

Insight

Addressing Inequities in Dietary Modification for Pediatric Patients with Overweight and Obesity: A Call to Clinicians and Medical Trainees

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Obesity, a chronic disease with high morbidity, is closely linked to structural and societal barriers in communities across the U.S. and around the world. In the U.S., children of Hispanic ethnicity, children who identify as non-Hispanic Black, and those from lower-income households are at disproportionately higher risk for the development of obesity in childhood, which subsequently affects their longevity and quality of life in adulthood. Here, we review some of the structural and social determinants of health that adversely impact marginalized households and communities and, hence, a family's ability to address and prevent obesity. These include health literacy, health care system resources and accessibility, social and neighborhood environmental barriers, and early childhood experiences. In response, we focus on how trainees and practicing physicians can address these disparities in clinical and community practice. Through this review and our own experiences, we provide recommendations for ensuring culturally sensitive, accessible, and feasible dietary recommendations for pediatric patients and their families.

Advocacy Focus and Impact on Health

How this work impacts health: In the U.S., pediatric obesity disproportionately impacts children from lower income families and those who identify as Hispanic or non-Hispanic Black. This is due to systematic and structural factors that include racism. Dietary modification, one of the foundational principles of treatment for overweight and obesity (OWO), is largely inequitable for many families, effectively denying children from marginalized communities the opportunities to overcome weight-related morbidity and mortality and lead healthier lives.

How this paper addresses advocacy/action: We call for physicians and trainees to address barriers to providing culturally sensitive, effective, and equitable dietary modification interventions for pediatric patients with OWO through intensive education and active community engagement.

What this work adds to the field: This perspective from a medical trainee and a pediatric gastroenterologist provides an outline for how medical education curricula for trainees at all levels can be improved and encourages significant provider engagement in community health initiatives to help reduce inequities in OWO treatment and care.

Next steps/needed action(s): Advocacy at every level of medicine, including medical schools, medical boards, and professional medical organizations, is needed to improve OWO education, establish community partnerships, and ultimately enable holistic nutritional guidance and equitable access for all patients.

Obesity is a multifactorial, chronic disease with high morbidity and mortality (Hruby and Hu 2015) and is presently a worldwide pandemic (World Health Organization 2024). Both pediatric overweight (BMI 85th – 95th percentile) and obesity (BMI ≥ 95th percentile) are major public health concerns in the U.S (Lin and Li 2021). It is estimated that around 16.1% of U.S. children aged 2-19 years are overweight, while 19.3% meet the criteria for obesity (Kim et al. 2024; Fryar, Carroll, and Afful 2021). Children from historically marginalized populations have disproportionately higher rates of obesity including 25.8% of children from low-income families, 26.2% of children who identify as Hispanic, and 24.8% of children who identify as non-Hispanic Black ("National Health and Nutrition Examination Survey 2017–March 2020 Prepandemic Data Files, Development of

Files and Prevalence Estimates for Selected Health Outcomes" 2021; Ward et al. 2021).

Standard dietary recommendations for treating pediatric overweight and obesity (OWO) include increasing consumption of fresh produce and whole grain products while limiting intake of sugar-sweetened beverages and processed foods (Yoo 2023). However, implementing these dietary modifications is not always feasible for families most affected by OWO, including those from lower-income households and marginalized communities. Here, we review key individual, environmental, social, and structural level barriers that inhibit families from enacting dietary recommendations to address and prevent pediatric OWO and reflect on ways in which medical professionals at all levels can contribute to and advocate for positive change.

HEALTH LITERACY AND HEALTH CARE SYSTEM RESOURCES

Health literacy, or a person's ability to interpret and make informed medical decisions (Liu et al. 2020), is essential for health management including pediatric OWO. To help patient families achieve the most optimal health outcomes, pediatric providers need to assess family-level health literacy and preferred language and then deliver clear, feasible, and culturally appropriate recommendations. To achieve more appropriate and equitable recommendations and overall care for OWO, pediatricians can work with families to create collaborative diet plans that meet individual needs, preferences, and values while acknowledging cultural customs and traditions that impact dietary choices and patterns (Ardoin et al. 2022). Providers should also look to collaborate with community partners to better understand the strengths of and challenges faced by families and the resources and limitations of the communities they live in, and then work to develop culturally relevant multilingual educational materials.

COST, ACCESSIBILITY, AND ENVIRONMENTAL BARRIERS

Nutrient-rich food options are often unaffordable and inaccessible in lower-income communities (Drewnowski and Darmon 2005) as compared with calorie-dense processed foods such as fats, sweets, and refined grains. For many families who live in these communities, higher costs for healthier food options in addition to the potential for limited meal preparation time and culturally inappropriate dietary recommendations represent structural barriers to dietary modifications.

