


Department of Apparel, Educational Studies & Hospitality Management

Development of a Scale to Measure Food Safety Culture in Onsite Foodservices

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Introduction

- Factors affecting employees' safe food handling practices are multidimensional and beyond knowledge-related factors (Ball, Wilcock, & Aung, 2010; Clayton, Griffith, Price & Peters, 2002; Green & Selman, 2005; Henroid & Sneed, 2004; Pragle, Harding, & Mack, 2007).
- Organizational culture is another focal area for improving safe food handling practices (Arendt & Sneed, 2008; Griffith, Livesey, & Clayton, 2010; Mitchell, Fraser, & Bearon, 2007; Ungku Fatimah, Arendt, & Strohbehn, in-press, Yiannas, 2009).

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Introduction

- Food safety culture is a specific form of organizational culture that represents the way an organization "does food safety" (Yiannis, 2009, p.12).
- To understand factors impacting food safety culture, researchers adapted concepts and measurements from various research fields - management support and commitment, system and process, and employee attitude and behaviors (Ball et al., 2010; Griffith et al., 2010; Neal, Binkley, & Henroid, 2012; Taylor, 2011; Yiannis, 2009).
- No psychometrically sound measurement of food safety culture has been developed for onsite foodservices.

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Purpose of the study

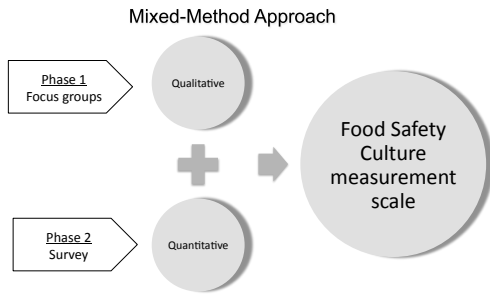
- Develop a measurement scale to assess food safety culture in onsite foodservices (i.e. hospital and school foodservices) and evaluate the psychometric properties of the scale.

