

# Healthy Me: A retrospective review of a pediatric resident-run clinic for children with overweight or obesity

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## Abstract

Using motivational interview techniques, we aimed to encourage families to make healthy lifestyle choices with the goal of a decreased child's body mass index percentile for age over time. Methods: We designated one afternoon each week to a special clinic focused on healthy lifestyle habits. Parents were referred to our clinic from private pediatricians in the area. During the initial visit which included the parent, the child and the resident, plus or minus a nutritionist or a family and marriage therapist, we focused discussion on assessment of current lifestyle habits and then on goal setting regarding lifestyle, exercise and diet. Patients and their families were seen every 1-3 months. During subsequent visits we focused discussion on reassessment of previously stated goals. Results: Over one half of our patients achieved a lower or steady body mass index percentile for age compared to their starting percentile. Simple and effective techniques can be incorporated into every pediatric visit to help educate and encourage families with a child with overweight or obesity.

**Keywords:** sleep apnea, cardiovascular disease, fatty liver disease, gall stones, diabetes, skin conditions, orthopedic problems

## Introduction

Childhood obesity is a serious health threat because it is associated with many serious medical conditions including sleep apnea, cardiovascular disease, fatty liver disease, gall stones, diabetes, skin conditions, orthopedic problems and others [1]. Childhood obesity is also a threat to psychological health as it leads to emotional problems [1]. The American Academy of Pediatrics (AAP) Periodicity Schedule recommends that providers who see children for Preventative Pediatric Health Care document a Body Mass Index (BMI) starting at the age of two [2]. The AAP recommendations regarding the prevention of child and adolescent overweight and obesity are designed with the hope that by identifying elevated BMI and unhealthy eating or poor physical activity habits, providers can lower the risk of these children becoming obese adults [2]. The BMI is plotted against age-matched peers to note a percentile. The Centers for Disease Control defines obesity for children as

having a body mass index that is equal to or greater than 95 % of age and sex-matched controls [3]. Overweight is defined as having an age and sex matched BMI percentile less than the 95th percentile but greater than the 85th percentile [3]. Currently approximately 1 in 3 US children meet criteria for being overweight or obese [4]. Pediatric Obesity is increasing in severity and prevalence across the United States [3]. Even in the preschool years many children are already found to have obesity, but the problem increases in prevalence with increasing ages of children [3]. Morbid obesity, defined as having a BMI greater than or equal to 140 % of the 95th percentile [3], is the fastest-growing subcategory and is linked to severe health risks in adulthood [5]. In addition, the 2012 Institute of Medicine report "Accelerating Progress in Obesity Prevention" sites primary care providers with the task of preventing Obesity. We approached our project with the idea that perhaps if interventions to shape healthy habits are applied early enough in a child's life the disease of obesity can be altered in a positive direction, away from Morbid Obesity, a

prevention rather than a cure. If this change were possible, it would save significant healthcare costs over the course of the child's life [6].

### Methods

Born perhaps out of necessity, in 2013 we initiated our "Healthy Me Clinic." We, the providers of a resident run clinic, welcomed children as young as 3 and as old as 18 into our obesity intervention clinic, called the Healthy Me Clinic. Residents and Attending physicians followed these children for an average of 2.6 years. In this clinic paediatric residents saw patients specifically to address their overweight or obesity according to their BMI measured as part of routine surveillance for all patients, regardless of Chief Complaint, in our hospital-owned paediatric office. We established a yearly training program for residents and attending providers in obesity statistics, obesity prevention, obesity and weight loss management and motivational interviewing techniques in 2013. Any child, between the ages of 3 and 18, identified at any visit to have a BMI percentile greater than the 95th percentile was offered the opportunity to return for a visit in our Healthy Me Clinic. Each child included in our data was seen at least once for an "initial Healthy Me Clinic" visit where an initial BMI percentile was obtained. Each child was also seen at least one more time following that initial Healthy Me Clinic visit where a final BMI percentile was obtained to compare to the initial BMI percentile. Data collection was complete in December 2019. During the initial Healthy Me visit, the lifestyle choices of the family were assessed with 5 standardized questions, one in each of 5 areas of intervention, using a 5-point scale where unhealthy lifestyle choices were on the left (lower numbers) and healthy lifestyle choices were on the right (higher numbers). The child was then asked to choose one of the 5 areas to move one step toward the "healthy" position. As an example, choices included eating more fresh fruits and vegetables, eating out less or increasing exercise. Using motivational interviewing techniques, the child was asked to make one, and only one, change over the next 1-3 months and then to return for a follow up visit after that amount of time. Each child was encouraged to continue with this pattern of meeting with the provider every 1-3 months until their BMI percentile dropped below the 85th percentile for age. During each visit the provider used a developmentally appropriate approach to assess the child's willingness to make changes. Considering the family dynamics, the provider then recounted the

