Child and Parent Factors Associated with Childhood Overweight

ME O'Neil, PhD, PT, MPH; PhD; PA Shewokis, PhD,
K Falkenstein, PhD, RN, CPNP; RS John, MPH; M Medeiros
Drexel University
Philadelphia, PA

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Background & Significance

Trends in Childhood

- Overweight
  - Over a third of children (34%) aged 2-19 years are obese (17.1%) or overweight (16.6%) [Ogden et al, 2006]
- Physical Activity (PA)
  - Only 35.8% of high school students reach the daily recommended level of PA [Eaton et al, 2006]
    - 60 minutes of moderate to vigorous physical activity (MVPA)
  - Nearly two thirds (61.5%) of children aged 9-13 do not participate in organized PA [MMWR, 2002]
  - Nearly a quarter (22.6%) of children aged 9-13 years do not participate in free-time PA [MMWR, 2002]

Background & Significance

- Trends in Childhood
- Fruit and Vegetable (FV) consumption
  - Only 20% of high school students meet the recommended servings of FV consumption [Eaton et al, 2006]
    - 5 a Day
  - Less than 15% of elementary children meet the recommended levels of FV consumption [NC SNAC, 2003]
- Sedentary Behavior (SB) or “screen time”
  - Over half (58.3%) of high school students exceed the recommended levels of SB [Eaton et al, 2006]
    - Less than or equal to 2 hours/day
  - Girls 12.8 years old spent 45% of their time in SB which increased to 63% by age 14.9 years [Hardy et al, 2007]

Prevalence

- Childhood overweight & obesity is associated with ethnicity/gender/age [Ogden et al, 2006]

NHANES 2003-2004	6-11 yo		12-19 yo	
	Boys	Girls	Boys	Girls
Mexican Americans	47.9%	37.4%	37.3%	31.1%
Non-Hispanic African Americans	34.5%	45.6%	31.4%	42.1%

Background & Significance

Trends in Adulthood

- Overweight
  - About two-thirds (66%) of adults aged 20-74 years are obese (32%) or overweight (34%) [Ogden et al, 2006]
- PPA
  - Only half (49%) of adults meet the recommended levels of PA [CDC, 2005]
    - 30 minutes of MVPA on most days
- FV Consumption

  - Only a quarter (23%) of adults meet the recommended servings of fruit and vegetable consumption [CDC, 2002]
    - 5 a Day

Parental Influences

- Parental obesity
  - Nearly doubles the risk of adult obesity in children
  - Parents: twice as likely to be obese compared to 30 years ago
- Parental roles
- Monitor child's health behaviors
  - Energy consumption
  - Energy expenditure
  - Sedentary behavior
- Monitor the social and physical environments
  - Home
  - Neighborhood
  - Schools

(IOM, 2005; Lindsay et al, 2006)

Family-focused interventions

- Enhance effectiveness because obesity runs in families
- Promote parents as role models to reinforce program goals
- Teach parents behavior-change strategies to promote and support health behavior changes in their children

(Epstein, 1996)

Theoretical Models

- Frameworks to support family-focused interventions
  - Social Cognitive Model
    - Reciprocal determinism
      - Personal factors
      - Behavioral skills
      - Environmental factors
  - Stages of Change (TTM)
    - Precontemplation, Contemplation, Preparation, Action, Maintenance, Termination

(Bandura, 1986; Ransdell, 2001; Surgeon General, 2001; Prochaska, 2002)

The Child Health Project

- A health promotion/health education intervention for parents and children who are overweight or obese
  - Information tailored to Parent Stage of Change
  - Information includes:
    - Recommendations for healthy lifestyles
    - Tips for positive parent-child interactions
    - Worksheets to promote behavioral strategies
- Intervention delivered by project staff in primary care clinics
  - PCP referrals
  - Health educators
- Intervention timelines
  - Four intervention and data collection sessions over a year
- Goal
  - Improve parenting capacities to support health behavior changes in their children who are overweight or obese

The Child Health Project

- Parent and Child Measures
  - Demographic & Health Behavior Questionnaires
- Parent Measures
  - Stage of Change Questionnaires (SOC)
    - PA and FV consumption
- Child Measures
  - Pediatric Health Related Quality of Life Questionnaire [PedsQL]
  - Height, weight, body mass index (BMI)

Data Analysis

- Cross Sectional Analysis on Baseline Data
- Purposes
  - Examine associations between parent and child BMI, health behaviors [PA, FV consumption, SB] child health related quality of life (PQL), and parent Stage of Change (SOC)
  - Examine associations between parent and child health behaviors and social and physical environmental factors
- Data Analysis
  - Descriptive statistics
    - Participant characteristics
  - Preliminary analysis
    - Correlations - Spearman's rho
    - Crosstabs - Phi coefficient

Parent Demographics

- Parents/Guardians (n=112)
  - Age (yrs)
    - Mean (SD): 36.5 (12.68)
  - Gender: Female 88.4%
  - Race
    - Black 53%
    - White 13%
    - No response 21%
  - Ethnicity
    - Hispanic 41%
    - Non-Hispanic 49%
  - BMI:
    - Mean (SD) 33.85 (7.69)

Parent Demographics

- Education
  - Some high school 19.0%
  - High school graduate 43.0%
  - Some college 28.6%
- Marital status
  - Single 75.1%
    [Including: divorced, separated, widowed]
  - Married 24.1%

Parent Demographics

- PA
  - Participate in regular PA?
    - Yes 49%
    - No 47%
  - Participate in recommended levels of PA?

