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Title: Ethical Considerations for Semaglutide use in Children

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67

68 *Abstract*

69 Semaglutide, marketed as Ozempic, Wegovy, and Rybelsus, has rapidly become one of the
70 most prominent medications of recent years. Initially approved in 2021 for type 2 diabetes in
71 adults, semaglutide is now authorized for obesity management in adults and children in
72 several countries, including Germany, the United Kingdom, Denmark, and the United Arab
73 Emirates. Despite this broad regulatory approval, its pediatric use remains a subject of
74 debate. Advocates highlight its potential to reduce cardiovascular risk and prevent obesity-
75 related illness, while critics emphasize uncertainties about long-term safety, efficacy, and
76 impacts on child development.

77 This paper examines the ethical challenges raised by prescribing semaglutide to children,
78 focusing on access barriers, stigma, and the neglect of structural determinants of obesity, and
79 provides ethical recommendations for clinicians aimed at mitigating harm, supporting
80 autonomy, and promoting children's health.

81 *Key words:* Semaglutide; pediatric obesity; ethics; clinical practice; autonomy;
82 discrimination; stigma; justice

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84 What is already known on this topic

85 Semaglutide has received regulatory approval for use in children in several countries, yet its
86 long-term safety and developmental effects remain uncertain. Existing debate has largely
87 focused on clinical efficacy, with less attention to the ethical and social dimensions of its
88 pediatric use.

89 What this study adds

90 This paper highlights the ethical tensions surrounding semaglutide in pediatric care, including
91 concerns about access, stigma, over-medicalization, and the neglect of structural contributors

92 to obesity. It argues that, despite these challenges, semaglutide is a valuable intervention
93 when guided by ethically informed clinical practice.

94 How this study might affect research, practice or policy

95 Our analysis underscores the need for further empirical and ethical research, while offering
96 practical recommendations for clinicians to mitigate harm and support autonomy. It also
97 emphasizes the importance of policy frameworks that address both medical and structural
98 determinants of childhood obesity.

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103 1. *Introduction*

104 Obesity is well established as a major risk factor for adverse health conditions, including type
105 2 diabetes, metabolic-associated fatty liver disease, cardiovascular disease, hypertension, and
106 reproductive disorders such as ovulatory and endometrial dysfunction.[1] Childhood obesity
107 is also a well-established predictor of obesity in adulthood.[2] Despite this being the case,
108 one in seven children and young people in England are obese.[3] In the United States, the
109 figure is one in five, and in Australia it is one in twelve.[4,5] According to a recent global
110 study on the prevalence of childhood and adolescent overweight and obesity, “without urgent
111 policy reform and action,” these rates are expected to rise, with one-third (2.2 million) of
112 children and young people in Australia projected to be obese within the next 25 years, and 50
113 per cent of those aged 5 to 24 predicted to be overweight or obese globally by 2050.[1]

114 These facts, together with the promising results of semaglutide in pediatric trials, have led
115 some to regard semaglutide as a key intervention for preventing the onset of obesity in
116 adulthood. Fatima Cody Stanford, Associate Professor of Pediatrics at Harvard, for example,
117 states: “Weight-loss drugs give doctors the ability to intervene before the effects of obesity
118 snowball... used early enough, semaglutide or other medications could possibly reroute the
119 trajectory of a teenager’s entire life.”[6] Others, however, have raised concerns about its use,
120 citing uncertainties regarding semaglutide’s long-term safety and efficacy, particularly with
121 respect to children’s development. As Dan Cooper, Professor of Pediatrics at UC Irvine,
122 observes: “We don’t really know what these medications do in the context of the growing
123 child.”[7]

124 The use of semaglutide in children raises significant ethical concerns. In this paper, we argue
125 that semaglutide presents both significant opportunities and risks. It has the potential to
126 improve children’s cardiometabolic health, reduce stigma-related mental health burdens, and
127 support autonomy by expanding options and enabling healthier futures. At the same time,
128 however, barriers to access, persistent stigma, and the structural determinants of childhood
129 obesity risk exacerbating healthcare inequities, compromising autonomy through coercive
130 pressures, and intensifying experiences of stigmatization. Given these considerations, and the
131 absence of long-term data—particularly regarding children’s growth and development—we
132 contend that caution must be exercised when prescribing semaglutide to paediatric
133 populations.

134 We begin by outlining the function and efficacy of semaglutide in relation to children’s
 135 health, before examining the key ethical considerations surrounding its pediatric use and
 136 offering recommendations for clinical practice to mitigate harm.