decisions made by the child and the family. We chose to call the clinic, Health Me, to remove any stigma associated with obesity and to focus on healthy lifestyle choices rather than weight loss. Teaching healthy lifestyle choices was our goal. There is plenty of research in the area of childhood obesity and perhaps this very fact testifies that no solution is apparent. Many interventions, be it prevention or treatment of childhood obesity, have shown positive advances but often the follow-up study indicates that these advances were not sustained over time [7,8,9]. Several of the hundreds of studies surrounding the prevention of or intervention for childhood obesity use motivational interviewing and when placed in a systematic review process the outcome is often positive [12]. Our results are consistent with these previous studies. A little over 2/3 of our patients, who were initially seen in this Healthy Me Clinic returned for a subsequent visit with us. If they returned one or multiple times the most recent BMI percentile was collected in 2018 or 2019 as the "final BMI." The time between the initial visit and final BMI ranges from 2 months to 5 years but averages at 2.6 years.

Children were seen as many times and as often as they attended the office. Many subsequent visits were incorporated into other routine visits once a child was identified as a "Healthy Me," patient. It is likely that participation in the Healthy Me clinic as a provider changes that provider practice as it pertains to dealing with childhood obesity-identified inpatients presenting for any complaint even outside of the Healthy Me clinic. This phenomenon is evident in that we have now moved to seeing patients for "Healthy Me" visits all 5 days of the week and any provider with a history of working in the Healthy Me clinic is eligible for this assignment of patients.

### Results and Discussion

A total of 304 patients attended at least one visit in the Health Me Clinic over the 6 years from 2013 to 2019. Of the total patients, 55.3 percent or 167 self-identified as female. Of the total patients, 69.9 percent self-identified as black, 17.9 percent self-identified as Hispanic, 11.6 percent self-identified as white and 0.3 percent as Asian. Age categories were determined by "age at 1st visit," with the mean age at 1st visit being 11 years of age. The average initial BMI percentile was 98.4 %. The average final BMI percentile was 97.6 %. Approximately 2/3 of our patients initially seen in the

Healthy Me clinic returned for a subsequent visit before December 2019. Of those who returned within the 6-year period for any visit where a BMI was evaluated, 2/3 had a similar or improved BMI percentile at most recent follow up. See table 1 and figure 1. This result seems to be consistent across all age groups. See table 2 and figures 2-5. As expected, the largest percentage of patients with BMI percentile improvement was seen in the youngest age group (n = 44) at 73 percent of patients remaining at or below their original BMI percentile at most recent follow-up. See table 2 and Figure 2. The smallest percent of patients showing improvement was seen in the ages of 7-11 (N = 95) at 50%. See table 2 and figure 3. A similar percentage of patients who stayed the same or dropped in BMI percentile was seen in the 12-15 and the 16-18 age groups (N = 99 and 40 respectively) which was 61% and 65% respectively. See table 2 and figures 4 and 5. Our "lost to follow-up" rate was about 1/3 of our patients. One could ask why we had so many persons not return for a second visit. The failure to return could be due to weight gain since the initial visit. Or it is also possible that the patient had such success that the family no longer felt the need to seek help. If we assume that all the patients who failed to return for a 2nd visit gained weight and thus had a higher BMI percentile for age, our results would be about 40% having lost or remained the same. Statistical analysis indicates that any differences found based on gender or race were not significant. Other variables measured such as how many total visits the patient attended were also not significant.

