Determinants of Fat-Related Dietary Behavior in Chinese Americans

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- “First, you tell me to eat a low-fat diet. And now you tell me to eat FATTY fish?”

Introduction

- Heart disease has emerged as a prominent cause of death for Asian Americans
  - Asian Indian, Japanese, Chinese sub-groups
- Number of deaths due to cardiovascular diseases in Westernized countries is 5x as that is reported in mainland China

Comparison of Heart Disease Rates

- Higher rates in Asian Americans partly attributable to variations in environmental factors--
- DIETARY INTAKE
- PHYSICAL ACTIVITY

Ni-Hon-San Study
(Gordon, 1957)

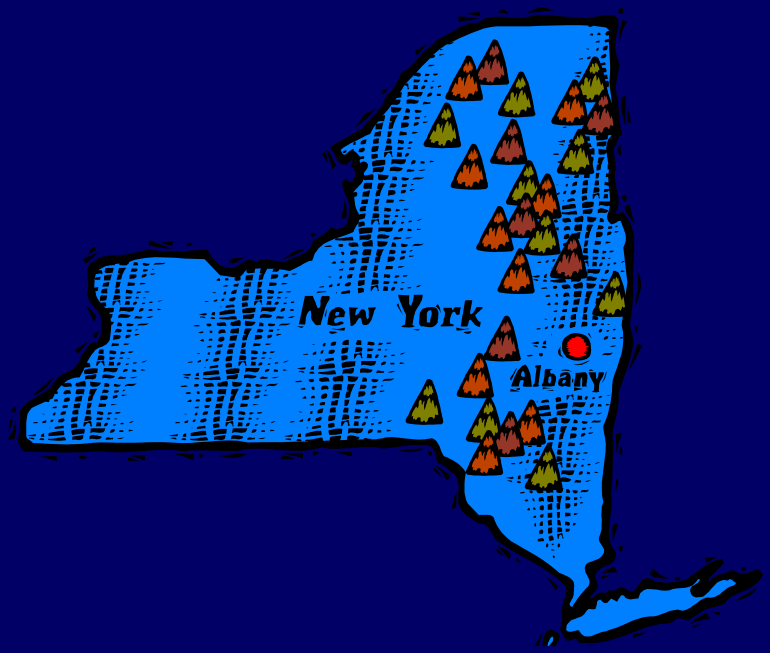
- Long-term prospective epidemiological study of cardiovascular disease rates of Japanese men living in 3 areas:
  - Japan
  - Hawaii
  - California
- Gradient of CHD mortality evident with highest rates in U.S., followed by Hawaii, and then Japan

Ni-Hon-San Study

- Total serum cholesterol levels
  - Lowest in Japan
  - Highest in U.S. males
- Dietary fat intakes:
  - Highest in U.S. males
    - More total fat, total protein & dietary cholesterol

Chinese American Population

- Consistent increase in large U.S. cities
  - New York City
  - Number grew more than six-fold in past 3 decades
  - Post-1990 arrivals from mainland China & Taiwan ranked 3rd among the newest New Yorkers