137 2. Semaglutide: *Research and Results*

138 Semaglutide has regulatory approval for use in youth aged 12 and older with obesity.
 139 Treatment is delivered through a once-weekly pre-filled injection, with dosing titrated
 140 upward—starting at 0.25 mg weekly for four weeks and increasing to a maintenance dose of
 141 2.4 mg. [8] Semaglutide promotes weight loss by suppressing appetite, slowing gastric
 142 emptying, and influencing brain regions involved in hunger and satiety.

143 In the 68-week STEP TEENS randomized controlled trial (RCT) of 180 adolescents aged 12
 144 to <18 years with obesity or overweight plus at least one weight-related comorbidity,
 145 participants receiving semaglutide alongside lifestyle intervention (diet and exercise)
 146 achieved a mean body weight reduction of 16.1%, compared with 0.6% in the placebo group.
 147 [9] Forty-four percent of those treated with semaglutide were reclassified into the normal
 148 weight or overweight BMI categories, compared with 12.1% of placebo recipients.[10] The
 149 trial also documented improvements in cardiometabolic markers—including waist
 150 circumference, glycemic control, lipid profile, and alanine aminotransferase (ALT)—
 151 indicating potential benefits for future cardiovascular risk and metabolic-associated fatty liver
 152 disease. For a summary of key findings, see table 1.

153

Table 1: STEP TEENS Trial: Key Findings (Weghuber et al. 2022, Kelly et al. 2023)

Outcome	Semaglutide + Lifestyle	Placebo + Lifestyle	Between-Group Difference
Mean body weight change	-16.1%	+0.6%	-16.7 percentage points
BMI reclassification (normal/overweight range)	44%	12.1%	+31.9%
Waist circumference	-12.7 cm	-0.6 cm	-12.1 cm
HbA1c (glycated hemoglobin)	-0.4 percentage points	-0.1 points	-0.3 points
Total cholesterol	-8.3%	-1.3%	-7.1%
LDL cholesterol	-10.2%	-3.4%	-7.0%

VLDL cholesterol	-28.4%	+1.6%	-29.5%
Triglycerides	-28.4%	+2.6%	-30.2%
ALT (NAFLD marker)	-18.3%	-4.9%	-14.1%

154 Adult trials have also demonstrated reductions in the incidence of type 2 diabetes, chronic
155 kidney disease, and obesity-associated cancers. [11,12] Clinical evidence indicates that
156 semaglutide may influence eating preferences, reducing both overall intake and the
157 proportion of high-fat foods consumed.[13–16] Ongoing studies are investigating the
158 potential of semaglutide to treat a range of other conditions, including addiction, sleep apnea,
159 Parkinson’s disease, and Alzheimer’s disease. [17]

160 Common side effects include mild or moderate nausea, vomiting, and diarrhea. More serious
161 but rare adverse events include gastroparesis and anhedonia (the inability to experience joy or
162 pleasure). Potential long-term risks comprise thyroid C-cell tumors, pancreatitis, kidney
163 failure, gallbladder disease, diabetic retinopathy, malnutrition, and weight regain.[18] In the
164 STEP 1 trial extension, which enrolled 1,961 adults with a BMI ≥ 30 kg/m² (or ≥ 27 kg/m²
165 with at least one weight-related comorbidity) and without diabetes, Wilding et al. reported
166 that participants previously treated with once-weekly semaglutide (2.4 mg) plus lifestyle
167 modification regained approximately two-thirds of their weight loss within a year of
168 discontinuing therapy, accompanied by comparable deterioration in cardiometabolic
169 outcomes.[19]

170 The long-term risks for children’s development remain uncertain, as well as potential impacts
171 on lifelong lifestyle habits and metabolic harm after treatment discontinuation—given that
172 semaglutide slows gastric emptying and alters hunger signalling, discontinuation may
173 predispose children to maladaptive energy balance, recurrent weight cycling, and persistent
174 alterations in metabolic regulation. Malnutrition is also a potential risk, given the constraints
175 on caloric intake.[20]

176 3. *Mental Health, Stigma, Access, and Ethical Risks*

177 Aside from physical health benefits, one of the key arguments in favor of semaglutide is its
178 potential to improve children’s mental health. Weight stigma—“the social rejection and
179 devaluation of persons who do not conform to prevailing norms of body weight and shape”—

