Are Providers’ Self-Efficacy and Outcome Expectations Related to Obesity Counseling Frequency?

Lisa M. Lowenstein, MPH, RD

Eliana Perrin, MD, MPH; Marci K Campbell PhD; Deborah Tate, PhD; Jianwen Cai, PhD, Alice Ammerman, DrPh, RD
Background
# Childhood Overweight and Obesity

**NHANES Data (2003-2006)**

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>2-5 year olds</th>
<th>6-11 year olds</th>
</tr>
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<tbody>
<tr>
<td><strong>Overweight (≥ 85&lt;sup&gt;th&lt;/sup&gt; percentile)</strong></td>
<td>26%</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Obese (≥ 95&lt;sup&gt;th&lt;/sup&gt; percentile)</strong></td>
<td>14%</td>
<td>18%</td>
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</table>

Ogden JAMA 2008
Consequences of Childhood Overweight and Obesity

- Health Disparities
- Physical
  - Asthma
  - Sleep apnea
  - Diabetes
  - More likely to develop other chronic diseases
- Psychosocial
  - Low self-esteem
  - Decreased quality of life
- Economic
  - Increased health care costs
  - Increased lab requests

Daniels, SR *Future child* 2006; Dietz, W *Pediatrics* 1998; Schwimmer *JAMA* 2003; Magarey, AM *Int J Obes Relat Metab Disord.* 2003
Points of Intervention

- One point of intervention is in primary care
- May be the only option for low-income populations
- Multiple levels of intervention
  - Provider-patient communication
  - Provider
Obesity Prevention and Treatment in Primary Care

- Primary care providers seen as a source of health information
- Clinic based interventions
  - Weight loss
  - Improved health behaviors
- Few resources are available
- USPSTF Guidelines
  - 25 hours of contact

Preventive Counseling Frequency

- Less than 50% of providers counsel on nutrition and physical activity

- Predictors of counseling
  - Female providers
  - > 10 patients/week
  - Spent >20 minutes/patient
  - Plotting BMI
  - Older children
  - Children with a BMI ≥ 95th percentile

Frank E Am J Clin Nutr 2002; Rattay K Obesity Res 2004; Cook S Pediatrics 2005
Barriers to Preventive Counseling

- Lack of time
- Lack of resources
- Lack of reimbursement
- Low parent motivation
- Low perceived efficacy
- Low self-efficacy

Story MT Pediatrics 2002; Douglas F BMC Public Health 2006; Perrin EM Ambul Pediatr 2005
Providers’ Attitudes and Beliefs

What we know

- Providers
  - Believe overweight and obese children and adolescents need treatment
  - Believe overweight and obesity during childhood and adolescence affects chronic disease risk
  - Have low self-efficacy for obesity prevention counseling
  - Find obesity counseling unrewarding

Story MT Pediatrics 2002; van Gerwen M Obesity Reviews 2009
Providers’ Attitudes and Beliefs

- What we don’t know
  - Outcome expectations
    - One study assessed outcome expectations
      - "How much can you do to prevent these problems?"
      - Not outcome expectations
  - Relationship of self-efficacy, outcome expectations, and counseling frequency

Cheng T Arch Pediatr Adolesc Med 1999
Objectives

- Does obesity preventive counseling differ from other preventive counseling topics?
- Do providers with higher levels of self-efficacy or outcome expectations report they counsel on obesity related topics more often?
Methods
Kids Eating Smart and Moving More (KESMM) – Phase II

- Goal: Improve providers’ ability to identify and assess children who are at risk for or already overweight
- 5-year randomized pediatric obesity intervention trial funded by NICHD
Providers include:

- Medical Doctors, Nurse Practitioners, and Physician Assistants

Can participate if their practice is enrolled into KESMM

Provider champion lets other providers know about the study

Consented at the first practice training

Receive continuing medical education credits at second practice training
Provider Baseline Survey

- Developed
  - Review of the literature
  - Refined from the pilot study
- Pre-tested the survey to assess
  - Amount of time to fill out
  - Clarity of questions
- Administration:
  - Delivered at the first practice training
  - Picked-up at the second practice training
Social Cognitive Theory

Outcome Expectations
- Physical
- Social
- Self-evaluative

Self Efficacy

Goals

Sociostructural Factors
- Facilitators
- Barriers

Behavior

Bandura A Health Educ Behav 2004
Social Cognitive Theory

**Outcome Expectations**
- Physical
- Social
- Self-evaluative

**Self Efficacy**

**Sociostructural Factors**
- Facilitators
- Barriers

**Goals**

**Behavior**

Bandura A *Health Educ Behav* 2004
Social Cognitive Theory

Outcome Expectations
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- Self-evaluative

Self Efficacy

Goals

Behavior

Sociostructural Factors
- Facilitators
- Barriers

Bandura A Health Educ Behav 2004
Provider Attitudes & Beliefs Linked to Patient Behavior

Provider Attitudes & Beliefs
• Self-Efficacy
• Outcome Expectations

Patient Behavior

Provider Behavior
Counseling on
• Nutrition
• Physical activity
• Achieving/maintaining a healthy weight
Dependent Variables – Preventive Counseling Frequency

- When you see children 3-8 for well child check, how often do you discuss the following topics:
  - Healthy Eating
  - Physical Activity
  - Achieving/Maintaining a Healthy Weight
Independent Variables – Self-Efficacy

Please rate your confidence in your ability to effectively counsel families about:

- Increasing F&V
- Decreasing sweetened beverage consumption
- Decreasing juice consumption
- Switching to lower fat milk
- Decreasing junk food consumption
- Reducing screen time
- Increasing outdoor activity
- Discuss children’s weight status
Independent Variables – Outcome Expectations

Please rate your agreement with the following statement: “I believe that my counseling families will result in actual change regarding ....