Social Psychological Theories

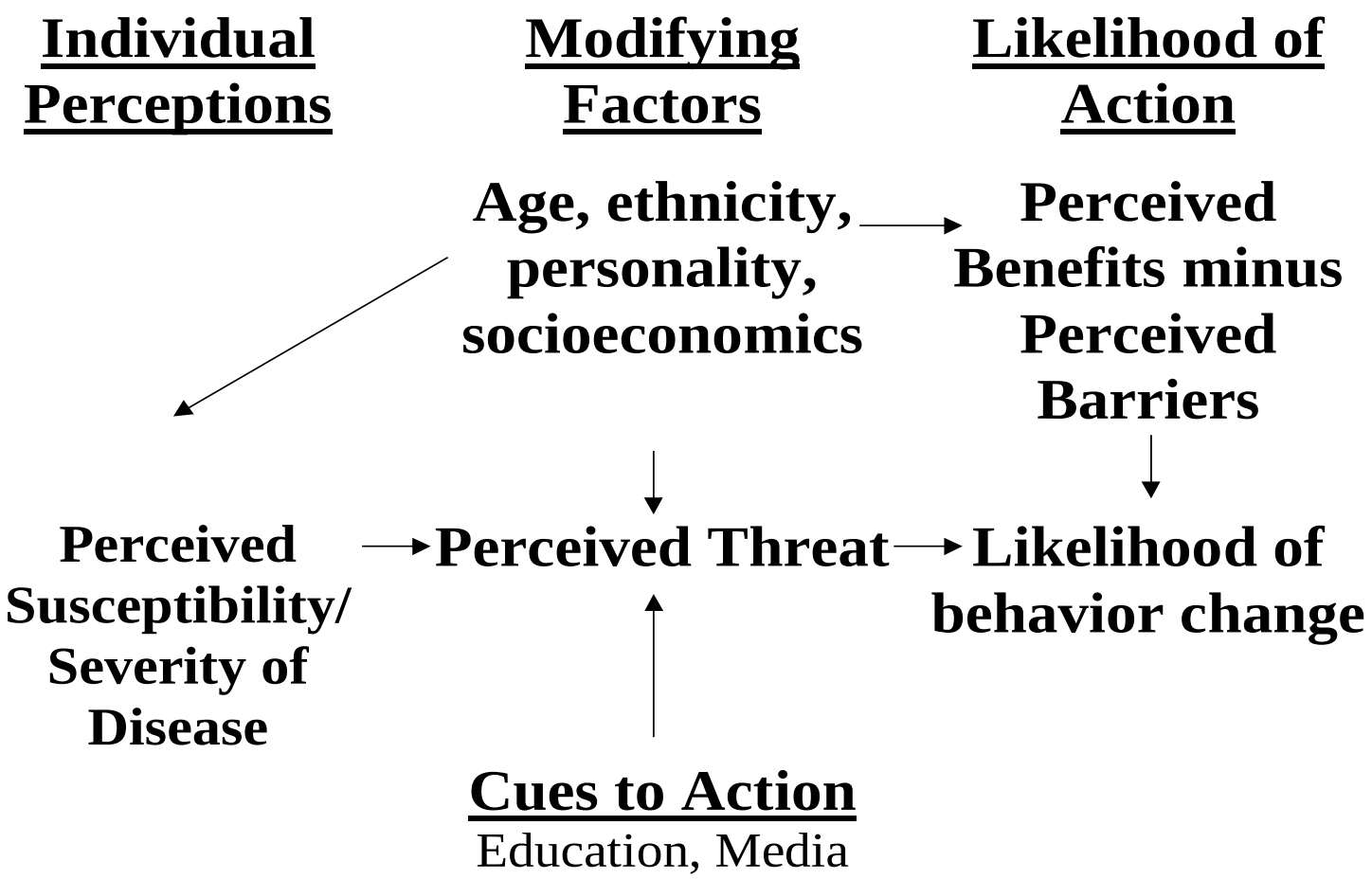
- Models used widely to explain health and food-related behaviors:
- Health Belief Model
- Theory of Planned Behavior
- Social Cognitive Theory

Health Belief Model

(Rosenstock, 1974)

- Developed in the 1950s by social psychologists
  - Explain widespread failure of people to participate in programs to prevent/detect disease.
  - Tuberculosis screenings
- Currently used to predict wide range of health behaviors

Health Belief Model



Theory of Planned Behavior

(Ajzen, 1985)

- Behavioral intention
- Attitude toward behavior or action
- Social norm
  - Normative beliefs & Motivation to Comply
- Perceived behavioral control

