



Research report

Food safety knowledge, practices and beliefs of primary food preparers in families with young children. A mixed methods study [☆]



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ABSTRACT

Food preparers in families with young children are responsible for safe food preparation and handling to prevent foodborne illness. To explore the food safety perceptions, beliefs, and practices of primary food preparers in families with children 10 years of age and younger, a mixed methods convergent parallel design and constructs of the Health Belief Model were used. A random sampling of 72 primary food handlers (36.2 ± 8.6 years of age, 88% female) within young families in urban and rural areas of two Midwestern states completed a knowledge survey and participated in ten focus groups. Quantitative data were analyzed using SPSS. Transcribed interviews were analyzed for codes and common themes. Forty-four percent scored less than the average knowledge score of 73%. Participants believe children are susceptible to foodborne illness but perceive its severity to be low with gastrointestinal discomfort as the primary outcome. Using safe food handling practices and avoiding inconveniences were benefits of preventing foodborne illness. Childcare duties, time and knowledge were barriers to practicing food safety. Confidence in preventing foodborne illness was high, especially when personal control over food handling is present. The low knowledge scores and reported practices revealed a false sense of confidence despite parental concern to protect their child from harm. Food safety messages that emphasize the susceptibility and severity of foodborne illness in children are needed to reach this audience for adoption of safe food handling practices.

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Introduction

Young children have a higher risk than adults for foodborne illness due to their underdeveloped immune system, lower body weight and lack of control over meal preparation. Foodborne illness can result in long term health consequences and even death, especially in young children. Approximately one half of reported foodborne illness occurs in children (Pew Health Group, Children, 2009) and an estimated one-third of all related costs (\$2.3 billion

dollars per year) are due to illnesses in infants and children under the age of 10 (Buzby, 2001). The increased risk for foodborne illness (Albrecht & Nagy-Nero, 2009; Gerba, Rose, & Haas, 1996) among children is due to their under-developed immune system, lower body weight, and limited control over meal preparation (Buzby, 2001). Children are disproportionately affected by five foodborne microorganisms; *Campylobacter*, *Escherichia coli* O157:H7, *Listeria*, *Salmonella*, and *Shigella* (Pew Health Group, 2009). Infants (under one year of age) have the highest reported cases of salmonellosis and campylobacteriosis (CDC, 2005; Fullerton et al., 2007; Jones, Ingram, Fullerton, et al., 2006).

Numerous surveys have been conducted to determine food safety attitudes, knowledge and practices (Albrecht, 1995; Altekruze, Yang, Timbo, & Angulo, 1999; Angelillo, Vigiani, Rizzo, & Bianco, 2000; Brewer & Prestat, 2002; Brewer & Rojas, 2008; Bruhn & Schutz, 1999; Kennedy et al., 2005; Raab & Woodburn, 1997; Redmond & Griffith, 2004a,b,c; Roseman & Kurzynske, 2006) among general consumers and have found unsafe food handling practices despite acceptable food safety knowledge. The effect of gender, ethnicity, and age on risky food behaviors has

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been studied (Patil, Morales, Cates, Anderson, & Kendall, 2004; Redmond & Griffith, 2003) and food safety knowledge and practices of specific populations have been reported (Anderson, Shuster, Hansen, Levy, & Volk, 2004; Boone et al., 2005; Byrd-Bredbenner, Abbot, & Quick, 2010; Cates, Carter-Young, Conley, & O'Brien, 2004; Daniels, Daniels, Gilmet, & Noonan, 2001; Gettings & Kiernan, 2001; Johnson et al., 1998; Li-Cohen & Bruhn, 2002; Lin, Jensen, & Yen, 2005; Unklesbay, Sneed, & Toma, 1998; Wenrich, Cason, Nan, & Kassab, 2003). Knowledge and practices of mothers of infants and children indicate a need for food safety messages (Kwon, Wilson, Bednar, & Kennon, 2008; Trepka, Newman, Dixon, & Huffman, 2007).

The Health Belief Model (HBM) (Janz & Becker, 1984; Rosenstock, Strecher, & Becker, 1988) explains the phenomenon of people rejecting screening tests and preventive health care measures for diseases without symptoms and provides a framework for designing strategies for changing behavior. The HBM assesses an individual's perceived threat posed by a health problem, benefits of avoiding the threat, and factors influencing their decision to act (National Cancer Institute, 2005; Rosenstock et al., 1988). The HBM has been used to assess food safety attitudes and behaviors (Hanson & Benedict, 2002). Food safety behavior can be predicted by readiness, self-efficacy, and health motivation (Schafer, Schafer, Bultena, & Hoiberg, 1993).

