

Role of Primary care interventions in the management of childhood obesity

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Received: December 2023. Accepted: January 2024; Published: February 1, 2024.

Citation: Mohammed Faiz uddin Anwar, Khalil Ahmad. Role of Primary care interventions in the management of childhood obesity. World Family Medicine. February 2024; 22(2): 75-79 DOI: 10.5742/MEWFM.2024.95257026

Abstract

Childhood obesity has emerged as one of the most significant public health challenges over the past few decades. It has widespread consequences for an individual's physical and psychological health, both in the short and long term. With multifactorial causative influences linked to an obesogenic environment, childhood obesity continues to increase worldwide, despite clinical and public health efforts. The public health burden is challenging and requires a wider collaborative framework to effectively deliver child and family centered care.

Primary care providers, through frequent and early contact opportunities, are uniquely positioned to identify and engage those identified as being at risk of or suffering from childhood obesity. Proactive screening using relevant parameters such as BMI, early interventions with sensitive counselling, and individualized goal setting of nutritional and physical activity target behaviors can help significantly reduce the long-term individual and public health burden of the epidemic. There is a need for primary care providers to continue to recognize and rise to this challenge. This will involve physicians overcoming biases and upskilling their knowledge, motivational counselling and communication skills while providing goalsetting aimed at adopting healthy behaviors in the child and their families.

Keywords: childhood obesity, primary care, interventions, management

Epidemiology of Childhood Obesity

The epidemiological burden of obesity in childhood is considered an epidemic requiring urgent action in both the developed and developing nations (1). Data estimates from the United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and the World Bank and Institute for Health Metrics and Evaluation (IHME) shows a dramatic increase in childhood obesity. UNICEF estimates that 40 million children or 6% of those aged under 5 and 340 million or 18% of those aged 5-19 years are overweight or obese (2). The growth appears to be most rapid in the low to middle income countries (1). A detailed analysis of national data in England estimates the prevalence of obesity in 11-15 year olds has risen from 30% in 1995 to 38% in 2019 (3). Globally, the key drivers of this burden are recognized as an obesogenic environment, changing food systems and reduced physical activity (1).

Health Consequences

Childhood obesity has a strong correlation with increased risk of adult obesity, heart disease, Type 2 diabetes, hypertension, hyperlipidemia, liver and kidney disease and reproductive dysfunction as adults (4,5). It is also associated with certain types of cancers, depression in youth and social problems (5).

Key contributing factors

Only 10% of obesity is estimated to be associated with genetic and hormonal causes while over 90% is idiopathic(5). We have outlined above how an obesogenic environment, changing food systems and reduced physical activity are the key drivers globally (1). Within communities differences in deprivation, gender, family structure, ethnicity and parental education are drivers of deepening inequality gaps and consequently obesity (3).

Almost all obesity in children is related to environmental factors, such as a sedentary lifestyle or a high-calorie diet. Modern life has created a complex system of interacting and perpetuating factors that contribute to the rapid rise in childhood obesity. There is a greater imbalance between energy intake and expenditure. Energy-dense, high-glycemic indexed, low-nutrient foods and beverages are more affordable and accessible. These dietary factors, with drastic increases in portion sizes, frequent snacking on high-calorie foods, consumption of fast food, and sugary beverages, contribute to excessive calorie intake and food gain. Lifestyles are increasingly sedentary and significantly associated with obesity. Increased sedentary time implies less time spent on physical activity. A considerable contributor to this was recreational screen time exposure. Parental, familial, and socioeconomic factors are also associated with an increase in childhood obesity. Genetic susceptibility, as indicated by some studies, can account for BMI heritability of 25-40%. However genetic factors account for less than 5% of childhood obesity and need to be coupled with the environmental and behavioral factors (6-8).

The case for Prevention and Early Intervention

There is a recognition for the need for global, national, and local public health initiatives, programs, and policies to address the considerable scale of the childhood obesity epidemic. Pharmacological and surgical options are costly, have complications, and cannot be afforded at scale. Obesity prevention in childhood is better than attempts at cures later in life (9). Multiple lines of evidence suggest interventions during early-mid childhood are more effective than interventions during adolescence (10).

Health Consequences

Healthcare providers can play a major role in identifying and managing childhood obesity. Some factors are clear contributors to greater efficacy in treating childhood obesity, such as a) early intervention, b) longitudinal or ongoing support, c) greater frequency of intervention, d) counselling on both diet and physical activity, and e) family involvement. The primary care setting is optimally placed to address, wholly or partly, all these efficacious factors (10).

Early intervention: How early and for how long?

We have indicated above that early-to mid-childhood interventions are more effective than those during later childhood or adolescence. A holistic care approach would necessitate good perinatal care for the mother, ensuring good nutrition, optimal weight gain, good diabetic control, postpartum weight loss, and exercise. Good perinatal care is consequential to preventing childhood obesity. The family doctor is uniquely positioned to provide and coordinate this. The role extends into infancy, preschool, childhood, and adolescence (9).

Required Characteristics of Family Doctor-Patient Relationship

The family doctor as an individual, or the local team of family doctors, are the physicians most frequently encountered by a patient as a child or an adult. The long-term efficacy of family doctor interventions requires a trusting and non-judgmental relationship. The family physician needs to exercise awareness of the uniqueness of each child and their family and tailor counselling approaches to their specific needs and circumstances. Family physicians need to be able to empower children and their families with the knowledge and skills needed to make positive changes to their own health and well-being. The family physician needs to show a willingness and availability to address this sensitive issue and counsel on childhood obesity without stigmatization and bias (10,11).

Physician self-awareness and learning

In addition to the time pressures within a primary care setting, many providers do not feel that they have the necessary knowledge or tools to address obesity (12,13).

