

NURTURING DEVELOPMENT - THE ROLE OF PERSONAL PSYCHOLOGY AND FAMILY DYNAMICS IN THE NUTRITIONAL MANAGEMENT OF CHILDHOOD OBESITY

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Abstract. *Obesity during childhood and adolescence is recognized as a major and growing global public health issue (WHO, 2022). Childhood overweight conditions are structurally linked to severe long-term physiological complications. Increasingly, evidence indicates that early-life obesity drastically alters endocrine-metabolic programming, posing significant risks to physiological development and future reproductive health. While traditional methods have predominantly centered on mechanical caloric restrictions or automated digital tracking tools, these approaches often fall short in supporting long-term lifestyle modifications during crucial developmental phases. Obesity rates have tripled since 1975 and have become a global health epidemic, with nearly 60% of adults and one in three children in the European region being affected by being overweight (WHO, 2022).*

To mitigate these severe metabolic and reproductive consequences, sustainable adherence to nutritional interventions is required. This article proposes a human-centric framework comprising the child's individual psychology, direct human therapeutic mediation, and systemic family dynamics as critical supportive tools for achieving this adherence.

This article proposes a human-centric framework that shifts the focus from physical/nutritional management to a relational triad comprising the child's individual psychology, direct human therapeutic mediation, and systemic family

dynamics. Drawing from robust longitudinal and psychological data originally observed in adult bariatric populations where long-term weight regains and high rates of secondary surgical revisions highlight the consequences of neglecting psychosocial and environmental variables (State Comptroller's Office, 2019; Sukran et al., 2017), this model translates critical indicators into proactive strategies.

Utilizing the BariLifestyle personality assessment (BariPA) framework outlines how childhood traits dictate specific emotional eating patterns and behavioral adherence. Furthermore, the framework conceptualizes the family unit as an active, supportive team, essential for sustaining both intrinsic and extrinsic motivation.

By deploying these psychological and relational tools, clinicians can significantly improve nutritional adherence, thereby correcting adverse endocrine-metabolic trajectories and safeguarding future reproductive wellbeing

1. INTRODUCTION

Over the past several decades, obesity has become a global health epidemic, exhibiting dramatic increases in prevalence across all demographics. Current estimates indicate that nearly 60% of adults and one in every three children within the World Health Organization (WHO) European Region are actively affected by overweight and obesity. According to the WHO European Regional Obesity Report 2022, these trajectories are projected to worsen significantly, with childhood obesity expected to increase by an additional 60% over the next decade, driving global medical costs associated with obesity past the shattering threshold of \$1 trillion by the year 2025 (WHO, 2022).

The clinical consequences of early-life obesity extend far beyond cosmetic concerns; childhood and adolescent overweight are structurally linked to severe long-term physiological complications, including type 2 diabetes and early-onset cardiovascular diseases. Crucially, early-life obesity drastically alters endocrine-metabolic programming, posing severe risks to physiological development and threatening future reproductive health. These early-life metabolic disruptions lead to

persistent health challenges in adulthood, severely compromising comprehensive wellbeing—a state of total social, economic, and mental prosperity.

Traditional methodologies addressing children's weight management have historically relied on mechanical frameworks, predominantly focusing on stringent caloric restriction, structured dietary plans, or intense aerobic exercise regimens. In the modern era, this mechanical paradigm has frequently been augmented or replaced by automated digital technologies, such as mobile applications, wearable activity trackers, and artificial intelligence algorithms designed to monitor caloric intake and physical output autonomously. However, empirical literature demonstrates that these non-surgical, isolated treatments routinely yield limited long-term success. Patients are frequently unable to adopt or maintain the necessary lifestyle modifications over extended periods, typically achieving transient weight reductions of only 5% to 10% before experiencing relapse (Sukran et al., 2017).

To understand the persistent limitations of these mechanical and digital interventions, valuable insights can be extracted from the study of adult bariatric populations. Bariatric surgery is widely recognized as the most effective anatomical procedure for inducing rapid weight loss and mitigating obesity-related comorbidities in severe cases. Yet, even after undergoing these profound surgical alterations, long-term postoperative care and lifestyle maintenance remain an immense lifelong challenge. Longitudinal data reveal that more than 60% of post-surgery bariatric patients regain significant weight within four years on average (State Comptroller's Office, 2019).