The primary food preparer, the family member who prepares most of the meals in the household, has a vital role in reducing the number of illness caused by foodborne pathogens for children. Exploring the meaning of foodborne illness among this population

using qualitative inquiry and the HBM would identify strategies needed to reduce or prevent foodborne illness in families with young children. The purpose of this mixed methods convergent parallel design (Creswell & Plano Clark, 2011) study (Fig. 1) was to explore the food safety knowledge, perceptions/beliefs and practices of the main food preparer in families with children 10 years and younger using the constructs of the Health Belief Model (Janz & Becker, 1984; Rosenstock et al., 1988).

Methods

A convergent mixed methods design was used where quantitative and qualitative data is collected in parallel, analyzed separately, and then merged in overall analysis and interpretation. This study placed greater priority and emphasis on qualitative inquiry and quantitative research playing a secondary role (Creswell & Plano Clark, 2011). Qualitative data included participant responses to focus group questions; quantitative data included responses from the demographic and knowledge surveys. Approval for this project was obtained from the University Review Board (IRB#2009039800).

Participants and recruitment

Participants were recruited using a random purposeful sample of mailing addresses obtained from InfoUSA, a database of 4300 telephone directories (InfoUSA, 2012). Inclusion criteria were (1)

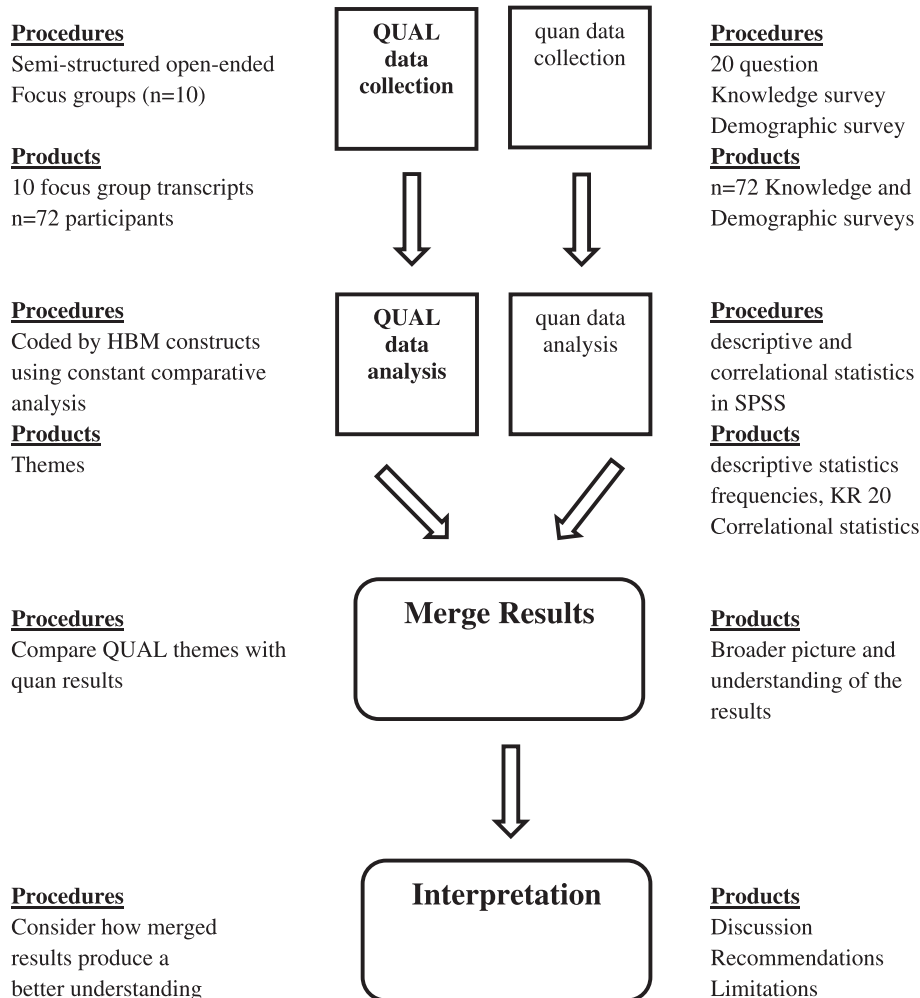


Fig. 1. Convergent mixed methods design (Creswell & Plano Clark, 2011).

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