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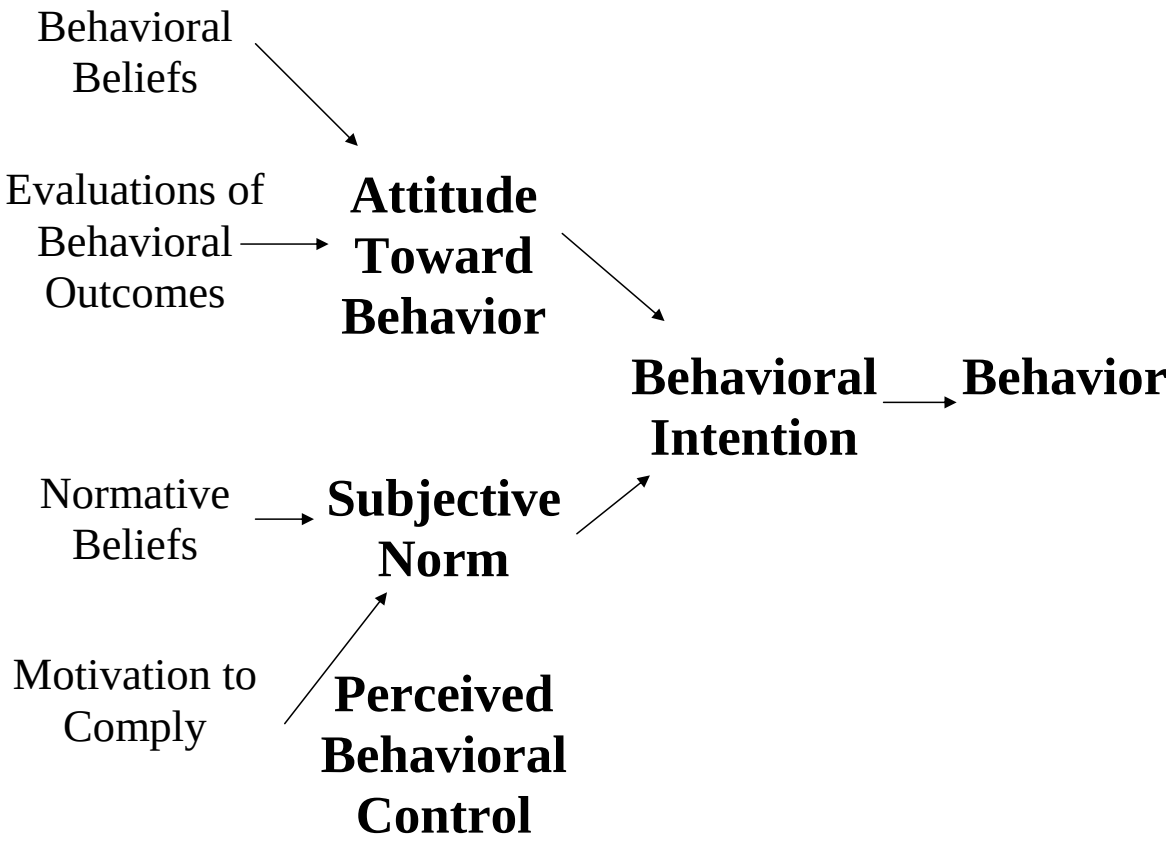
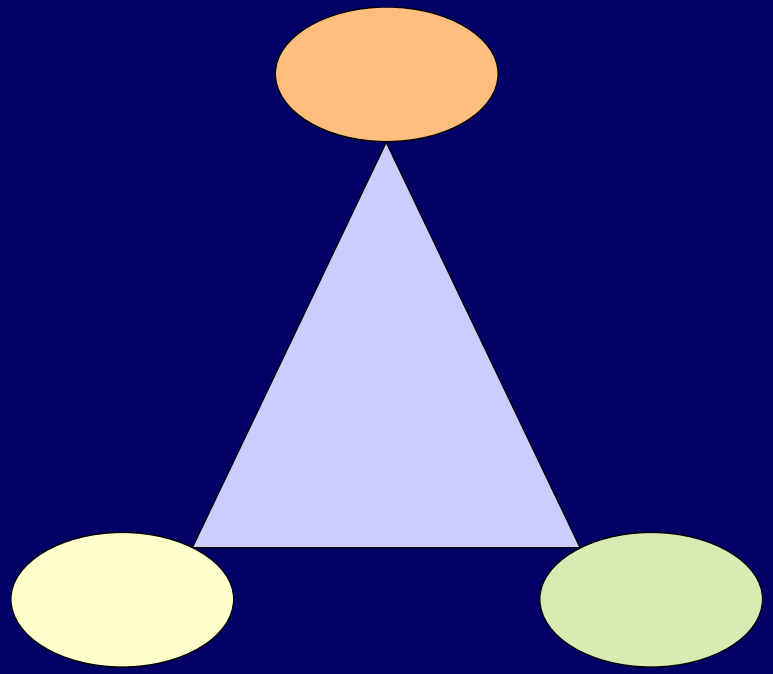