	Mean (SD)
Typical week	3.80 (2.25)
Past 7 days	3.50 (2.40)

- Nutrition Habits
  - FV consumption: 3.41 (2.01)
- SB
  - “Screen time” [hrs/day] 3.78 (1.73)

Parent Stage of Change

Stage of Change (SOC)	Physical Activity (%)	Nutrition (%)
Pre-Contemplation	0.9	3.6
Contemplation	26.8	85.7
Preparation	8.0	5.4
Action	7.1	4.5
Maintenance	57.1	0.9

Child Demographics

- Children (n=112)
  - Age (yrs): Mean (SD): 10.2 (2.16)
    Range: 6-13 yrs
  - Gender
    - Girls 46%
    - Boys 55%
  - Race
    - Black 54.5 %
    - White 12.5%
    - No response 21.4%
  - Ethnicity
    - Hispanic 42.9%
    - Non-Hispanic 49.1%
  - BMI:
    - Mean (SD): 27.85 (5.67)
    - Range: 14.87 – 50.16

Child Demographics

- Education
  - Grade 4 15.2%
  - Grade 5 17.9%
  - Grade 6 19.6%
- Overall health
  - At least Good 83.3%
- Do you want to make changes to improve health?
  - Yes 79.5%
- How much do you want to change?
  - Very much/ A lot 61.7%

Child Demographics

- PA
  - Participate in recommended levels of PA?

	Mean (SD)
– Typical week	4.48 (2.21)
– Past 7 days	4.52 (2.10)

- Nutrition Habits

– FV consumption	3.46 (2.11)

- SB

– “Screen time” [hrs/day]	3.38 (1.69)

Child Demographics

PedsQL Subscales (n=109)	Scores: Mean (SD)
Physical Function	75.89 (18.11)
Emotional Function	69.52 (19.49)
Social Function	76.27 (20.29)
School Function	69.02 (19.92)
PedsQL Total Score	73.10 (14.48)

100 = Never; 75 = Almost Never; 50 = Sometimes; 25 = Often; 0= Almost Always

Environmental Demographics

- Social (Family) Environment
  - Parents participate in PA with children?
    - Yes 47%
    - No 52%

  - Food and mealtime (Parent) (Child)
    - Always eat meals together 39.3% 29.5%
    - Dinner at table 70.0% 57.1%

- Physical (Neighborhood) Environment
  - Safe?
    - Yes 63.4%
  - Places for PA?
    - Yes 75%

Results & Discussion

Correlation Matrix
Health Behaviors & PQL

Spearman's rho	Child BMI	Parent SB	Parent FV	PQL Soc	PQL Emo	PQL Phys	PQL Scho
Child PA	**-0.302 ****	-0.027	-0.142	0.050	**0.256 ****	0.081	0.025
Child SB	0.133	**0.293 ****	-0.085	0.073	-0.031	0.101	0.073
Child FV	0.037	0.029	**0.602 ****	0.119	0.004	**0.194 ***	0.005
Parent BMI	0.049	0.174	-0.081	**0.282 ****	0.072	0.170	-0.108
Parent PA	0.029	**-0.240 ***	0.137	-0.012	0.054	0.110	0.106

*** = p<0.05; ** = p < 0.01**

Correlation Matrix
Parent SOC – PA

Spearman's rho	SOC – PA
Child BMI	**r = -0.205, p = 0.034**
Child PA	**r = 0.235, p = 0.015**
Child FV	**r = 0.235, p = 0.013**
Parent PA	**r = 0.251, p = 0.008**
PQL Physical	**r = 0.239, p = 0.013**
PQL School	**r = 0.280, p = 0.003**
PQL Total Score	**r = 0.258, p = 0.007**

Correlation Matrix

Social/Family Environment & Health Behaviors

Spearman's rho	Eating meals together (Parent)	Eating meals together (Child)
Eating meals together (Parent)		**r = 0.395** **p <0.001**
Parent PA	**r = 0.288** **p = 0.002**	r = 0.147 p = 0.138
Child SB	r = -0.133 p = 0.172	**r = -0.232** **p = 0.018**
Child FV	**r = 0.230** **p = 0.015**	r = 0.056 p = 0.576

Crosstabs

Neighborhood Environment & Health Behaviors

- Neighborhood safety: Health Behaviors
  - No significant findings
- Neighborhood resources for PA: Child SB
  - **phi = 0.503, p = 0.010**
- Play together: Parent FV
  - **phi = 0.424, p = 0.012**
- Play together: Parent PA
  - **phi = 0.412, p = 0.009**

Limitations

- Preliminary cross-sectional data analysis
  - Findings indicate associations ONLY
- All health behavior data are self-report questionnaires and interviews
  - Potential bias in responding
- All children are all overweight or obese
  - Potential bias on health behaviors and health status
- Participants are a homogeneous sample from a specific region and demographic
  - Limits generalizability of findings

Conclusion & Next Steps

- Conclusions
  - Generally, demographic findings agree with research evidence [Trost et al, 2003; Lindsay et al, 2006]
  - Findings on SOC, PedsQL and environmental factors emphasize associations between health behaviors and broader constructs (motivation, quality, environment)
- Next Steps
  - Complete study and examine intervention effects
  - Consider additional strategies in future intervention studies:
    - Behavioral skill building
    - Behavioral strategies
  - Expand on intervention strategies to include more community, environmental and policy components for health promotion

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Maggie O'Neil

moneil@drexel.edu

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