Table 1: Total Patients

	Number of patients	Percent of patients
Total Patients	278	100%
Lower BMI %	165	59%
No change	7	3%
Higher BMI %	106	38%

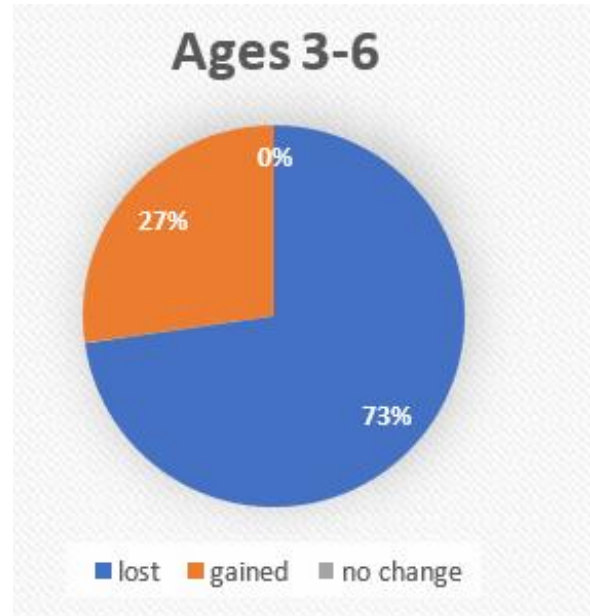


Fig 2:

Table 2: Age Brackets

	Number of patients	Percent of patients
Age Bracket	Age Bracket totals	Age Bracket Percent
<b>Ages 3-6</b>	44	100%
Lower BMI %	32	73%
No change	0	0%
Higher BMI %	12	27%
<b>Ages 7-11</b>	95	100%
Lower BMI %	47	50%
No change	3	3%
Higher BMI %	45	47%
<b>Ages 12-15</b>	99	100%
Lower BMI %	60	61%
No change	3	3%
Higher BMI %	36	36%
<b>Ages 16-18</b>	40	100%
Lower BMI %	26	65%
No change	1	3%
Higher BMI %	13	32%

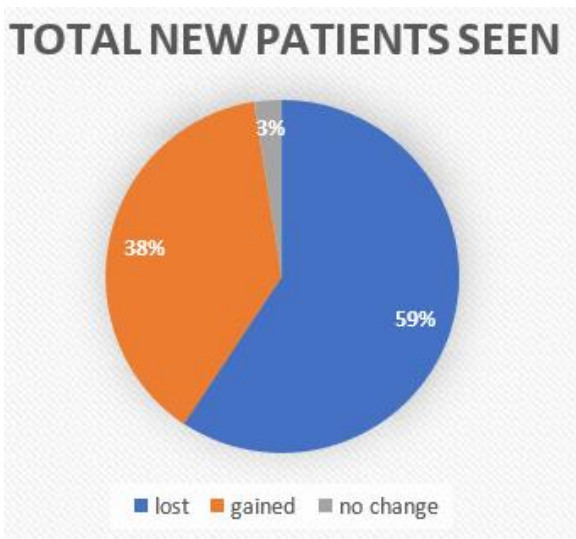


Fig 1:

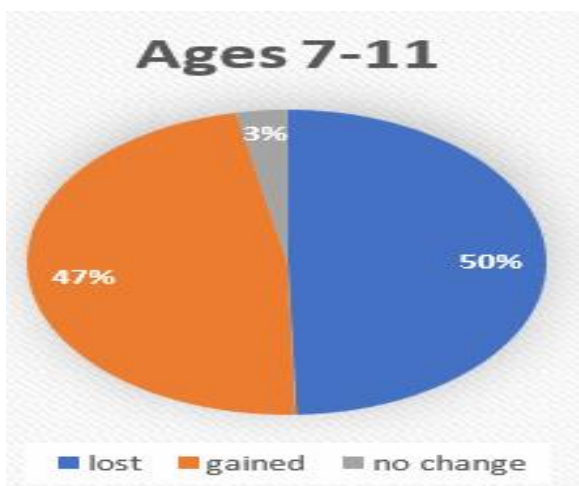


Fig 3:

