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Improving Adolescent Nutrition: Using Smartphone Applications to Guide Healthy Eating

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Improving Adolescent Nutrition:
Using Smartphone Applications to Guide Healthy Eating

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Family Medicine Clerkship 2017
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Problem Identification (1)

- Body Mass Index (BMI) is used to calculate overweight and obesity. In children, this is measured against percentiles matched for sex and age.\[5\]
  - Overweight is defined as 85th – 95th percentile
  - Obese is defined as > 95th percentile\[5\]

- Among high school students in the United States, 13.9% are overweight and 16% are obese.\[7\]

- In Vermont, 12.4% of high school students are obese.\[9\]

- Among Vermont children ages 2-19, 13.3% are overweight and 11.3% are obese.\[4\]

- Childhood overweight and obesity have been linked to consumption of sugar sweetened beverages, high calorie foods, and low activity levels.\[2\]
Percentage of high school students who had obesity, 2015.
Centers for Disease Control and Prevention[3]
Public Health Costs

- Obesity contributes to many health conditions including hypertension, diabetes, arthritis, and low self esteem.\(^2\)

- Economic effects of childhood obesity are direct and indirect.
  - Direct costs, including medications, emergency room visits, and outpatient appointments total an estimated $14.1 billion per year. Costs for inpatient medicine total an additional $237.6 million.\(^1,8\)
  - About half of obese school-aged children will struggle with obesity as adults. Indirect costs associated with decreased employment, job absenteeism, and decreased productivity total $506 per obese adult worker per year.\(^1,8\)

- According to the Duke Global Health Institute, childhood obesity is associated with an additional $19,000 in health care associated costs over the lifetime.\(^6\)
Community Perspective (1)

Dr. Erica Gibson, MD (Adolescent Medicine Specialist)

- Interview highlights:
  - Childhood and adolescent obesity is a significant public health concern
  - Often finds that kids and teens do not really know what healthy eating means
  - Important concepts: portion control, understanding carbs and proteins, healthy fats, hidden sugars
  - It is often helpful for adolescents to track what they are eating
  - It would be interesting to see what smartphone apps are available that might appeal to adolescents since teens frequently use their phones.
“Portion sizes are way out of control and this is perpetuated by advertisements for food and drink.

Often [students] don’t eat any food but will have a very caffeine rich drink... Those drinks are also often loaded with sugar.

Most of my students will say they didn’t have time to eat. We try to brainstorm fast, healthy snacks they should keep on hand so they can grab it ‘on the go’.

Students are less physically active than in the past and all this is contributing to the health issues that used to come on perhaps in middle age, i.e. high blood pressure, high cholesterol, type 2 diabetes, to name a few.”
Intervention & Methodology (1)

- After speaking with health care providers in the community, I created a list of important nutrition topics for teens, including:
  - Macronutrient Intake
  - Added Sugar
  - Portion Control
  - Calorie Consumption
  - Exercise

- Researched iPhone and Android applications (apps) that addressed these issues
  - Informally surveyed providers about favorite apps to use with patients
  - Completed Internet search for apps created by nutritionists and physicians
  - Downloaded and personally trialed several apps
Intervention & Methodology (2)

- Other criteria for choosing apps:
  - Should not have a dominant focus on weight loss, but should focus on healthy eating habits
  - Visually appealing
  - Free to download
  - Easy to use

- Created a handout for patients highlighting the selected smartphone apps
- Solicited feedback from providers regarding layout and app selection
Results

- The patient handout introduces the following apps:
  - Fooducate
  - MyFitnessPal
  - Sugar Rush
  - Kurbo
  - Waterlogged
Evaluation of Effectiveness & Limitations

Effectiveness:

• Faculty mentor pleased with final product.
• It is difficult to evaluate the effectiveness of the handout without surveying patients – see considerations for future intervention.

Limitations:

• No satisfactory app found for providing visual representations of appropriate portion sizes
• Patients often receive extensive paperwork at the end of their visit; an additional handout may overload patients with printed information
• There was no budget associated with this project, which limits access to color printing. Handout is less visually appealing in black and white.
• Handout is not available in PRISM, making it less readily available for providers to give to patients.
Future Interventions

• Create PRISM SmartPhrase to easily insert handout into patient instruction sheet, which can be printed at the end of an office visit.

• Survey adolescent patients and their parents regarding the information provided on the handout.

• Collaborate with local schools to schedule a nutrition education presentation or healthy cooking classes.

• Create a new smartphone app which incorporates a greater number of nutrition topics, allowing for fewer downloads.
References