Physicians need to address their knowledge and skill gaps through planned structured learning activities. This could be around soft skills and motivational interviewing, knowledge of local resources, awareness of weight loss programs, and an appreciation of available MDT and secondary care structures.

Motivational interviewing

It has been demonstrated that physicians trained to utilize motivational interviewing techniques are more successful in helping patients change their behaviors. By using nondirective questions and approaching patients on their own terms, they are more successful in developing strategies in identifying concerns, overcoming barriers to healthier lifestyle and effecting behaviors (11,14).

Terminology

'People first' terminology that conveys a sense of a person with a condition rather than a person defined by their condition are better received by patients. In one study, using terms such as 'weight' or 'unhealthy weight' were considered desirable while 'fat' and 'obese' were rated as most undesirable and stigmatizing. Terms like 'overweight' and 'unhealthy weight' were considered most motivating to lose weight (11, 15).

Examining bias and stigmatization

Studies have shown that primary care physicians and providers have an implicit bias towards people with obesity. An underlying belief that obesity is a personal behavior choice or consequence stigmatizes the patient or their family and can have significant unintended consequences like avoiding primary care contact or psychological distress (11). It is important to reflect on this and create self-awareness that allows primary care physicians to minimize or avoid these biases. Unconscious bias training could be an avenue for exploration.

Frameworks for understanding and promoting health behavior changes

Physicians' awareness of health belief model, social cognitive theory, Stages of change model, and theory of planned behavior can help framework their approach to counselling patients and their families (10,14).

Medication

As the global burden of obesity increases, the pressure to manage childhood obesity also increases. Physicians' competency in monitoring, even if not prescribing, pharmacological interventions will be necessary in primary care settings.

Patient screening and Identification

Primary care is often the first point of contact during child developmental assessments or reviews of ailments. These opportunities should be utilized for screening, identifying, and monitoring child growth and the risk of obesity.

Therefore, a systematic approach is required to monitor this phenomenon. Routinely assess for risk of weight gain by:

- Plotting BMI
- Evaluating dietary habits and behaviors
- Evaluating physical activity habits
- Evaluate sleep habits

Growth parameters should be monitored using body mass index (BMI) or growth percentiles specific for age and sex. Routine BMI screening results in improved outcomes and meaningful weight loss (16).

Percentile	Classification
5 th - <85 th	Healthy weight
85 th - 95 th	Overweight
≥ 95 th	Class 1 Obesity
≥ 120% of 95 th (or BMI ≥ 35)	Class 2 Obesity
≥ 140% of 95 th (or BMI ≥ 40)	Class 3 Obesity

Table 1: For youth 2-18 years as adapted by CDC: Centers for Disease Control and Prevention; AAP: American Academy of Pediatrics; IOM: Institute of Medicine; ES: Endocrine Society; IOTF: International Obesity Task Force (8,17)

History taking and assessing risk (17,18)

- Family history: Ethnicity, cardiovascular disease, dyslipidemia, obesity, diabetes, and hypertension
- Assess dietary behaviors: excessive sweetened beverages, low fruit and vegetable consumption, meal habits – fast foods vs home family meals, portion sizes and snacking or missed meal behaviors
- Evaluate sleep duration and quality
- Assess physical activity behaviors including screen time
- Assess attitudes including perception of weight and barriers to change

Monitor blood pressure

Family physicians should refer to Blood Pressure percentile charts for evaluating normal, prehypertension, stage 1, and stage 2 hypertension and correlate this to the appropriate monitoring or interventions as recommended by the guidance on this (19).

Laboratory work-up

Testing for type 2 diabetes is recommended in obesity by the Pediatric Endocrine Society and in cases with relevant family history or gestational history of diabetes. Hba1C alone isn't reliable and a fasting blood glucose or a 2-hour plasma glucose test after the age of 10 or puberty is required (20).

Screening for hyperlipidemia lacks consensus, and the American Academy of Family Physicians (AAFP) recommends against it. However, the American Academy of Pediatrics (AAP) Expert panel recommendations outline laboratory evaluation of obese children starting at 10 years old by obtaining a fasting lipid panel and liver function tests every two years in addition to prediabetes tests (17).

Goal Setting (9, 11, 21)

The simple provision of education on nutrition and physical activity is not sufficient to affect behavioral changes. Evidence shows that goal setting focused on behavior rather than BMI is more efficacious.

Self-logging or self-monitoring of targeted behaviors are important in the behavioral change model for obesity treatment. This helps the family to recognize harmful behaviors and allows clinicians to provide feedback opportunities.

Some of the focus areas of goal setting are as follows.

- Physical activity goals, reducing sedentary time, reducing screen-time activities, encouraging structured sports, and other less structured activities.
- Providing support through information on local resources, parks, and recreational facilities can help with the social prescription of playground time.
- Nutritional goals can utilize a traffic-light diet to support better patient choices and behaviors.
- Weight loss programs such as Let's move 5-2-1-0 are readily available, have been shown to improve healthy habits, and can be implemented as part of primary care interventions.

Referring for further care

Primary care initiation of habit-based lifestyle interventions and counselling can be continued for those in the overweight or obesity class 1 categories who show stabilization or improvement over 6 months. Those who show a steady percentile increase that is not severe can be offered more intensive habit-based lifestyle interventions, increased contact frequency, and support of other weight management services. Those with severe or refractory obesity will need referral for multidisciplinary weight management services or specialist management services with pharmacological or bariatric surgery set-ups (17,21).

Conclusion

Primary care providers, including family physicians and wider teams, play a critical role in meeting the challenges of the growing childhood obesity epidemic. Routine screening and monitoring to identify at risk children, providing early intervention, increased contact time where needed, and counselling or goalsetting according to individual child and family needs are steps which all primary care providers are required to actively think about, engage with and deliver on.

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