Furthermore, the rate of repeat revisionary operations is remarkably high in environments where post-surgical holistic care is under-managed. The number of repeat operations in Israel is among the highest in the world, affecting approximately 17% of patients compared to a global average of only 7%. The high rate of weight regain and surgical failure in adults has been structurally linked by researchers to a systemic neglect of pre- and post-operative psychological care, behavioral tracking, and socio-environmental support mechanisms (State Comptroller's Office, 2019). When weight loss is treated as a purely physical or clinical metric, the underlying

cognitive, emotional, and relational habits remain unaddressed, inevitably leading to behavioral relapse (Sukran et al., 2017).

This phenomenon underscores an urgent lesson for childhood care: if severe physiological and structural interventions fail in adults without robust psychosocial support, then purely mechanical or automated digital interventions in children are fundamentally ill-equipped to succeed. Children and adolescents reside within a highly fluid, critical stage of cognitive, emotional, and social development. Consequently, a paradigm shift is required to safeguard their metabolic and reproductive futures. To correct adverse endocrine trajectories, pediatric patients must achieve sustainable adherence to nutritional modifications. This adherence necessitates moving toward a proactive, human-centric framework that positions the personal psychology of the child and the systemic relational dynamics of the family unit as the foundational, supportive mechanisms of clinical intervention.

2. THE PERSONALITY-DRIVEN FRAMEWORK IN CHILDHOOD CARE

It is widely established that a cornerstone of sustainable health behavior modification is the clinical recognition of distinct psychological variations that dictate how patients manage stress, adhere to medical guidelines, and integrate dietary adaptations. Addressing this need, the BariLifestyle Personality Assessment (BariPA) offers a unique, scientifically grounded framework tailored for individual pre- and post-bariatric intervention. The BariPA evaluates multi-layered psychological aspects and long-term readiness by evaluating specific five traits. Through a specialized questionnaire structure that maps individual profiles across the five personality domains, the assessment deciphers the underlying cognitive and emotional mechanisms that enable severely overweight individuals to successfully navigate their lifelong lifestyle and weight maintenance journey. In the pediatric context, mastering these psychological mechanisms is not merely about weight management; it is the fundamental prerequisite for halting adverse endocrine trajectories and reversing metabolic dysfunction.

The BariPA provides an understanding of individual differences and tendencies, while taking close attention to the issue relative to obesity, such as health and wellbeing behavior patterns, social and environment influence capabilities, eating habits and Openness willingness for changing. The new BariPA model offers interesting feedback and reflection on the personality, recognizing that these traits can change and develop over time. By emphasizing stability and change, pre- and post-bariatric patients can monitor their personal growth and development, set goals for self-improvement, and utilize their strengths to overcome challenges over life and set their new lifestyle.

The majority of these individual variations can be systematically categorized utilizing personality neuroscience, which isolates core domains such as Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness/Intellect (DeYoung, 2010). These domains describe foundational tendencies in human cognition and emotion that predict health behaviors and adaptation. In adult populations, distinct correlations have been established between these personality traits and long-term behavioral outcomes.

When translating these psychological principles into childhood nutritional management, the clinician must engage in direct, person-to-person psychological assessment to map the unique profile of the child. Mapping these traits allows for a highly customized, human-mediated therapeutic approach designed to foster the adherence necessary to protect future reproductive health:

- **Neuroticism and Emotional Eating:** Children scoring high in the domain of neuroticism exhibit an elevated tendency to experience pervasive negative emotions, including anxiety, depression, anger, and psychological vulnerability. These unstable emotional states can potentially lead to non-compliance with instructions and trigger severe emotional eating patterns as a coping mechanism. This emotional eating directly fuels glycemic volatility and disrupts metabolic homeostasis. Effective nutritional management for these children mandates direct, human-to-human cognitive-behavioral therapy (CBT) techniques delivered by a clinician. By stabilizing emotional responses, CBT ensures the dietary consistency required to

restore endocrine balance and improve overall happiness outcomes (Hjelmesæth et al., 2018).

- **Conscientiousness and Self-Efficacy:** Children patients characterized by higher levels of conscientiousness naturally possess a greater capacity for self-discipline, order, and routine adherence, which strongly predicts behaviors that promote health and longevity. In a human-centric clinical setting, the practitioner can actively leverage this trait to cultivate the child's sense of self-efficacy—their psychological confidence in their ability to execute behavioral changes. By shunning unrealistic, sweeping restrictions and instead collaboratively establishing small, highly structured, and achievable daily goals, the clinician reinforces the child's motivation, celebrating incremental victories to foster deep-seated commitment. This highly structured commitment is the physiological anchor required for long-term metabolic correction and the protection of physiological development.

