Overweight in Children & Adolescents: Social Environmental Influences

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Determinants of Childhood Obesity

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Social Environment

Food industry

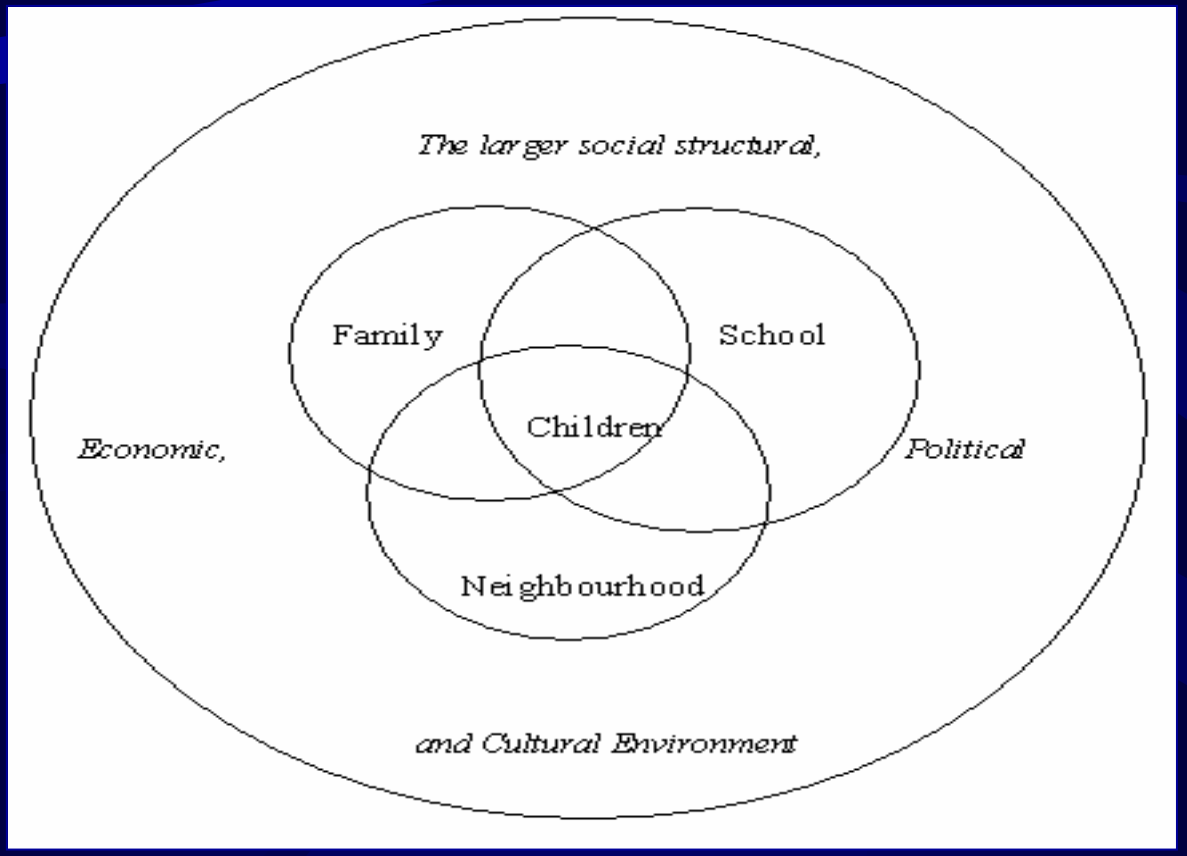
Media

Faith & Religion

Peers

Social Norms

Health Care



Restaurants

Policy

Evidence for Social Influences

- Non-familial social relationships
- Social Community Structures
  - Schools -Faith/Religion/Spirituality
  - Health Care Systems -Restaurants- eating patterns
- Larger Social Systems
  - Media & Advertising

Social Interactions

- Social norms
  - Parents misperceive children's overweight status (Maynard et al., 2003; Baughcum et al., 2000)
  - Adolescents misperceive normal as overweight status (gender, race differences) (Strauss, 1999-NHANESIII)
- Peers influence beliefs and behaviors
  - Physical activity (gender differences) (Sallis et al., 2000; Welk, 1999; Trost et al., 1999; Koh, Hobbs, 1998; Reynolds et al., 1990)
  - Eating behaviors (Cullen et al., 2001; Feunekes, et al, 1998; Birch, 1980)
- Higher need for social approval related to lower BMI and physical activity (African-American girls) (Klesges et al., 2004)

School Influences

- Fat Content of School Meals
- A la Carte – Beverages
- Vending machines – Pricing
- Physical Education

