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INTRODUCTION

• Child Care Centers (CCCs)
  – Attending increases FBI risk
• 1990 – 2004:
  – 43 Foodborne disease outbreaks
  – Affected 1,276 children (CDC, n.d.)
LITERATURE REVIEW

• Food safety behaviors (FDA, 2000)

• 2004 same practices/behaviors (FDA, 2004)

• Hazard Analysis and Critical Control Points (HACCP)

• National School Lunch Act (118 STAT 729, 2004)
LITERATURE REVIEW

• National Resource Center for Health and Safety in Child Care (NRCHSCC)
  – Does not require HACCP-based program
  (NRCHSCC, 2002; Almanza & Nesmith, 2004)
HEALTH BELIEF MODEL

• Key - behavior–change theories:
  – “…what we know and think affects how we act”. (Theory at a Glance, n.d.)

• Health-behavior research (Glanz, Lewis, 7 Rimmer, 1997)

• Preventative health behaviors (Rosenstock, 1974)
HBM CONSTRUCTS

- Perceived susceptibility
- Perceived severity
- Perceived benefits
- Perceived barriers
PURPOSES

• Develop an instrument
• Determine beliefs, perceptions, and behavioral intentions
• Assess relationships between constructs
• Determine validity and reliability
METHODOLOGY

• Instrument Development
  – HBM and food safety research  (Champion, 1984; Youn & Sneed, 2002; Giampaoli, Sneed, Cluskey, & Koenig, 2002)
    • Reflect food safety beliefs and perceptions
    • Paper and electronic formats
METHODOLOGY

• Focus Group (n = 7)
  – Telephone focus group (Silverman, n.d.)
  – Instrument modification

• Pilot Test (n = 8, 40%)
  – 20 randomly selected facilities
  – Minor wording changes
METHODOLOGY


• Part II - facility characteristics

• Part III - demographic questions
METHODOLOGY

• Sample
  – Accredited CCCs
    • Directors and foodservice employees
  – Sample: 528 facilities
    • Colorado, Iowa, Kansas, Nebraska, Missouri, and Oklahoma
METHODOLOGY

• Data Collection & Analysis
  – Mailed packages
  – SPSS, v. 12.0
    • Descriptive measures
    • Exploratory principal component analysis
    • Multiple linear regression
RESULTS

• Demographics
  – Facility sample reduced to 500
  – Sample population estimate: 750
    • 500 facilities X 1.5 staff members
  – Response rate 17.5% (n = 131)
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<th>%</th>
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<td>26.7</td>
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<td>50 – 59</td>
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RESULTS

• Overall Item Responses
  – Increased chance
    • $(\mu = 3.95 \pm 0.79)$
  – Not at their Center
    • $(\mu = 1.62 \pm 0.81)$
  – Severe consequences
    • $(\mu = 4.32 \pm 0.67)$
  – Outbreak affect employment
    • $(\mu = 2.66 \pm 1.12)$
RESULTS

• Overall Item Responses (cont)
  – Benefits of food safety certification
    • \( \mu = 4.17 \pm 0.76 \)
  – HACCP-based programs could reduce problems
    • \( \mu = 3.81 \pm 0.94 \).
  – Lack of time for proper training
    • \( \mu = 4.05 \pm 0.97 \)
  – Others did not care about food safety
    • \( \mu = 1.91 \pm 1.00 \)
RESULTS

• Overall Item Responses (cont)
  – Had the confidence
    • \( \mu = 4.06 \pm 0.71 \)
  – Had skills necessary
    • \( \mu = 3.89 \pm 0.89 \)
  – Noncommittal about behavioral intentions
    • Mean scores ranged from 3.54 to 3.77
**Instrument Validity**

- Content validity
- Convergent and discriminant validity
- Exploratory factor analysis
  - With the target population
  - Modifications to the Health Belief Model.
Instrument Validity

• Analysis
  – Deletion of 12 items to improve the reliability coefficients.
  – Self-efficacy contained one item: not included
  – Remaining 20 items loaded on six factors.
  – Loaded as expected with the exception of items measuring severity of consequences.
    • Split on two factors
    • Model accounted for 70.07% of the variance
Perceived susceptibility: H1: 0.51
Child consequences: H2a: 0.13
Center consequences: H2b: 0.29
Perceived benefits: H3: 3.28*
Perceived barriers: H4: 1.76

Behavioral intention

Self-efficacy (moderator): H5: 6.57* 4.01*

* = p < .001
Instrument Validity

• Cronbach’s alpha
• Susceptibility and Behavioral Intention
  – Reliability coefficients lower than 0.70,
• Research methodology
  – Exploratory research, 0.60 is acceptable.
Instrument Validity

• Self-efficacy reduced to one item
• Test-retest coefficient
  – Same instrument should be administered to the same or similar samples on two different occasions
  – Estimated reliability = 0.46
Instrument Validity

• Constructs significantly correlated
  – Behavioral intention with self-efficacy (r = 0.43, p < 0.01)
  – Perceived benefits with child consequences (r = 0.33, p < 0.01)
  – Perceived barriers with perceived susceptibility (r = -0.36, p < 0.01) and perceived benefits (r = 0.21, p < 0.01).

• Multicollinearity diagnostics
  – Tolerance 0.87+, VIF ranged from 1.00 to 1.15
Discussion

• Response rate below the expected 25%
  – URL not easily accessible
  – Did not have time
  – Did not consider the topic important
  – May not be knowledgeable
Discussion – Item Analysis

• Perceived susceptibility and severity
  – Agreed children vulnerable/serious consequences
  – Disagreed a FBI would occur at their Center

• Perceived barriers
  – Time, resources, money, and training
  – Consistent with previous research
Discussion – Item Analysis

• Self-efficacy
  – Agreed they have the confidence and skills
  – Disagreed they needed to learn more

• Behavioral intention
  – Mid-range, suggests may not want to commit
Discussion - Instrument & Model

- Items: significant correlation/no correlation
- Exploratory factor analysis
  - 12 items were deleted
- Self-efficacy was reduced to one item
  - Cannot be assessed with precision
  - Not an accurate reflection of the construct
Discussion - Instrument & Model

• Model may not determine beliefs and perceptions of a similar sample
• Possible reasons for lower reliabilities
  – Overrated abilities
  – Social desirability bias
  – Terms unfamiliar to the sample population
  – Negative statements
Discussion - Instrument & Model

- Perceived barriers
  - Did not affect behavioral intention
- Nearly a third of items
  - Mean scores in mid-range
- Response pattern may indicate
  - Lack of caring and/or knowledge
Conclusions and Applications

• Instrument measured beliefs and perceptions
• To improve the instrument
  – Scales should use even-response format
  – Remove negative items
  – Reword items with lower reliabilities
Conclusions and Applications

• Model accounted for 70% of the variance

• Identified two significant factors
Conclusions and Applications

• Major concern in this study
  – Not convinced
  – May have had little knowledge
  – Food safety is not an important issue

• Confirm by adding knowledge items
  – Determine basic food safety practices
Conclusions and Applications

- Federal and state regulatory agencies
- CACFP federal regulations
Conclusions and Applications

• Current inspections
  – June 2006 *E. coli* outbreak at a Childcare Center in Omaha, Nebraska

• Accrediting agencies
  – Require food safety certification
  – Include HACCP-based program as criterion
Questions?
Comments?