Social Cognitive Theory

(Bandura, 1986)

- Dynamic, triadic & reciprocal relationship:
  - personal
  - behavioral
  - environmental factors
- Self-efficacy = individual's beliefs in capabilities to perform a behavior



Traditional Chinese Beliefs

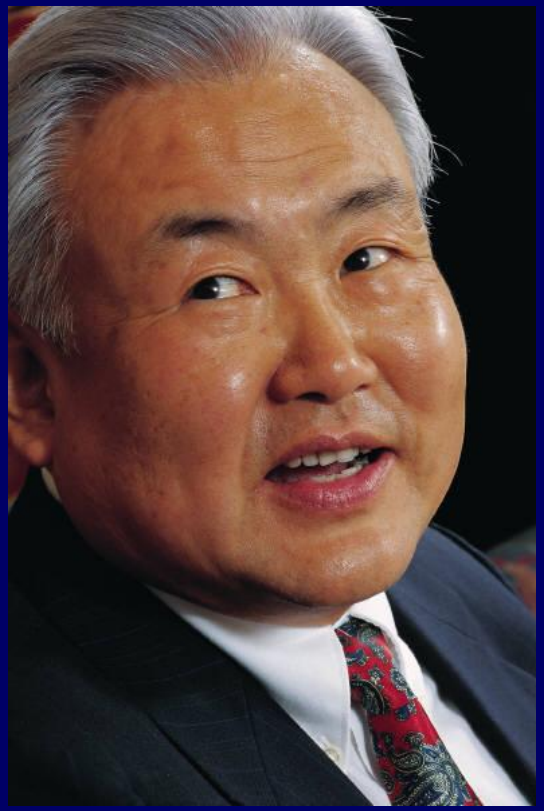
- Hot-cold concepts of health
- “Choosing foods to balance ‘hot’ and ‘cold’ elements is very important to me.”
- “Balancing my intake of ‘hot’ and ‘cold’ foods can benefit the health of my heart.”

Purpose of Study

- Identify psychosocial predictors of fat-related dietary behavior among a sample of 1st and 2nd generation Chinese Americans
  - 1st Generation = born in mainland China
  - 2nd Generation = born in USA

Sample

- Convenience sample of 743 Chinese individuals
- Residents of New York Metropolitan area
- Healthy, adults with and without U.S. citizenship
- Ages 21-73 years



Fat-Related Dietary Behaviors

Modified from Kristal et al's (1990) instrument

- 5 categories: (21 questions)
  - Avoiding fat as condiment/ avoid frying
  - Modifying meat to make it lower in fat
  - Substituting manufactured low-fat foods for their higher-fat counterparts
  - Replacing high-fat foods with fruits and vegetables
  - Replacing high-fat foods with alternatives lower in fat

Psychosocial Factors

- 13 psychosocial variables targeted:
  - Health Belief Model
    - Perceived susceptibility of heart disease
    - Perceived severity
    - Perceived benefits
    - Perceived barriers
    - Overall Health Concern
    - Cues to Action

Psychosocial Factors

- Theory of Planned Behavior
  - Behavioral intention of dietary fat reduction
  - Attitude toward behavior
  - Normative beliefs
  - Motivation to Comply
  - Perceived behavioral control

Psychosocial Factors

- Social Cognitive Theory
  - Self-efficacy
- Other Variables Measured:
  - Habit
  - Preferences in consuming high-fat foods

Demographic Variables

- Birthplace
- Years of U.S. residence
- Gender
- Age
- Formal education
- Marital status
- Working status

- Acculturation to American lifestyle (choice of social network, food, media, communication channels)

Data Analyses

- Data coded for SPSS computer software
- Frequency distributions
- Pearson's product-moment correlations
  - Psychosocial variables & dietary behaviors
- Stepwise multiple regression analyses
- T-tests
  - Compare groups according to gender & age

Results- Participant Characteristics

- Sample = 743 adults
  - 40% male, 60% female
- Mean age = 36.0 ± 11.2 years
- Years of U.S. Residency
  - 21.0 ± 9.7 years
- Educational attainment
  - 18% High school diploma
  - 16% completed some college
  - 31% college graduate
  - 22% post graduate degree