Many lower-income communities are located within 'food deserts' or areas with limited healthy and high-quality food choices (Key et al. 2023), forcing many families who cannot travel outside of their communities to larger grocery stores to rely on shelf-stable calorie-dense processed food. This structural barrier predisposes residents of food deserts to higher rates of OWO while also reducing their ability to adhere to commonly recommended dietary changes (Ghosh-Dastidar et al. 2014). While these structural and system-level inequities must be addressed through policy change at the local, state, and federal level—and pediatricians can advocate for these changes—medical professionals can also help their patients by promoting local nonprofit food banks and partnering with community organizations to increase the accessibility of nutrient-dense foods, such as through mobile produce units, local farmer's markets, and healthy food prescriptions. Medical providers and community-based service providers can partner to develop local resources that help identify the closest locations where families can purchase healthier foods at the lowest costs, and highlight the most nutritious restaurant, ready-made and fast-food options in their communities.

COVID-19 PANDEMIC

During the COVID-19 pandemic, shelter-in-place orders and online-only schooling led to decreased physical activity and even more reliance on calorie-dense processed foods among school-aged children (Jenssen et al. 2021; Storz 2020) which again disproportionately impacted low-income families and communities (Tester, Rosas, and Leung 2020). Furthermore, because in-person appointments with medical providers were not available for non-emergency issues during the pandemic, families with lower incomes and parental education levels who sought information about dietary modifications were precluded from receiving quality dietary education due to inequitable access to technology like Wi-Fi and Wi-Fi-enabled devices (O'Hara et al. 2023). While the COVID-19 pandemic has ended, there is still a need for policy change focused on expanding technology access and online information about healthy nutrition and lifestyles, which would not only lead to more equitable access to dietary education but enable more families to access telemedicine consultations when needed (Srivastava et al. 2021).

BREASTFEEDING RESOURCES AND SUPPORT

Breastfeeding during infancy has been shown to decrease a child's risk of pediatric OWO (Harder et al. 2005). In studying the mechanisms underlying this process, studies have shown that breastfeeding is associated with a decrease in fat deposition, which can decrease an infant's risk of obesity (Juharji et al. 2022). The American Academy of Pediatrics (AAP), the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) all recommend breastfeeding for at least the first six months of life (Meek, Noble, and Breastfeeding 2022). As it stands, U.S. women who identify as Hispanic or non-Hispanic Black have the lowest rates of breastfeeding and highest rates of supplementation with formula (Chapman and Pérez-Escamilla 2012). The cost of formula for one child for one year in 2020 ranged from \$760 to \$2280 (Mahoney, Taylor, and Forman 2023). While this is still unaffordable for many families, formula costs have been deemed more affordable than breastfeeding education and lactation equipment at the population level (Chapman and Pérez-Escamilla 2012), hence formula feeding has been prioritized for mothers living in low-income households through the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). However, this reliance on formula disproportionately impacts the rates of and benefits from breastfeeding for children in marginalized communities and makes them more vulnerable to formula shortages (Doherty et al. 2022). Ultimately, family income and parent education levels significantly impact the ability to meet the fundamental needs, including housing, food security, flexible work hours, and family support, required for safe and successful breastfeeding (Standish and Parker 2022).

While many of the factors contributing to reduced rates of breastfeeding are difficult to address within the health care system, pediatricians do possess the potential to pre-

emptively address pediatric OWO risk among their patients by advocating for more equitable access to the resources and support needed to breastfeed—especially since breastfeeding is a key recommendation of the major public health groups and known to impact not only a child’s physical development but their mental health. Providers can also pursue patient-level interventions to address inequities in breastfeeding practices such as maternal education classes and support from certified breastfeeding consultants (Vilar-Compte, Pérez-Escamilla, and Ruano 2022), collaborate with local obstetricians and delivering hospitals, and offer families continued support through nutrition education and food access after children start to eat solid foods.

EARLY CHILDHOOD EXPERIENCES

Early childhood experiences have an impact on a child’s dietary habits beyond the availability of nutritious foods. In particular, socioeconomic adversity can lead to feelings of low self-esteem, poor mental health, negative emotions, and stress, all of which can contribute to excessive weight gain (Hemmingsson 2018) often as a result of self-soothing with processed food and binge eating, which are frequently used as coping mechanisms, in addition to a lack of interest in and motivation to engage in physical activity (Hemmingsson 2018). Pediatricians can and should screen all patients for adverse childhood events (ACEs), potentially traumatic events that occur in childhood (0–17 years), and utilize holistic interviewing strategies in order to learn more about the challenges and strengths of their patients and families, and should be particularly aware of ACEs in their patients with OWO. Knowing this information, providers can suggest alternative coping strategies to address stressors and ensure that their patients receive adequate and informed mental health care services.