180 is highly prevalent among young people across sociodemographic groups, taking the form of
 181 bullying, exclusion, and unfair treatment, from peers, teachers, and even parents [21–23] For
 182 a summary of experiences of weight stigma in children and adolescents, see table 2.
 183 Unsurprisingly, weight stigma is also widely recognized as linked to poor mental health
 184 outcomes for children.[24] In light of this, some commentators have argued that semaglutide
 185 may improve children’s mental health by reducing the object of stigmatization—a suggestion
 186 supported by the testimony of some young patients taking semaglutide.[7,25]

187

Table 2: Evidence on Weight Stigma in Children and Adolescents

Study	Sample / Context	Key Findings
Puhl & Lessard (2020) [22] Weight Stigma in Youth	Review of U.S. literature on weight stigma and youth mental health	25–50% of youth report weight-related bullying; 13–32% report weight-based discrimination
Puhl et al. [23] Weight-Based Victimization	1,555 students, 2 high schools (Connecticut, U.S.)	84% observed overweight peers teased in a mean way or during physical activities; 65–77% observed overweight/obese peers ignored, excluded, gossiped about, or teased in cafeteria; widespread verbal threats and physical harassment
	361 participants, 2 U.S. national weight-loss camps	94% bullied/teased at school; 70% victimized by friends; 37% victimized by parents
Lanza et al.[26] Co-Occurring Trajectories of Weight Status and Peer Victimization	Adolescents across middle school (longitudinal study)	Overweight/obese youth at greater risk of bullying than normal-weight peers; those with persistently high weight report the highest levels and steepest increases in victimization

188 While semaglutide may reduce a child’s experience of stigmatization, this benefit is
 189 constrained by several factors, including its high cost (approximately US \$1,350 for a 28-day
 190 prescription in the United States, and between £79 and £300 per month in the United
 191 Kingdom, depending on dose and provider.), recurring supply shortages, and regulatory
 192 restrictions (such as the United Kingdom’s two-year prescribing limit for semaglutide in
 193 obesity management).[27–29] In the United Kingdom, although semaglutide is licensed for
 194 children over 12 years with obesity, NHS access is limited, even in hospitals running

195 Complications of Excess Weight Services (CEWS).[30,31] As a result, well-resourced
196 families are increasingly turning to the private sector.[32]

197 This restricted access is particularly concerning in light of existing disparities in childhood
198 obesity. Children from the most deprived areas of England are twice as likely to be living
199 with obesity compared with those from the least deprived areas, and the inequality gap
200 widens significantly between reception age and year 6.[33] Any inequality of access to
201 semaglutide therefore risks further exacerbating this already substantial disparity. In this
202 way, high cost and limited public provision risk restricting semaglutide’s availability to
203 affluent families, worsening healthcare inequities and reinforcing other forms of stigma,
204 including class stigma.

205 Shortages and regulatory limitations may also lead to unstable treatment, risking weight
206 regain and weight cycling—the repeated loss and regain of body weight, often the result of
207 dieting or weight-control interventions. Weight cycling can lead to a total body fat mass that
208 exceeds the initial baseline and can also harm mental health.[34,35] Weight regain and
209 cycling potentially reinforce feelings of failure, lack of willpower, and unworthiness.[36]

210 In addition, some children may be unwilling or unable to take semaglutide (e.g., due to side
211 effects). If society comes to view obesity as an easily treatable condition, widespread use of
212 semaglutide may make conditions for such children more inhospitable (e.g., “There is no
213 excuse for obesity.”).

214 Other commentators have also highlighted the potential for abuse: given the fragility of
215 adolescent self-esteem and the prevalence of eating disorders among U.S. youth, Cooper *et*
216 *al.* describe the prescription of semaglutide under such conditions as a “perfect storm” for
217 abuse.[37]

218 For some children then, semaglutide may improve their mental health, but for others it may
219 exacerbate their experience of multiple forms of stigma, compound self-esteem issues, and
220 pose a risk of abuse.

221 Issues of availability are likely to ease with expanded production capacity, the eventual
222 expiration of patents, and policy reforms, potentially making semaglutide a more accessible
223 and attractive healthcare option in the future. In the meantime, when prescription is deemed

224 appropriate, clinicians should develop strategies to mitigate the risks of weight regain after
 225 treatment discontinuation and monitor both the physical and psychological effects of
 226 semaglutide closely. Particular care is needed for patients who already face heightened
 227 scrutiny and stigma: clinicians should avoid compounding these harms and instead work
 228 collaboratively with patients to design and implement realistic, sustainable healthcare plans.