Results- Participant Characteristics

- Sample = 743 adults
  - 1st generation: n = 600
  - 2nd generation: n = 143
- Marital status
  - 67% married
  - 26% never married
- Acculturation (scale 1-5)
  - 1st generation: Mean = 2.0
  - 2nd generation: Mean = 3.7

Results—Psychosocial Factors

- Whole sample
  - Favorable attitudes toward reducing dietary fat
    - mean = 3.88 (scale 1 to 5)
  - Perceived severity of heart disease
    - mean = 3.79
  - Perceived behavioral control
    - mean = 3.78

Results

- 1st generation Chinese
  - Stronger behavioral intentions to adopt reduced-fat diets than U.S.-born counterparts
  - Higher perceived benefits dimension
  - Reduced dietary fat chiefly by limiting fried foods & using small amounts of oil in cooking
  - Replaced high-fat foods with fruits & vegetables
  - Modified meat to make it lower in fat

Results

- 2nd generation Chinese
  - Reported high scores for avoiding fat or frying of foods
    - mean = 3.01 (scale 1 to 4)
  - Modifying meat to make it lower in fat
    - mean = 2.4

Results—Multiple regression analyses

- 1st generation Chinese
- Behavioral intention
  - 58% variability accounted by:
    - Attitude
    - Overall health concern
    - Self-efficacy
- 2nd generation Chinese
- Behavioral intention
  - 49% variability:
    - Attitude
    - Cues to action
    - Habit

Results—Multiple regression analyses

- 1st generation Chinese
- Dietary behavior index
  - 19% of variability accounted by:
    - Attitude
    - Perceived barriers
    - Self-efficacy

- 2nd generation Chinese
- Dietary behavior index
  - 39% of variability
    - Attitude
    - Perceived barriers
    - Overall health concern

Multiple regression analyses
Addition of demographic factors

- 1st generation Chinese
- Dietary behavior index
  - 24% of variability
  - Addition of:
    - Age
    - Gender
    - Education

- 2nd generation Chinese
- Dietary behavior index
  - 51% of variability
  - Addition of:
    - Gender
    - Age
    - Education

T-tests

- Significant gender effects:
  - As a whole sample, female respondents scored higher on:
    - Replacing high-fat foods with F & V
    - Modifying meat
    - Behavioral intention to reduce dietary fat
    - More favorable attitudes
    - Greater motivation to comply with social norms involving dietary fat reduction

T-tests

- Significant gender effects:
  - As a whole sample, male respondents scored higher on:
    - Preferences for high-fat foods
    - Greater barriers in fat reduction
    - Normative beliefs that salient others perceived their diets as high in fat

T-tests

- Significant age effects:
  - Older group (≥ 30 years of age)
  - Higher scores on substituting low-fat foods for higher-fat counterparts
  - Replacing high-fat foods with low-fat alternatives

Discussion

- Study reflects unique examination of generational differences of social psychological models to the prediction of dietary behavior in Chinese Americans

- Major predictors of dietary behavior:

  - Attitude
  - Perceived barriers
  - Self-efficacy
  - Overall heath concern

Discussion

- Degree of prediction of dietary behavior is comparable with the range reported in literature (Baranowski et al., 1999)
  - variability between 20% and 30%
- Degree of prediction was higher for 2nd generation sample
- Other cultural factors that are untapped may be involved in 1st generation Chinese

Discussion

- 1st generation Chinese may benefit from:
  - How to implement dietary fat reduction behaviors
- 2nd generation Chinese may benefit from:
  - Increased motivation & greater overall health concern in heart disease risk reduction

Discussion

- Importance of gender and age factors:
  - More attention focused on nutrition education of males and younger individuals to increase positive attitudes toward heart healthy diets
    - Developing coping skills & reinforcements

Limitations

- Results cannot be generalized to entire Chinese American population in U.S.
  - Random sampling not attempted
- Results are based on cross-sectional data
  - Stability of beliefs & behaviors measured not ascertained
- Uneven distribution of foreign-born & U.S.-born participants may affect research findings

Future Implications

- Additional work in theory building using qualitative & quantitative methods
  - Uncover other salient variables
- Psychosocial construct measured for social norm may need to be revisited
  - Capture stronger correlations with dietary behavior