SOCIAL ENVIRONMENT AND CULTURAL TRADITIONS

Familial and parental cultural food customs can impact both food options and eating practices. In some cultures, children are directed to finish their food even if they stop eating independently (Chatham and Mixer 2020), potentially leading to an inability to identify feelings of satiety and lifelong patterns of overeating. Cultural food choices can also reduce a family’s ability to implement dietary recommendations. One study found that patients who identified as non-Hispanic Black felt it was difficult to follow a Mediterranean diet because the ingredients and cooking methods differed significantly from their cultural practices (Sam-Yellowe 2024). Pediatricians should be able to suggest simple individualized strategies for dietary changes, and can partner with community organizations to offer eating and cooking classes in community settings. Going further, providers should prioritize talking with patient families and consulting with local community leaders to better understand cultural food choices and traditions and how to sensitively and effectively address and include them as part of

a patient’s collaborative dietary plan. In doing so, patients and families can find ways to make feasible adjustments to their diets and still maintain their cultural practices, and providers can help build more trusting respectful relationships with their patient families.

Social support, or supportive behaviors by the people within a person’s social network, also has an important role in lifestyle modification. In a study to evaluate health-related quality of life (HRQOL) for patients with obesity, or their perception of their own well-being with regard to physical health, emotional well-being, and social functioning, researchers found that participants who perceived having a lot of social support had better HRQOL (Herzer et al. 2011). Because dietary changes can be a challenging undertaking, discussions in the clinical setting may not be enough and social support systems may be essential to help patients make modifications. Medical providers making dietary recommendations should prioritize discussions about social support and lifestyle habits, so that the dietary changes they suggest will be feasible and effective. Voluntary group sessions that include members of a patient’s social support system where they can discuss ways to implement successful strategies could potentially improve the feasibility and longevity of dietary changes. Pediatricians can also provide patient families with detailed information about how to involve their social networks in helping them meet their dietary goals.

TRAINEE PERSPECTIVE

The tradition of community collaboration to address systemic and structural barriers is not a new concept; however, the strategy is significantly underutilized. I have witnessed the successful collaboration of my medical school health-care system and the surrounding community working to overcome structural and educational barriers for families from low-income households, many of whom lack the necessary resources to access high quality nutritional foods and cooking education and alternatives and adhere to dietary modification recommendations.

My home institution hosts a popular weekly farmers’ market that increases accessibility and affordability of fresh produce for local families with lower incomes. This is done through partial county funding to double Electronic Benefits Transfer (EBT) dollars, partnerships with community-based vendors to offer fresh produce, Supplemental Nutrition Assistance Program (SNAP) assistance to help people apply for benefits, and multilingual nutritional education pamphlets focused on the benefits of fresh produce consumption.

While programs like the Farmer’s Market Match program help to overcome some barriers to dietary modification for patients with OWO, we still have a long way to go to address the many aforementioned inequities, founded in structural racism and systematic marginalization. The synergy of my community, hospital, and county coming together to support healthy affordable food access, while powerful, relies on the participation of all parties. Without discretionary support from the county, which is susceptible to termina-

tion, a particular concern in the near term, the program could end. Advocacy—through signing petitions and contacting state representatives—to ensure that this program and programs like it can continue is essential and can be done by trainees and medical providers at all levels. Because I know that the dietary recommendations I give to my patients cannot be met without programs like this, advocating for the program’s continuation is advocating for my patients. Another way trainees can take action is to advocate for and seek out opportunities to learn from and partner with community organizations, particularly those that your patients rely on and particularly in relation to healthy eating.

The American Academy of Pediatrics (AAP) does recommend a family-centered, non-stigmatizing weight management approach that includes discussing family perspectives about medical recommendations. Their guidelines state that dietary recommendations should address the social determinants of health (SDH) (Hu, Samuels, and Sharifi 2024) and focus on patient-centered lifestyle modifications, including nutrition changes and physical activity, that work within the context of an individual’s community and social systems (Hampl et al. 2023). They also advise providers to use open-ended questions and person-first language when disclosing a diagnosis (e.g., person with obesity instead of obese person) (Hampl et al. 2023). However, while the AAP framework was developed to improve patient trust in physicians by creating effective and sustainable treatment plans, current medical education does not adequately relay these strategies, forcing medical providers to realize, perhaps too late in their careers, that a single universal approach to dietary recommendations does not work.

