Memphis Behavioral Risk Factor Survey, 2005
The Children’s Component

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I. INTRODUCTION

Obesity is a major public health problem with associated health care costs estimated to be in excess of $98 billion\(^1\) to $129 billion\(^2\) per year. Since the mid-1970s, the incidence of overweight has more than doubled in young children and tripled in older children and adolescents. Current estimates are that approximately 10 percent of U.S. children ages two to five and 16 percent of children ages six through eighteen are overweight.\(^3\) This means that about six million preschoolers and nine million older children are overweight. As a result, pediatricians are seeing and devoting more time treating "adult diseases" like hypertension, abnormal cholesterol, disorders of glucose metabolism, and depression, all of which have been explicitly linked to obesity.

The increase in type II diabetes (formerly known as adult onset diabetes) in children and adolescents is a striking example of the problem. Prior to the 1990s, it was rare for even pediatric diabetes specialists to have patients with type II diabetes. However by 1994, type II patients represented up to 16% of new cases of diabetes, and by 1999, some urban areas had new case rates as high as 45%.\(^4\) Memphis represents one such urban area. At the University of Tennessee Pediatric Diabetes Center, the diagnosis of type II diabetes increased from four children and adolescents in 1990 to forty in 2002.

While there may be many factors that contribute to childhood overweight and obesity, weight gain occurs when energy balance, the relationship between energy input (calories from food intake) and energy output (metabolism, growth, and physical activity), favors energy input. Simply put, children gain weight when they take in more calories than they use. Increases in fruit juices, sweetened beverages, fast foods and snacks like chips and cookies have been implicated as some of reasons our children’s energy balance now favors the input side of the equation. Add to that lack of physical activity and increases in sedentary behaviors, and it becomes easy to see how the scales get tipped in favor of weight gain. For most children, eating and activity patterns are established early, affecting them not only while they are young but often throughout their entire lives. Therefore, it is imperative that children and their families become aware of the consequences of less than optimal choices and learn to match food intake with energy expenditure.

In an effort to assist our community to have reliable information about nutritional, physical activity and sedentary behaviors that impact our children’s health, the 2005 Memphis and Shelby County Behavioral Risk Factor Survey included a series of questions directed at the behaviors of children ages birth to 10 years. It is our hope that the information provided by this survey will raise public awareness about the need and opportunities our community has to promote healthier lifestyles in our children.
II. SURVEY METHODS AND PARTICIPANTS

The Memphis and Shelby County Behavioral Risk Factor Survey (Memphis BRFS) is a joint project of the University of Memphis and University of Tennessee Health Science Center. The first survey, performed in 2004, used a modified version of the National Institutes of Health Behavioral Risk Factors Surveillance Survey (BRFSS).* The survey was repeated in 2005 with the addition of questions directed to respondents about children living in that home who were less than 10 years of age. The Mid-South Social Survey Program at the University of Memphis collected the data. A random-digit-dialing sample was used to contact 1062 people in Memphis and Shelby County for an interview between May 11, 2005 and May 17, 2005. For the adult sample, estimated sampling error is expected at the 95 percent confidence interval to be accurate plus or minus 3 percent. For information about the children, results are expected to be accurate plus or minus 4 or 7 percent depending upon the distribution in the sample.

Information about the nutritional and physical activity habits of 222 children less than 10 years of age was obtained from respondents. Almost 60% of the children in participating families were reported to be African American, and 54% were reported to be male.

*Links to the 2004 Memphis and Shelby County Behavioral Risk Factor Survey found at http://msss.memphis.edu/ or at http://www.healthymemphis.org/Reports.138.0.html
BMI calculated from weight and height from respondents revealed 50% of children to be in the “at risk” or “overweight” category as defined by the CDC growth charts for BMI for age and gender.