- **Extraversion and Socialized Support:** Children high in extraversion are naturally assertive, talkative, and socially oriented (DeYoung, 2010). A human-centric model utilizes their extraverted nature by embedding them into physical, instructor-led peer support groups. Direct group interaction satisfies their need for social engagement while building a shared sense of collective support, a factor strongly correlated with weight loss outcomes and long-term behavioral maintenance. Sustaining these behavioral modifications collectively prevents the relapse of adverse endocrine programming (Livhits et al., 2010).

Conceptual Caution and Future Research Directions

It is fundamental to note that the application of the BariPA Model to pediatric populations within this framework is conceptual and theoretical in nature. While the biological and psychological infrastructure of these traits is well-documented in adult weight-management contexts, children are in a continuous state of fluid cognitive, emotional, and behavioral development. Unlike adult populations where personality traits exhibit structural stability and interventions are primarily management-oriented, pediatric personality dimensions possess higher levels of developmental plasticity.

Consequently, clinician-mediated cognitive-behavioral interventions (CBT) should not merely adapt to static baseline traits but actively reshape maladaptive emotional regulation mechanisms early in life. Reshaping these mechanisms provides the stable metabolic and behavioral foundation essential for healthy puberty and future reproductive capabilities. This model therefore serves as a preliminary theoretical proposition rather than a definitive diagnostic tool. Future empirical research and longitudinal studies are strictly required to systematically investigate, refine, and adapt the behavioral traits dimensions specifically for children and adolescents, ensuring that personality-driven nutritional strategies align accurately with the psychological realities of each developmental stage.

3. PEER VICTIMIZATION, RESILIENCE, AND POSITIVE MINDSET

Beyond individual psychological traits, the social reality confronting overweight children and adolescents is heavily saturated with external psychological stressors. Extensive data reveal that early-life overweight is tightly correlated with profound psychosocial consequences, including pervasive social exclusion, teasing, peer victimization, and systematic social stigmatization (Puhl et al., 2020). Quantitative surveys show that an overwhelming majority of individuals struggling with severe weight challenges report being explicitly bullied during their youth because of their body mass. Victimization due to obesity is deeply associated with severe mental health outcomes, persistent body dissatisfaction, and low self-esteem that stretches into adulthood (Bertoletti et al., 2019).

Crucially, this chronic psychosocial trauma is not merely an emotional burden; it acts as a severe biological stressor. Persistent victimization and social exclusion elevate cortisol levels and systemic inflammation, directly exacerbating insulin resistance and further disrupting the child's endocrine-metabolic programming. A human-centric triad framework dictates that clinical teams must intervene directly to address this trauma during the child's developmental years, rather than treating the residual psychiatric and metabolic scars in adulthood.

Genuine psychological resilience and behavioral modification require the deliberate cultivation of a positive mindset, mediated entirely through empathetic human relationships. Drawing from large-scale thematic analyses of over 6,000 successful weight-loss maintainers, research underscores a powerful correlation between a structured positive mindset and successful long-term weight-loss maintenance (Phelan et al., 2022). A critical finding within this data centers on how individuals perceive and respond to behavioral setbacks or dietary failures. Individuals guided by an optimistic, human-mediated psychological framework learn to reframe setbacks not as permanent character flaws, but as transient breaks or natural, educational steps within a broader lifetime journey (Phelan et al., 2022).

By practicing intentional gratitude, focusing on self-worth, and establishing highly realistic, day-by-day progression scales, the human clinician serves as an essential emotional buffer. This interpersonal guidance reframes the child's internal narrative, shifting it away from self-limiting beliefs and toward an active, responsible, and highly resilient mindset capable of sustaining long-term health behavior. By actively buffering the child against chronic social stress, this clinician-mediated resilience effectively mitigates cortisol-driven metabolic damage, facilitating the physiological and hormonal stability necessary to protect future reproductive health.

4. SYSTEMIC DYNAMICS: THE FAMILY UNIT AS THE MOTIVATIONAL ANCHOR

Nutritional management of childhood obesity aimed at reversing adverse endocrine trajectories can never succeed if it is conceptualized as an isolated, individual task forced upon the child. Extensive literature reviews of family-based health interventions demonstrate that the physical recovery, emotional balance, and lifestyle adherence of pediatric patients—the exact mechanisms required to stabilize metabolic hormones—are entirely dependent on the understanding, acceptance, and active participation of the surrounding family structure (Lent et al., 2016).