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Methods: Research Design

Mixed-Method Approach



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    graph LR
      subgraph Phases
        direction TB
        P1[Phase 1  
Focus groups  
Qualitative]
        P2[Phase 2  
Survey  
Quantitative]
      end
      P1 -- "+" --> P2
      P2 -- "→" --> MS[Food Safety Culture  
measurement  
scale]
  
```

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Phase 1: Focus Group

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Methods: Sample and Procedures

| | | |
|-----------------|---|---|
| Participants | ⇒ | - Onsite foodservice employees without supervisory positions - Involved with food handling tasks |
| Recruitment | ⇒ | - Posted recruitment flyers in hospital (n=2) and school (n=2) with administrators' permission |
| Data collection | ⇒ | - 60 to 90 minutes - Convenience locations - Audio recorded |
| Data analysis | ⇒ | - Thematic analysis (hand-coding) - Deductive and inductive approach |

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Methods: Focus Group Guide

Key questions:

- What does your workplace do to help you follow safe food handling practices?
- What do you believe are the main factors in the workplace that prevent you from following safe food handling practices?

Follow-up questions:

- Supervisor/manager
- Coworkers
- Food safety policies and procedures
- Facilities and tools
- Risk perceptions

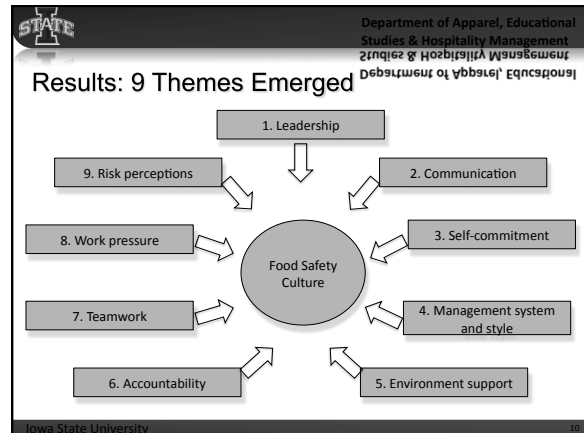
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Demographics: Focus group (n=31)

- 94% (n=29) females
- 55 % (n=17) 30 years old and above
- 39 % (n=22) at least 4 years foodservice experience
- Type of Operation:
 - 45% (n=14) Hospital
 - 55% (n=17) School
- 94% (n=29) received training about food safety
- 71% (n=22) completed food safety certification

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Phase 2: Survey

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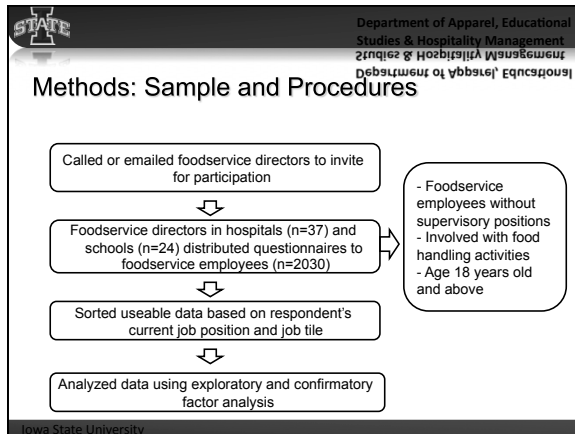
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Methods: Questionnaire Development

- Questionnaire Content:
 - 5 – 7 items per theme identified in focus groups (DeVellis, 2003)
 - Section 1 – Food safety culture (47 items)
 - Section 2 – Demographic (13 items)
- Development of items based on themes and subthemes:

| | | |
|-------------------------------|---|---|
| Theme Communication | Subthemes - Openness - Consistency - Bottom-up approach - Respect - Feedback - Clarity | Example of questionnaire itemI can freely speak up if I see something that may affect food safetyI receive feedback if I do not follow food safety practices |
|-------------------------------|---|---|

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- ### Results: Demographics (n=582, 33.6% response rate)
- 90% (n=517) females
 - 55 % (n=321) 50 years old and above
 - 54 % (n=317) at least 8 years foodservice experience
 - Type of Operation:
 - 49% (n=287) Hospital
 - 51% (n=295) School
 - 95% (n=554) received training about food safety
 - 69% (n=396) completed food safety certification
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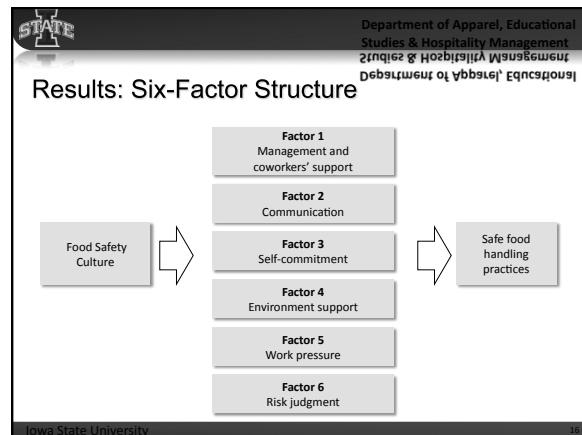
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Results: Reliability and Validity

| Factor | Number of item | Mean ^a ± SD | Cronbach's Alpha | Composite reliability |
|-----------------------------------|----------------|------------------------|------------------|-----------------------|
| Management and coworkers' support | 10 | 5.62 ± 1.17 | 0.948 | 0.960 |
| Communication | 6 | 5.82 ± 1.12 | 0.922 | 0.949 |
| Self-commitment | 5 | 6.54 ± 0.75 | 0.908 | 0.928 |
| Environment support | 4 | 6.31 ± 0.91 | 0.903 | 0.908 |
| Work pressure | 3 | 5.74 ± 1.19 | 0.877 | 0.852 |
| Risk judgment | 3 | 5.51 ± 1.43 | 0.753 | 0.793 |

^aUsing a Likert-type scale from 1=Strongly Disagree to 7=Strongly Agree

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- ### Implications: Practical (Educators)
- Highlight the importance of various soft skills (e.g. communication, leadership) in managing food safety and preventing foodborne illness.
 - Evaluate students' soft skills required for managing food safety in practice production settings using the Food Safety Culture survey:
 - Quantity food production course
 - Fine dining course
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- ### Implications: Practical (Practitioners)
- Evaluate the effectiveness of organization interventions using the Food Safety Culture survey
 - Identifying areas where interventions might not have been successful
 - Develop better strategies to improve current interventions
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Implications: Theoretical

- The Food Safety Culture survey offers:
 - Reliable and validated measurement scale
 - Reasonable number of questions (n=31)
 - Six areas of food safety culture identified in onsite foodservices
- Future research:
 - Application in other types of onsite services - the scale has generic feature

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Questions or comments are welcomed



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