Fat Content of School Meals

- **Demonstrated reductions in fat content of school meals** (Caballero et al. 2003; Osganian et al., 1996; Snyder et al., 1992)
  - **Lowered dietary fat intake in children** (Caballero et al. 2003; Luepker et al., 1996; Lytle et al., 1996)
  - **Failed to reduce fat intake in adolescents** (Lytle et al., 2004; Sallis et al., 2003)
  - **Inconsistent relationship lowering BMI** (Caballero et al. 2003; Sallis et al., 2003; Resnicow, 2002; Story, 1999)

A la Carte - Beverages

- **A la carte foods disproportionately high-fat/sugar snacks and sweetened beverages**
  (French et al., 2003; Harnack et al., 2000; Wildey et al., 2000; Story et al., 1996)
- **Availability of a la carte in schools related to higher sweetened beverage intake (Cullen, Zakeri, 2004)**
- **Sweetened beverage intake related to obesity**
  (Ludwig, et al., 2001; Giammattei et al., 2003)
- ***Education intervention reduced the number of carbonated drinks, related to reduction in number of overweight & obese children*** **(James et al., 2004)**

Vending - Pricing

- Lowering prices for fruit, vegetables promoted vending purchases (French et al., 1997)
- Reduced price of low-fat snacks increased student sales (French et al., 2001)
- Prices raised on high-fat and reduced on lower fat foods had similar revenues to usual price conditions (Hannan, et al., 2002)

Physical Education

- School-based PE recommended as preventive strategy, strong evidence for changes in physical activity levels (Community Preventive Services, 2002; Sallis et al., 2003; Nader et al., 1999; Sallis & Owen, 1999; Luepker et al., 1996; McKenzie, 1996)
  - Differential by gender, greater effect in boys
  - Related to BMI (Sallis, et al., 2003, 1997; Sahota et al., 2001; Connelly et al, 1996)
- Barriers to implementation may influence effectiveness of approach (Sallis, et al., 2003; Kelder et al., 2003)

Health Care Influences

- Historical of anticipatory guidance in pediatric primary care but lack evidence for efficacy or effectiveness to promote healthy weight
- Primary care counseling for adolescents showed improvements in physical activity and dietary behaviors (Patrick, Sallis et al., 2001; PACE+)
- Gathering additional evidence - Prescription for Health (RWJ); No. Carolina Prevention Center

Religious/Faith Influence

- Spirituality beliefs influenced fruit and vegetable intake (Lytle et al., 2003)
- Unknown influence on other eating behaviors, physical activity, overweight
- Unknown in children, religious affiliation may be related to higher BMI in adult men (Kim, Sobal, Wethington, 2003)
- Setting used for delivery of interventions for adults but not reported for children
  (Ammerman et al., 2003; Resnicow et al., 2002; Yanek, Becker et al., 2001; Kumanyika et al., 1992)

Larger Social Context

- Eating Away from Home
- Media Influences

Eating Away from Home

- Proportion of foods consumed by children from restaurants and fast food outlets increased nearly 300%, 1977 to 1996 (St-Onge et al., 2003)
- Fast food restaurant use associated with greater intake of energy, fat, soft drinks (French et al., 2001; Paeratakul et al, 2003)
- Frequency of eating fast food associated with increased BMI in girls (Thompson, et al., 2003)

Media – Food Marketing

- Children's requests and parent purchases of advertised foods related to greater number of hours of TV viewing (Coon, Tucker, 2002; Taras et al., 1989)
- Experiment to manipulate exposure to advertising increased Kool-Aid and candy selections, reduced fruit selection (Gorn & Goldberg, 1982)
- TV viewing related to higher energy, high-fat food intake and obesity (Robinson 2001,1998, 1995; Taras et al., 1989)

Media – Physical Activity

- Advertising may influence physical activity – although TV viewing related to reductions in physical activity
- Social marketing campaign --*VERB*$_{TM}$ *It's what you do* (www.cdc.gov/youthcampaign/index.htm)
  - Youth Media Campaign Longitudinal Survey --forthcoming outcome evaluation

"Other" Societal Approaches

- Community organizing/action
- Financial and economic incentives
- Food assistance programs
- Food packaging and labeling - smaller portions reduce fat content; fat additives
- Media & advertising (counter-ads)
- Pre-school, Schools & After-school
- Built environment

(Story, French, 2004; Frazao, Allshouse, 2003; Dietz, 2002; Sherwood, Story, 2002; Kumanyika, 2001; French, Story & Jeffery, 2001)

Social Moderators

- Cultural moderators of BMI, eating, activity:
  - Social Capital, SES, Race, Gender, Ethnicity
- Targeted interventions incorporating social influences are developing within schools, housing developments, community centers (e.g., Pathways, GEMS, Hip-Hop to Health Jr., GO GIRLS!)
- Further research into faith-based, primary care, and policy approaches would clarify effectiveness