For a child to achieve lasting lifestyle adaptation and protect their future reproductive health, the journey must be explicitly re-framed as a cohesive, joint family team experience, characterized by shared emotional health goals, synchronized modifications in eating habits, and the creation of a fundamentally positive home environment.

Introducing comprehensive dietary overhauls into a household to correct hormonal imbalances is a psychologically complex process that inevitably disrupts established domestic routines. Just as profound weight changes in adult bariatric patients have been proven to cause significant, often paradoxical disruptions within marital relationships, doubling the statistical probability of divorce or separation due to shifting power dynamics, role conflicts, and acute domestic strain (King et al., 2022), altering a child's nutritional ecosystem triggers severe "systemic stress" across the family structure.

Disagreements frequently arise between parents and children regarding food purchasing, meal preparation, and the restriction of hyper-palatable options. If the child feels uniquely targeted or punished by these new rules, the resulting emotional friction often leads to dietary rebellion, instantly triggering the glycemic spikes and metabolic volatility the intervention seeks to prevent.

This domestic friction is frequently amplified by deep-seated cultural, geographic, and socio-environmental factors (Keinan-Boker et al., 2005).

In specific societal contexts, such as traditional Middle Eastern hospitality paradigms, social and familial interactions are deeply intertwined with the continuous serving of abundant, highly varied, and calorie-dense food options as a primary expression of respect and affection. Within such environments, an individual child attempting to follow a restrictive nutritional plan faces immense social pressure and immediate friction during family gatherings, where refusing food can be culturally misinterpreted as a rejection of hospitality. This social pressure frequently causes the child to abandon metabolic protocols simply to maintain domestic harmony.

This necessitates systemic, family-centric counseling that empowers parents to act as cultural mediators, reframing nutritional choices within the household without

alienating the child from essential community ties, thereby safeguarding their dietary adherence and endocrine stability. To overcome these barriers, the clinical team must implement family-centric counseling. Working directly with parents to co-create a supportive, positively adapting social structure directly fuels the child's internal drive. This establishes a highly correlated link between strong social-family relationships and the high levels of sustained patient motivation necessary to secure a healthy reproductive future (Conceição et al., 2019).

5. FUNCTIONAL MOVEMENT ADAPTATION FOR CHILDREN WELLBEING

A holistic approach to childhood nutritional management requires a highly synchronized integration of physical activity tailored precisely to the physiological and emotional realities of an overweight child. Crucially, this physical integration must not be viewed merely as a mechanism for caloric expenditure; rather, it is a vital clinical tool for enhancing insulin sensitivity and restoring endocrine homeostasis. Historically, standard clinical protocols have overwhelmingly emphasized traditional, intense aerobic-centric approaches, such as prolonged running, cycling, or algorithmic cardiovascular tracking metrics.

However, empirical sports science demonstrates that these high-intensity, aerobic-dominant paradigms frequently yield limited success and poor long-term adherence in bariatric and severely overweight populations. Furthermore, forcing a child with severe metabolic dysfunction into high-anxiety aerobic tracking often triggers acute physiological stress, driving up cortisol levels and paradoxically exacerbating the very endocrine imbalances the exercise was intended to resolve.

Children with high body mass index (BMI) typically present with specific structural challenges, including a weakened musculoskeletal framework, diminished baseline physical capacity, and a body composition heavily skewed toward fat mass. Forcing these children into aggressive aerobic routines frequently induces acute muscle soreness, joint injuries, and performance anxiety, driving them to completely

halt exercise habits due to prior negative experiences and a degraded sense of physical self-efficacy.

Pediatric populations struggling with severe weight challenges frequently present with premature orthopedic vulnerabilities, such as accelerated cartilage wear, structural joint misalignments, and chronic lower back strain. Forcing these structurally compromised frameworks into heavy aerobic tracking models not only compounds performance anxiety but severely elevates the risk of musculoskeletal injury. Shifting the clinical focus toward early-stage functional conditioning, stability training, and localized resistance exercises addresses these biomechanical risks preemptively. By anchoring movement in a safe, controlled environment, the clinician protects fragile pediatric joint structures while systematically rebuilding physical self-efficacy, converting physical activity from a punitive chore into a safe and empowering baseline habit.

To break this cycle, the proposed framework advocates for an efficiency-driven paradigm shift, adapting core principles to pediatric care. This approach consciously replaces aggressive aerobic dominance with a low-to-moderate intensity, highly structured training model that prioritizes functional balance, core stability, and gradual progressive overload. More importantly, prioritizing resistance and core stability safely builds skeletal muscle tissue, which acts as the body's primary metabolic sink for glucose. This functional adaptation directly combats insulin resistance, creating the favorable hormonal profile required for healthy pubertal development and future reproductive function.