- Increasing F&V
- Decreasing sweetened beverage consumption
- Decreasing juice consumption
- Switching to lower fat milk
- Decreasing junk food consumption
- Reducing screen time
- Increasing outdoor activity
- Discuss children’s weight status
Analysis

- **STATA**
- Basic descriptive statistics
- Proportional-Odds-Modeling
  - Outcome variables are ordered and non-normal
  - Greater power than logistic regression
  - Random effect to account for clustering
Results
## Participant Characteristics

**Clinics (N=21)**

**Providers (N=110)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>96</td>
<td>69</td>
</tr>
<tr>
<td>Provider Type/Residency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD/DO</td>
<td>83</td>
<td>75</td>
</tr>
<tr>
<td>Pediatrics/Med-Peds</td>
<td>68</td>
<td>82</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Nurse Practitioner/Physician Assistant</td>
<td>27</td>
<td>24</td>
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</table>
Healthy Eating Counseling Frequency
All of the time

* Single test of proportions (p<0.05)
Physical Activity Counseling Frequency
All of the time

* Single test of proportions (p<0.05)
Healthy Weight Counseling Frequency
All of the time

- Healthy eating
- Physical activity
- Age-specific injury prevention
- Maintaining and achieving a healthy weight
- General behavior problems
- Preschool/school problems

* Single test of proportions (p<0.05)
Providers are confident but have low expectations

<table>
<thead>
<tr>
<th></th>
<th>Self-Efficacy N (%)</th>
<th>Outcome Expectations N (%)</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Weight status</td>
<td>44 (40)</td>
<td>4 (4)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Fruit &amp; vegetables</td>
<td>42 (38)</td>
<td>5 (5)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>SSB</td>
<td>50 (45)</td>
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<td>52 (47)</td>
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<td>52 (47)</td>
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<td>42 (38)</td>
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<td>Behavior problems</td>
<td>16 (15)</td>
<td>4 (4)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Screen time</td>
<td>35 (32)</td>
<td>7 (6)</td>
<td>&lt;0.00001</td>
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<tr>
<td>Outdoor activity</td>
<td>37 (34)</td>
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## Is Self-Efficacy Related to Counseling Frequency (CF)?

<table>
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<th>Self-Efficacy OR (95% CI)</th>
<th>Outcome Expectations OR (95% CI)</th>
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<tr>
<td><strong>Healthy Eating</strong></td>
<td></td>
<td></td>
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<tr>
<td>Healthy weight</td>
<td>2.3 (0.89, 5.8)</td>
<td>1.4 (0.78, 2.7)</td>
</tr>
<tr>
<td>Fruit &amp; vegetables</td>
<td>1.8 (1.0, 3.1)</td>
<td>2.2 (1.3, 3.8)</td>
</tr>
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<td>2.2 (1.1, 4.3)</td>
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<tr>
<td>Juice</td>
<td>2.0 (1.2, 3.4)</td>
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<td>2.5 (1.4, 4.3)</td>
<td>1.7 (1.0, 2.9)</td>
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<td>1.5 (0.9, 2.6)</td>
</tr>
<tr>
<td><strong>Physical Activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>1.8 (1.1, 2.8)</td>
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<td>2.6 (1.7, 3.9)</td>
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### Is Self-Efficacy Associated with CF After Controlling for Outcome Expectations?

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<td>2.2 (0.86, 5.7)</td>
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<td>1.3 (0.74, 2.4)</td>
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<td><strong>Physical Activity</strong></td>
<td></td>
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<tr>
<td>Screen time</td>
<td>1.7 (0.99, 2.8)</td>
<td>1.2 (0.71, 2.0)</td>
</tr>
<tr>
<td>Outdoor activity</td>
<td>2.4 (1.5, 3.7)</td>
<td>1.3 (0.73, 2.4)</td>
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Discussion
Main Points

- Providers are confident in their counseling skills but do not have high expectations.
- Self-efficacy and outcome expectations were associated with counseling frequency for dietary and exercise behaviors but not counseling about healthy weight.
Strength & Limitations

- Modeled the relationship of provider attitudes and beliefs with behavior
- Providers from clinics participating in an obesity prevention intervention
- Sample limited to mainly pediatricians
- Counseling frequency was self-report
Summary & Discussion

- Contributes to the emerging research on pediatric overweight and obesity prevention and assessment in primary care practices
- Future research could target provider outcome expectations in addition to self-efficacy
- May help the development of other interventions to train providers in the prevention, assessment, and treatment of childhood obesity
Questions?

Funded by NICHD

Acknowledgements: Ziya Gizlice, Larry Johnson, Lisa Pullen Davis, Maihan Vu, Cecelia Gonzales

Contact: lowenste@email.unc.edu
References


References


## Psychometric Testing of Scales
*(Self-efficacy, Outcome Expectations, Counseling Frequency)*

- Cronbach’s alpha was calculated
  - Items were equally weighted

<table>
<thead>
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<th></th>
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<th>Nutrition</th>
<th>Physical Activity</th>
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<tr>
<td>Self-Efficacy</td>
<td>0.9334</td>
<td>0.9519</td>
<td>0.7785</td>
</tr>
<tr>
<td>Outcome expectations</td>
<td>0.9414</td>
<td>0.9206</td>
<td>0.8677</td>
</tr>
<tr>
<td>Counseling Frequency</td>
<td>0.8524</td>
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<td>NA</td>
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