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Research report

A mixed methods study of food safety knowledge, practices and beliefs in Hispanic families with young children ☆

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ABSTRACT

Children are at a higher risk for foodborne illness. The objective of this study was to explore food safety knowledge, beliefs and practices among Hispanic families with young children (≤10 years of age) living within a Midwestern state. A convergent mixed methods design collected qualitative and quantitative data in parallel. Food safety knowledge surveys were administered (n = 90) prior to exploration of beliefs and practices among six focus groups (n = 52) conducted by bilingual interpreters in community sites in five cities/towns. Descriptive statistics determined knowledge scores and thematic coding unveiled beliefs and practices. Data sets were merged to assess concordance. Participants were female (96%), 35.7 (±7.6) years of age, from Mexico (69%), with the majority having a low education level. Food safety knowledge was low (56% ± 11). Focus group themes were: Ethnic dishes popular, Relating food to illness, Fresh food in home country, Food safety practices, and Face to face learning. Mixed method analysis revealed high self confidence in preparing food safely with low safe food handling knowledge and the presence of some cultural beliefs. On-site Spanish classes and materials were preferred venues for food safety education. Bilingual food safety messaging targeting common ethnic foods and cultural beliefs and practices is indicated to lower the risk of foodborne illness in Hispanic families with young children.

Introduction

According to the Centers for Disease Control and Prevention, an estimated one in six Americans (or 48 million people) become sick, 128,000 are hospitalized, and 3000 die of foodborne diseases every year (Scallan et al., 2011). The objectives of Healthy People 2020 include reducing infections in the general population caused by key pathogens commonly transmitted through food (*Campylobacter*, Shiga toxin producing *E. coli* (STEC) O157, *Listeria monocytogenes, Salmonella, Vibrio, Yersinia)* and the incidence of post diarrheal hemolytic-uremic syndrome (HUS) in children under five years of age (U.S. Department of Health and Human Services). Children are at higher risk than other populations related to lower body weight, less acidic stomachs, under developed immune systems, and lack of control in food preparation (Pew Health Group, 2009).

Hispanics/Latinos are the fastest growing ethnic minority group in the United States, increasing by 43% during 2000–2010 and are estimated to comprise over 30% of the United States population by the year 2050 (U.S. Census Bureau, 2011). The incidence of *Listeria* outbreaks, a leading cause of death from foodborne illness in the United States, is higher among Hispanics than any other group (Voetsch, Angulo, & Jones, 2007). United States foodborne illness outbreaks involving *Listeria* and raw Mexican-style cheese have affected Hispanic groups. In 1985, a large *Listeria* outbreak among mostly Hispanics (96%) in southern California resulted in 48 deaths (20 fetuses, 10 neonates, and 18 adults) (Linnan et al., 1988). Another *Listeria* outbreak (2000–2001) that affected only Hispanics in Winston-Salem, North Carolina resulted in five stillbirths, three premature deliveries, and three infected newborns from consuming fresh cheese made at a local dairy (MacDonald et al., 2005).

Limited studies of food safety practices in Hispanics have been published. Household observations of food preparation in a Puerto Rican community found 90% of the participants did not wash their hands with