Overall, training to care for patients with OWO is not prioritized within the U.S. medical education system. Studies of physicians’ perceptions of providing OWO care found a lack of self-confidence in care administration (Shaikh, Nettiksimmons, and Romano 2011), as well as a lack of culturally tailored multilingual patient education materials (Hill et al. 2019; Andrulis and Brach 2007) and interpreter services, contributing to inequitable discussions of OWO diagnoses and recommendations (Kirk et al. 2022). Medical education curricula should include community-centered instruction. Preclinical classes taught by physicians and local community leaders could provide a more holistic and culturally competent education. For example, the AAP suggests using an interactive, hands-on nutritional curriculum for medical residents that includes online cases and a farmers market visit, which is a structure that could be also adopted to train medical students (Jones and Singer 2023).

Continuation of these efforts in the postgraduate years can occur through mandating regional Continuing Medical Education (CME) programming that reviews local nutrition, lifestyle, and cultural practices. Just as the opioid epidemic led to the legal requirement for medical professionals to have CME training on opioid use disorder, the OWO pandemic should also lead to required CME training that brings closer attention to the barriers that patient families have to navigate just to attempt to follow our recommendations (Davis, Carr, and Stein 2024). Furthermore, medical boards

and professional medical organizations should require community partnership development and regularly invite feedback from community leaders about the current status of care being provided to families with identified inequities.

As trainees, we must advocate within medical education to improve how physicians are trained to manage OWO in their practice, since OWO can affect patients across all medical specialties, and to improve overall medical education requirements regarding nutrition. We also need to advocate for more training on how we can best use our voices to advocate for health policy reform that removes barriers and disproportionate risks. My generation of physicians must lead the development of federal and state health policies to reduce social and structural barriers, and address nutrition and obesity-centered health literacy, healthy food access, early nutritional habits, and breastfeeding support.

PHYSICIAN PERSPECTIVE

Clinicians are taught how to recognize and treat medical pathology. Included within this training is the ability to identify pediatric OWO and make dietary recommendations. However, outside of the classroom and within our clinical practices, a “one size fits all” universal set of recommendations is unrealistic and ineffective. We must move toward precision medicine for all children to provide feasible and culturally appropriate dietary recommendations. Otherwise—how can we expect families to change dietary practices without understanding them? How can we ask for progress without providing families with resources and structural support? How can we make efficacious dietary recommendations if our medical institutions and academic centers do not partner with the communities we serve?

The job of the pediatrician is no longer just the role of medical provider. It is a multifaceted job, combining the roles of clinician, educator, policy maker, advocate, and community member. Caring for children and their families must be holistic in its practice, considering not only the underlying pathology but why and how the pathology developed. Treatment of OWO must focus on every facet of a child’s life. The old adage of “eliminate sugar sweetened beverages and processed foods” is antiquated and ineffective. If we truly want to reduce pediatric OWO, the current and next generations of physicians must implore not only to the health care system but all the systems that impact a child’s ability to be healthy and thrive. It is a challenging and perhaps daunting feat to eliminate health inequities, but the time is now. We implore all clinicians and medical trainees to make an effort to challenge the current system and to engrain yourself within the communities of the patients and families you treat in order to break the cycle of ineffective care—something we can impact, individually and collectively.

WHERE DO WE GO FROM HERE?

A child’s zip code should not dictate their risk of obesity, but right now, it does. We must aggressively advocate for medical education curriculum reform and policy change

to dismantle structural racism and eliminate systemic inequalities. We must work with our patients, families, educators, and community leaders to change the trajectory of pediatric medicine and create environments where our patients—no matter where they live or what their income is—are given equitable access to effective, feasible, and culturally appropriate care. We can choose to provide this kind of care. We can be the ones who make these changes a reality.

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AUTHOR CONTRIBUTIONS

LD and REH conceptualized, drafted, and critically reviewed and revised the manuscript. Both authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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ABBREVIATIONS

OWO, Overweight and obesity
 AAP, American Academy of Pediatrics
 ACEs, adverse childhood experiences
 CDC, Centers for Disease Control and Prevention
 CME, continuing medical education
 HRQOL, health related quality of life
 SDH, social determinants of health
 SNAP, Supplemental Nutrition Assistance Program
 WIC, Special Supplemental Nutrition Program for Women, Infants, and Children
 WHO, World Health Organization

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