

HACCP-BASED PROGRAMS IN CHILDCARE

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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, & 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 I - 33 items** (Giampaoli, et al, 2002; Strohbehm, et al, 2004; Sneed, et al, 2004).
- **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)

Gender:	<u>N</u>	<u>%</u>
Male	5	3.8
Female	125	95.4
No response	1	0.8

Age Ranges:		
29 or less	18	13.7
30 – 39	30	22.9
40 – 49	35	26.7
50 – 59	31	23.7
60 or more	6	4.6
No response	11	8.4

Position:		
Foodservice Emplpy	53	38.9
Director	78	57.3

Food Safety Certification:		
	<u>N</u>	<u>%</u>
Yes	43	32.8
No	83	63.4
No response	5	3.8

Certification Program:		
	<u>N</u>	<u>%</u>
ServSafe®	7	5.3
Health Dept	15	11.5
CACFP	12	9.2
Other	4	4.8
No response	91	69.5

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

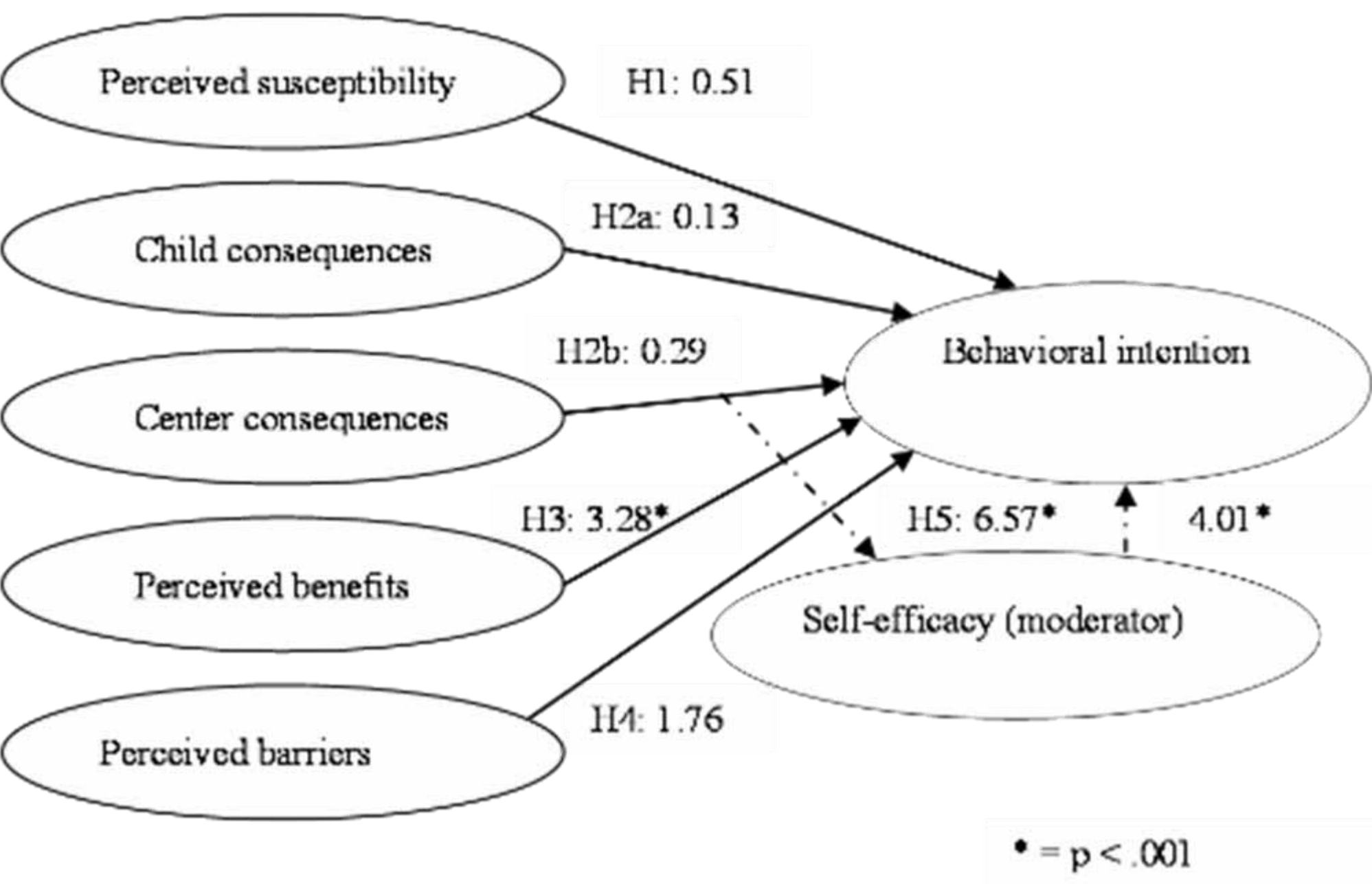
- **Overall Item Responses** (cont)
 - Had the confidence
 - ($\mu = 4.06 \pm 0.71$)
 - Had skills necessary
 - ($\mu = 3.89 \pm 0.89$)
 - Noncommittal about behavioral intentions
 - Mean scores ranged from 3.54 to 3.77

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



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?