Modeling Gender Differences in Healthy Eating Determinants for Persuasive Health Intervention Design.

Rita Orji

Supervisors: Drs. Julita Vassileva & Regan Mandryk
Introduction

- Prevalence of many lifestyle related health challenges. E.g. Obesity

- Approximately 61% of Canadian adults and 30% of Canadian teens are either overweight or obese.
Technology for Behavior Change

- Dietary behavior and sedentary lifestyle have been identified as the major contributors to obesity.

- More than 50 million Americans eat out daily.

- Most chronic health problem (e.g., obesity) are preventable with lifestyle change – Center for Disease Control (CDC).
Persuasive Technology (PT)

- PT causes **intentional change in behavior** without using **coercion** or **deception**.

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3 Main factors influencing PTs Success

- Behavior Change Technique
- Theoretical Basis
- Mode of Delivery
Healthy Eating Determinants

- PT Intervention manipulate various determinants of health behavior:
  - 5 key determinants emerged from the literature:
    - Weight Concern;
    - Concern for Disease;
    - Nutrition Knowledge;
    - Food Choice Motive; and
    - Social Influence.
Healthy Eating Determinants

- **Health Concern**: Concern about food and health related issues
  1. Weight Concern
  2. Concern for Disease
- **Nutrition Knowledge**: Knowledge about meals and their subjective nutrition quality.
- **Food Choice Motive**: Examines several factors (mostly non-health related) and their relative importance to the participants in making daily meal choices.
- **Social Influence**: The influence of others on our purchase decisions.
Determinants of Healthy Eating

Healthy Eating Determinants

Intrinsic Determinants
- Nutrition Knowledge
- Weight Concern
- Concern for Disease
- Food Choice Motive

Extrinsic Determinants
- Social Influence

<< Each determinant may have both intrinsic and extrinsic attributes >>
Gender Differences in Health Behavior

- Both Intrinsic and Extrinsic determinants impact healthy eating behavior.
- However, variation in the determinants across gender is unknown.
- Research have identified gender differences in dietary behavior.
- Is the observed differences as a result of differences in determinant of healthy eating?
Methodology

- Employed both quantitative and qualitative method
- **Quantitative:** 223 (124 males and 104 females) restaurant visitors sampled at 10 selected fast-food restaurants.
- **Qualitative:** 5-minute interview with 15 participants-post survey.
- Used **SPSS** to validate the tools.
- **Principle Component Analysis (PCA)**
  - Kaiser-Meyer-Olkin (KMO) all > .70
  - Bartlet Test of Sphericity significant at p < .001
Data Analysis

- Employed **Structural Equation Modeling (SEM)** to exhaustively examine the interactions between the variables.
- Established factor Invariance.
- Developed two separate models – one for males one for female group.
- Multi-group Comparison - using pairwise approach to check for significant differences.
Eating Determinants Model for Females

- Weight Concern
- Social Influence
- Concern for Disease
- Healthy Eating Attitude
- Knowledge
- Food Choice Motives

Arrow weights:
- Weight Concern to Social Influence: 0.21
- Social Influence to Healthy Eating Attitude: 0.30
- Concern for Disease to Healthy Eating Attitude: 0.25
- Knowledge to Food Choice Motives: 0.06
- Food Choice Motives to Healthy Eating Attitude: -0.25
- Knowledge to Social Influence: -0.11
- Social Influence to Weight Concern: 0.28
Eating Determinants Model for Males
Comparing the Two Models

Males

Weight Concern  0.09  Social Influence

Healthy Eating Attitude

Females

Weight Concern  0.21  Social Influence

Healthy Eating Attitude

0.31

0.30
Comparing the Two Models

**Males**

- Weight Concern
- Concern for Disease
- Healthy Eating Attitude
- Correlation: 0.31

**Females**

- Weight Concern
- Concern for Disease
- Healthy Eating Attitude
- Correlation: 0.30
Comparing the Two Models

Males

Knowledge → 0.07 → Food Choice Motives → Healthy Eating Attitude

Females

Knowledge → 0.06 → Food Choice Motives → Healthy Eating Attitude
## Summary of the Models

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<th>Determinants</th>
<th>Females</th>
<th>Males</th>
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Implications for PT Designers

2 ways that the results can be applied

Gender-inclusive Design

- Weight Concern
- Disease Concern
- Nutrition Knowledge
- Social Influence

Gender-specific Design

- Females:
  - Weight Concern
  - Disease Concern
  - Nutri. Knowledge
  - Social Influence

- Males:
  - Weight Concern

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Implications for PT Designers

Decision to eat fast food – Planned vs. Impulsive Decision?

Males
More of Planned Decision (69%)
Use more of logical PT approaches that appeal to sense of reasoning e.g., goal setting.

Females
More of Impulsive Decision (63%).
Use more of PT approaches that appeal to emotion rather than sense of reasoning.
Conclusions

- Our study reveals some differences and similarities in the determinants of healthy eating for males and females.
- Females have more realistic view of health behavior in relation to its determinants.
- Our finding establishes the need to tailor PT based on gender.
- PT approaches that appeal to the sense of reasoning should be used for males.
- PT approaches that appeals to an individual’s emotion should be used for females.
Rita Orji is sponsored by the Natural Sciences and Engineering Research Council of Canada (NSERC) Vanier Graduate Scholarship.

Thank You!
References