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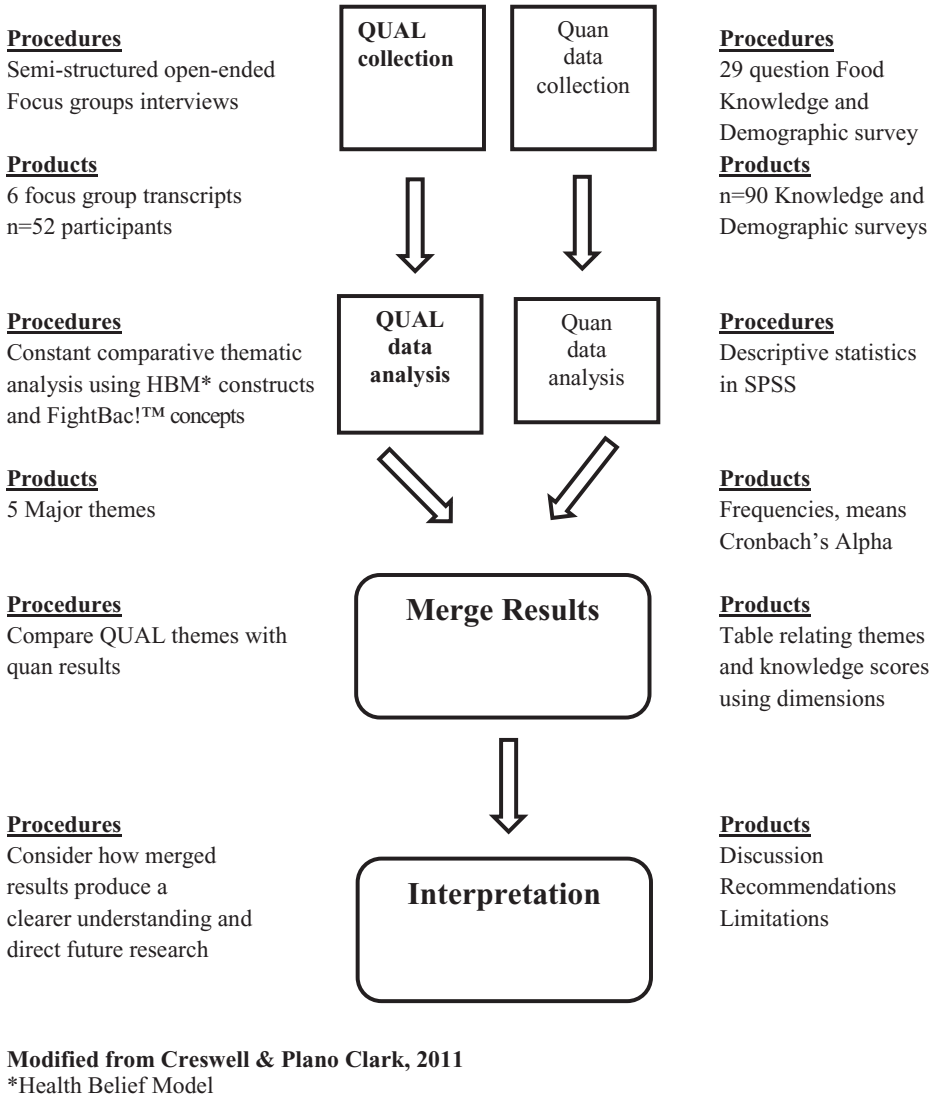

Fig. 1. Convergent parallel mixed methods design of food safety study among Hispanic Main Food Preparers for young children in Nebraska.

soap, 89% used the same cutting board for meat and vegetables, and no use of a thermometer to check the temperature of cooked meat. Five percent gave a proper definition of cross-contamination and unsafe thawing procedures were described (Bermudez-Millan, Perez-Escamilla, Damio, Gonzalez, & Segura-Perez, 2003). In a comparison of self-reported and observed behavior regarding food handling procedures among Latinas, over-reporting of hand washing and cutting board cleaning occurred (Dharod, Perez-Escamilla, Bermudez-Millan, Segura-Perez, & Damio, 2004). The researchers found significant positive correlations between proper thawing methods and prior food safety education, using a cutting board and higher income, and washing tomatoes and having a positive attitude about food safety. Another study reported large knowledge gaps in food safety in this population and acculturation had no effect on knowledge (Diaz-Knauf et al., 1993).

It is unknown if cultural beliefs and practices have an influence on food safety within Hispanic families. Herbalists (yerberos) and lay healers (curanderos) (Batty & Kurko, 2005) are used in this population. A known Hispanic belief is the hot/cold theory of disease. Good health is dependent upon maintaining balance between hot and cold. An ailment that is "hot" requires treatment that is "cold". Organs of the body, diseases, herbs and foods, and liquids may be "hot" or "cold". Herbs and foods can be used in treatments to restore balance.

Reducing the incidence of foodborne illness among Hispanic families may increase quality of life, decrease morbidity, mortality, and resources needed to treat the illness. The purpose of this mixed methods study was to examine food safety among main food preparers in Hispanic families with young children in a Midwestern State. Qualitative inquiry explored the presence of food safety practices, attitudes, and cultural beliefs among primary food handlers. A quantitative survey measured food safety knowledge. The extent that food safety knowledge supported or diverged from food safety practices, attitudes and cultural beliefs reported by Hispanic families with young children was observed.

Methods

Study design

The methodology of mixed methods research was selected for its ability to provide completeness, explanation, unexpected results, illustration, (Bryman, 2006) and to obtain complementary data on the same topic (Morse, 1991). A convergent mixed methods design