<table>
<thead>
<tr>
<th>Children's &quot;BMI&quot; Percentile</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>41.9</td>
</tr>
<tr>
<td>At risk for overweight</td>
<td>9.3</td>
</tr>
<tr>
<td>Normal weight</td>
<td>31.4</td>
</tr>
<tr>
<td>Underweight</td>
<td>17.4</td>
</tr>
</tbody>
</table>

### III. NUTRITION

#### A. BREASTFEEDING – In addition to many other proven benefits, multiple studies suggest breastfed babies tend to grow up leaner.\(^5\text{--}^8\)

- In Shelby County, the breastfeeding rate in children of respondents was 63%.
- This is similar to the breastfeeding initiation rates reported by the CDC for the State of Tennessee and Shelby County but is substantially lower than breastfeeding initiation rates in many regions of the country.
- These results are similar to the breastfeeding continuation rates reported by the CDC for the State of Tennessee and Shelby County but are substantially lower than breastfeeding continuation rates in many regions of the country.

- Less than 50% of respondents reported their infants were still being breastfed at 6 months of age as encouraged by the American Academy of Pediatrics and Healthy People 2010.

- Healthy People 2010 includes three objectives concerning breastfeeding:\(^9\)
  - 75% of mothers initiating breastfeeding
  - 50% of mothers breastfeeding their children at 6 months of age
  - 25% of mothers breastfeeding their children at 12 months of age
B. SOFT DRINKS AND JUICE CONSUMPTION – Research suggests that overdrinking of sweetened beverages is one of the main contributors to the epidemic of childhood obesity.\textsuperscript{10}

- Many children in Shelby County drink soft drinks and/or fruit juice on a daily basis.
- Parents should limit consumption of sweetened beverages. (Although fruit juices are marketed as healthy alternatives to soda, they are still high in calories and should be limited and may be diluted with water).
C. FAST FOOD AND “JUNK FOOD” – Fast food and “junk food” tend to be high in fat, high in calories and low in fiber, which leads to weight gain.

![Chart showing how often children have junk food]

- Approximately one-third of respondents report their child ate fast food or junk food at least once a day.
- The U.S. Department of Agriculture’s Continuing Survey of Food Intake shows that even preschoolers now eat significantly more saturated fat (and sweetened beverages) compared to the first survey in 1977.\(^1\)

D. TV DINNERS - children who become accustomed to eating while watching TV tend to eat more.\(^2\)

![Chart showing how often children watch TV while eating]

- While almost 2 out of 3 respondents reported their children do not watch TV while eating, over 15% reported this behavior more than 4 times per week.
- Studies suggest eating while watching TV is linked to childhood obesity\(^3,\ 4\)
- Children who eat while watching TV may become less sensitive to internal cues that signal hunger and fullness.\(^4,\ 5\)
IV. PHYSICAL ACTIVITY

A. PLAYING OUTSIDE – Research indicates that for children of all ages, even toddlers, outdoor playtime is highly correlated with being physically active.\textsuperscript{16-18}

![Bar chart showing time playing outside during weekend days (in nice weather)]

- None: 12%
- < 1 hour: 9.6%
- 1-2 hours: 30.6%
- 3-4 hours: 25.6%
- ≥ 5 hours: 22.3%

![Bar chart showing time playing outside during weekdays (in nice weather)]

- None: 13.9%
- < 1 hour: 23.2%
- 1-2 hours: 44%
- 3-4 hours: 15.6%
- ≥ 5 hours: 3.3%

- Survey responses suggest many children of respondents may not get the recommended amount of physical activity.
- The National Association for Sport and Physical Education and The American Academy of Pediatrics recommend that children participate in at least 60 minutes of moderate to vigorous physical activity a day.
- Despite popular belief, many young children do not get adequate physical activity. Reilly et al. reported that three-year-olds averaged only 20 minutes of moderate to vigorous physical activity a day, as assessed by accelerometry, compared to the desired 60 minutes.\textsuperscript{19}
B. Safety – Parents who feel their neighborhood is unsafe may be less likely to encourage their children to play outside.

![Perceived safety for child to play outdoors](image)

- Almost 50% of those surveyed felt it was not safe for their child to play outside without supervision.
- In unsafe neighborhoods parents may need to find alternative sites for play such as the YMCA or community center where structured activities are safe.
- In extreme weather conditions parents can promote activities other than TV viewing such as hide and seek, children’s board games, dancing to music or preparing healthy snacks together.

