.

**Table 2.** *Attitudes Toward Food Safety*

<b>Item</b>	<b>Mean</b>	<b>SD</b>	<b>Mode</b>
Food safety is a concern to me.	1.25	.51	Strongly Agree
My family is careful to make sure that food is safe.	1.48	.76	Strongly Agree
I worry about safety of food cooked at home.	1.61	.96	Strongly Agree
The best way to tell when food is bad is how it smells.	1.96	1.19	Strongly Agree
It is easy to know when someone gets sick from food.	2.19	1.07	Agree
People rarely get sick from food cooked at home.	2.25	1.35	Strongly Agree
Food safety is talked about too much.	2.27	1.26	Agree
Safe food is served at community dinners and large events.	2.60	1.21	Agree/Undecided
When people get sick from bad food, the food is usually from a restaurant.	2.61	1.24	Agree
I do not worry about food safety.	3.59	1.46	Disagree

Scale: Strongly Agree = 1, Agree = 2, Undecided = 3, Disagree = 4, Strongly Disagree = 5

## Research

*Channel usage and trust.* Respondents were asked to rank channels for levels of trust and use. Channel questions focused primarily on media, but included "Friends." In addition, the respondents were asked to provide data regarding frequency of use. Responses to the questions on channel usage indicated television as the most used and most trusted medium and channel. On average, the population watched 2.5 hours of television each day. Univision was the station most frequently watched. Univision is a Spanish-language media company that serves U.S. markets. It includes a television broadcast network. Newspapers were generally read once each week. Newspapers, particularly the weekly Spanish publication *La Semana* and to a lesser extent *The Garden City Telegram*, followed television in frequency of use. *La Semana* is published in Spanish, while *The Garden City Telegram*, a daily paper, is published in English.

Friends and radio ranked third and fourth in use, but radio was trusted slightly more than friends. The average time a respondent listed to radio was 1.2 hours per day, but this was skewed data, showing a bimodal distribution (i.e., few listened to radio for long periods while most others did not listen to it at all). Stations with Hispanic programming were more popular.

**Table 3.** *Channel Use and Trust*

Channel	—Trust—		—Use—	
	Mean	s.d.	Mean	s.d.
Television	1.48	.81	1.61	.82
Newspaper	2.21	1.12	2.19	1.05
Friends	3.05	1.96	2.46	1.62
Radio	2.50	1.41	2.81	1.59
Newsletters	3.34	1.60	3.26	1.77
Magazines	3.79	1.61	3.52	1.63

Scales: 1-6, with 1 = trust most, and 6 = trust least, and 1 = use most and 6 = use least.

## Discussion

This project acquired descriptive information about the target population and its attitudes and beliefs. Data collection focused on the Hispanic audience needs, including Spanish language forms of the questionnaire. Also by working with trusted community partners (English-As-a-Second-Language classes), the respondents did not feel threatened. Because the researchers could be perceived as representing a government entity, the respondents could have been concerned about repercussions from their participation, especially because of their immigration status. However, no single

respondent asked not to participate, indicating that the participation was not threatening. The time taken with triple-checking the questionnaire translation was valuable as well. Translation of the open-ended responses, however, was somewhat difficult because of misspelled words.

The respondents had fairly strong knowledge of food safety in the USDA Fight BAC topic areas, although there were notable exceptions. Confusion was apparent about proper defrosting of meat, temperature of water when washing dishes, and immediate refrigeration of meat. Because many in this group were employed in the meat packing industry, they were exposed to safe food handling messages in their workplaces. It would be useful to compare this group of Hispanics to other groups not so heavily employed in the meat packing industry. Further, it would be useful to compare these findings to those with non-Hispanics to more strongly identify cultural effects.

Attitudes toward food safety indicated that the respondents were concerned about food safety and, at the same time, felt that food safety was overemphasized. They also held some common misperceptions about food-borne illness, including that it is easy to diagnose and that it occurs more often from food prepared in restaurants. An area they were undecided on was whether food was handled safely at community dinners. This is an important topic with Hispanic audiences because they hold frequent community meals.

The data collected on media exposure indicated the effectiveness of television as a means of message dispersion. Cost effectiveness of television must be determined on an individual case basis, however, because of the high cost of airtime. Univision provides relatively inexpensive advertising time. Other media presented in Spanish were seen as useful. By targeting these media with messages, the audience can be better reached.

To keep pace with changing demographics, Extension and other public service agencies need to continue to touch base with their audiences or potential audiences to determine communication patterns, knowledge, attitudes, and practices. Hispanics present one of the major groups that Extension has and will continue to target.

### **About the Authors**

Kristina Boone, an ACE member, is an associate professor and interim head of the Department of Communications at Kansas State University. Karen Penner is emeritus professor of food science at Kansas State University. Becky Johnson is with Fleishman-Hillard, Kansas City. Audrey Young is a student research assistant in the Department of Communications

## Research

at Kansas State University. Charles Lubbers is a professor in the A.Q. Miller School of Journalism and Mass Communications at Kansas State University. Data collection assistance was provided by Jeff Sulton. Data from this project were presented at the ACE annual meeting in Toronto in 2001. USDA-CSREES funded this project.

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