Rapid weight loss or shifting body dynamics in growing children fundamentally alter the body's homeostatic equilibrium and neuro-physical function; the skeletal muscles responsible for supporting posture must adapt to shifting mass centers, a biological process that occurs slowly and requires deliberate center-of-gravity and neural conditioning. By implementing targeted exercises such as single-leg stability stands, stability ball alignments, reverse crunches, upper crunches, mountain climbers, and progressive resistance band exercises 2 to 3 times per week, the framework systematically strengthens the deep abdominal and dorsal

musculature, enhances core posture, and optimizes proprioception. Balance training is vital in promoting functional mobility, improving neuro-physical function, and reducing the risk of falls (Guardia et al., 2013).

Crucially, this functional training modality yields profound psychological and metabolic benefits alongside its musculoskeletal outcomes. Because this functional framework focuses on minimizing time investment while maximizing neural and muscular stimulation via precise, controlled movements, it completely eliminates the exhausting, anxiety-inducing environments of public aerobic tracking. Setting small, highly achievable physical goals within a safe, instructor-led, or family-supported environment directly strengthens the child's physical confidence and reinforces internal motivation. By eliminating the cortisol spikes associated with aerobic performance anxiety, this functional framework provides the consistent, low-stress mechanical stimulus required to secure long-term metabolic recovery and protect the child's reproductive future.

6. CLINICAL IMPLICATIONS AND COMPARATIVE DISCUSSION

The theoretical and empirical synthesis presented in this framework carries profound, immediate implications for modern clinical guidelines, public healthcare delivery, and pediatric policy design. For too long, the medical and commercial mainstream has operated under the reductive assumption that childhood obesity—and its severe endocrine-metabolic consequences—can be managed via automated digital interfaces that outsource the therapeutic relationship to screens, tracking algorithms, and remote data collection. While these digital tools offer convenient data metrics, they are structurally unequipped to address the complex psychological underpinnings of obesity, such as trauma from peer bullying (Puhl et al., 2020), emotional eating loops driven by specific personality profiles (DeYoung, 2010), or the systemic friction generated within an unaligned family household (King et al., 2022). Because these detached digital tools fail to resolve the underlying behavioral triggers, they ultimately fail to secure the long-term nutritional adherence required to correct metabolic programming.

The clinical model advocated here forces a return to a deeply integrated, human-centric triad that measures intervention success not merely by immediate body mass index (BMI) reduction, but by the long-term stability of the child's endocrine system, the preservation of their future reproductive health, and the psychological health of their immediate relational ecosystem. The human-centric triad framework relies on direct clinical connection and relational counseling. The traditional approach frequently treats the child as an isolated user, omitting localized cultural contexts such as family hosting traditions and dietary environment friction (Keinan-Boker et al., 2005). Conversely, the proposed framework establishes the household as a unified team (Lent et al., 2016) and introduces direct psychological profiling using the BariPA Model to shape personalized cognitive-behavioral therapy (Hjelmesæth et al., 2018). Setbacks are managed through therapeutic reframing rather than punitive digital logs (Phelan et al., 2022), and physical conditioning centers on core stability, safe functional balance, and progressive movement rather than stress-inducing caloric burn metrics (Guardia et al., 2013).

The implementation of this framework requires multidisciplinary healthcare teams—including pediatricians, pediatric endocrinologists, clinical dietitians, exercise physiologists, and mental health professionals—to completely reconstruct standard intake and follow-up protocols (Di Lorenzo et al., 2020). Prior to the issuance of any clinical nutrition guidelines, a comprehensive psychological profile of the child's personality traits (DeYoung, 2010) and a thorough diagnostic interview regarding childhood bullying experiences must be executed (Puhl et al., 2020). Simultaneously, the family unit must be formally locked into the treatment architecture through mandatory parental psychoeducation sessions designed to prepare the household for the inevitable systemic stress and shifts in domestic power dynamics that accompany lifestyle redirection (King et al., 2022).

By shifting public health policy funding away from detached digital platforms and redirecting resources toward structured, human-mediated, and family-centered clinical infrastructure, society can finally provide young populations with the deep emotional security and relational scaffolding necessary. This robust scaffolding is not

merely a psychological luxury; it is the essential clinical mechanism for achieving the sustainable nutritional behavior needed to optimize endocrine-metabolic programming and safeguard the future reproductive health of the next generation.

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