C. HEALTH PROVIDER COUNSELING ABOUT PHYSICAL ACTIVITY – Although research on the effectiveness of counseling children and their caregivers about obesity prevention is limited, the Institute of Medicine Committee on Prevention of Obesity in Childhood and Youth advocates routine counseling.  

![Physical activity counseling in past year](image)
• Most respondents did not perceive that they were frequently counseled about the amount of physical activity appropriate for their child.

• In a study of over 800 U. S. general pediatricians, almost all pediatricians reported counseling patients on nutrition and exercise at least some of the time, and 50% report they always address weight and counsel their patients about nutrition and exercise. Most, however, found it more difficult to fit in instruction about balancing energy intake with expenditure.21

D. SCREEN TIME – Screen time can impact a child’s weight by displacing play and physical activity and by its association with increased food and caloric intake that often accompanies television viewing22

<table>
<thead>
<tr>
<th>Screen time (TV and videos, or computer or video games) on weekday</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 hour</td>
<td>24.7</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>36.8</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>18.1</td>
</tr>
<tr>
<td>≥ 5 hours</td>
<td>7.3</td>
</tr>
<tr>
<td>None</td>
<td>13.1</td>
</tr>
</tbody>
</table>

• Over one-fourth of survey respondents reported that their children have more than 3 hours of screen time on weekdays. That number increased to over 40% for weekend days.

• 32% of 2- to 7-year-olds and 65% of 8- to 18-year-olds have a TV in their bedrooms23.
• A recently published study suggests that, in 3- to 7-year-olds, decreased physical activity and increased television viewing have a stronger relationship than diet to the children's weight.²⁴

![Screen time (TV, videos, computer or video games) Weekend days](chart)

- **Percentage**
  - < 1 hour: 12.5%
  - 1-2 hours: 29.6%
  - 3-4 hours: 26.9%
  - ≥ 5 hours: 16.9%
  - None: 14.1%

• The American Academy of Pediatrics has recommended that televisions not be placed in children’s bedrooms and urges parents to limit their children’s viewing time to no more than one to two hours of quality programming per day. It also recommends that television viewing among children younger than 2 years be discouraged altogether.²⁵

• Even brief exposure to television food commercials has been shown to influence preschool children’s food preferences.²⁶ This is particularly alarming since the foods most advertised are high in sugar and fat content (e.g. snacks, prepared convenience foods, and soft drinks).²⁷, ²⁸
E. HEALTH PROVIDER COUNSELING ABOUT SCREEN TIME – Although research on the effectiveness of counseling children and their caregivers about obesity prevention is limited, the Institute of Medicine Committee on Prevention of Obesity in Childhood and Youth advocates routine counseling.\textsuperscript{20}

<table>
<thead>
<tr>
<th>Screen time (TV, videos, computer or video games) counseling in the past year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 4 times</td>
<td>0.9</td>
</tr>
<tr>
<td>2-3 times</td>
<td>1.9</td>
</tr>
<tr>
<td>One time</td>
<td>7.6</td>
</tr>
<tr>
<td>Never</td>
<td>89.6</td>
</tr>
</tbody>
</table>

- Most respondents did not perceive that they were frequently counseled about the amount of screen time appropriate for their child. In fact, almost 90% report never being counseled about screen time in the past year.

- Because television viewing is strongly linked to child obesity and can negatively impact children's behavioral and cognitive development, pediatricians have been urged to counsel all families about limiting their children's television time.\textsuperscript{25, 29}
IV. CONCLUSIONS

The children’s component of the 2005 Memphis Behavioral Risk Factor Survey provides an opportunity to look at behaviors related to obesity and overweight in Memphis and Shelby County children. Almost all of these behaviors affect not only childhood overweight and obesity, but other aspects of child health as well. This study identified several major areas for improvement that could not only decrease overweight and obesity but also improve the overall health and well-being of the children in our community. They include:

- Increasing breastfeeding rates and the length of breastfeeding once it is initiated.
- Decreasing sweetened beverages (including juices).
- Decreasing “screen time” (especially television time).
- Turning off the television during meals.
- Increasing physical activity, especially outdoor play.
- Providing safe places for children to play outside.
- Increasing health provider counseling regarding physical activity and television (screen) time for children.
References