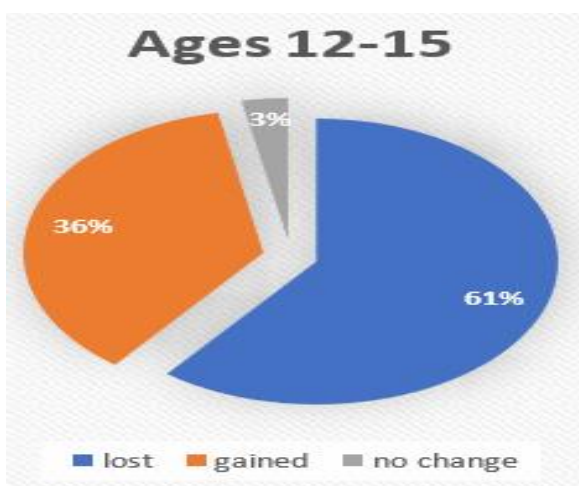


Fig 4:

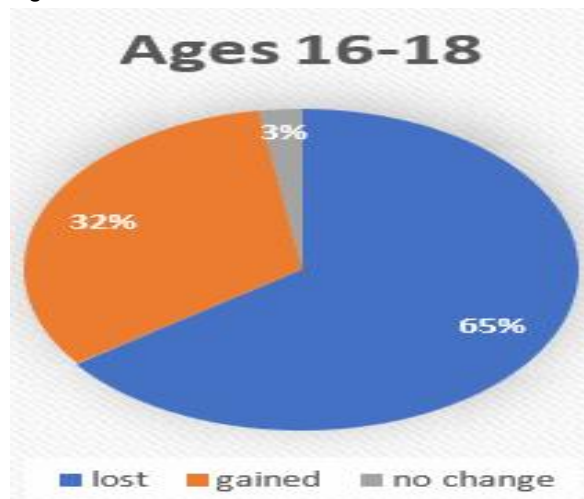


Fig 5:

### Conclusion

“An ounce of prevention is worth a pound of cure,” famously stated by Benjamin Franklin in the 1700’s surely applies to the disease of obesity. Not only is adult obesity prevention a public health priority, it is also a crucial component of pediatric care.<sup>11</sup> Our study shows that it is possible to achieve success in pediatric patients with

simple methods. Our methods included talking about body mass index at an early age and requesting that patients or their parents who are willing to change, choose their own strategy to address the obesity or overweight issue. Our clinic was designed by a resident and lead by residents who had been specifically trained in motivational interviewing techniques as well as in recognizing obesity related issues. We

believe that some training is needed to achieve success. Providers involved in our HealthyMe clinic were encouraged by our findings but discouraged by the number of dropouts. Even if we count all the patients who failed to return for a 2nd visit with those who gained weight, or increased their BMI percentile, the success rate is still encouraging enough to continue our efforts. Further study is needed to determine if the success in childhood continues into adulthood. Repeatedly, weight loss attempts for adults have failed and often lead to worsening of the obesity. Is it an education problem? Is it a motivation problem? Or is it a problem of habits established at a young age, carried into adulthood, leading to a dependency on an abundance of calories. Every pediatrician wants to help their patients achieve a happy, healthy body to take into adulthood.

Perhaps by discussing lifestyle habits early in a child’s life we can call attention to the bad habits and introduce good habits that will carry them into a healthy adulthood.

Further study is also needed to determine what factors including presenting lifestyles or lifestyle modifications chosen by the patients and their families affected greater BMI percentile improvement. Comparative studies in our clinic will be difficult because every provider that has worked in the Healthy Me clinic has incorporated these methods into their routine practice and it would be very difficult to find a group of patients attending our clinic who has not been touched by our techniques.

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