229 4. *Autonomy and Medicalization*

230 Another argument in favor of prescribing semaglutide to children is that doing so may
 231 promote children’s autonomy.[38] As we have argued elsewhere, semaglutide may support
 232 children’s autonomy in at least three ways:

- 233 1. By reducing health risks, semaglutide may improve children’s chances of living
 234 without the constraints of chronic illness.
- 235 2. By reducing children’s experience of hunger (or “food noise”) and improving impulse
 236 control, semaglutide may free cognitive resources that enable them to pursue goals
 237 and support their long-term development.
- 238 3. By providing children and their families with more healthcare options, semaglutide
 239 may create greater opportunities for children to exercise and cultivate their emerging
 240 autonomy.

241 Of the options available to treat obesity-related health issues—such as lifestyle interventions,
 242 other GLP-1 receptor agonists, and bariatric surgery—none offers the same combination of
 243 risk profile and potential health benefits. For a comparison of interventions, see table 3. This
 244 suggest that semaglutide may represent a valuable healthcare option that should remain
 245 available to children.

246

Table 3: Comparison of Pediatric Weight Loss Interventions

Intervention	Effectiveness	Risk Profile	Notes
Semaglutide [9]	Average 16.1% weight loss in STEP TEENS trial; improved cholesterol and blood pressure	Mild to moderate side effects common (e.g. nausea); serious side effects rare	Most effective among non-surgical options; requires monitoring and support

Lifestyle interventions (diet + exercise) [9]	Minimal average weight loss (0.6% in STEP TEENS trial control group); more effective when combined with semaglutide	Very low risk	Autonomy-promoting but insufficient alone for some children with obesity
Liraglutide [39]	Not significantly effective in reducing BMI or body weight in youth	Similar side effects to semaglutide	Less effective than semaglutide despite similar mechanism
Bariatric surgery[40]	Highly effective; significant and sustained weight loss; improved health outcomes	High risk profile in children: more adverse events	Considered a last resort due to surgical risk and invasiveness

247 However, semaglutide also raises concerns for children’s autonomy. One is that weight
248 stigma may act as a coercive force in decision-making for children and their families. Fear of
249 being perceived as bad parents may lead parents to pressure and even coerce children into
250 medical treatment they may not need or want. The promotion of semaglutide as a miracle
251 drug, combined with its rapid short-term efficacy, may also encourage patients and families to
252 downplay potential risks or disregard alternative healthcare options, treating semaglutide as
253 the obvious choice. Overmedicalization is another concern, as parents and healthcare
254 providers may prioritize medical intervention over lifestyle education and support. They may
255 deprive children of the knowledge and skills necessary for autonomous decision-making
256 about their healthcare and other life goals. This becomes especially troubling if medication
257 availability is unstable, as it heightens the risks of weight cycling and rebound.

258 The American Academy of Pediatrics (AAP) and Novo Nordisk emphasize that semaglutide
259 should form part of a comprehensive weight-management plan that incorporates lifestyle
260 interventions.[41,42] To reduce the risk of overmedicalization and support children’s
261 autonomy, clinicians should work collaboratively with children and their families to develop
262 individualized management plans that emphasize education and support. Efforts should also
263 focus on addressing stigma by prioritizing children’s health goals over weight targets, shifting
264 attention away from perceived body ideals toward tangible health outcomes, and rejecting
265 practices that rely on shame.

266 5. *Structural Dimensions of Health*

267 One final ethical concern regarding semaglutide use in children is that it does not address—
268 and may even reinforce—the underlying social structures that contribute to obesity-related
269 health concerns and background social injustice. These include inequities in healthcare,
270 education, access and security to nutritious food, opportunities for adequate sleep, and
271 sufficient leisure time.

272 At the governmental level, the concern is that, rather than addressing these inequities,
273 governments may take the easy way out, by choosing medicalization.[43,44] At the clinical
274 level, the concern is that prescribing semaglutide to children reinforces the pathology
275 narrative—that is, the understanding that obesity itself is a disease to be cured by medical
276 intervention, rather than a complex condition shaped by multiple factors, including adverse
277 environmental conditions and policy.[45] This narrative downplays the role and
278 responsibility of governments and society, allowing them to evade accountability for
279 structural reforms.

280 Pathologizing obesity also serves corporate interests, including those of pharmaceutical
281 companies and companies that profit from ultra-processed foods (UPFs). If obesity is treated
282 merely as a pathology, those who manufacture obesity treatments stand to gain significantly.
283 Moreover, if obesity can be addressed through medicalised interventions, then the political
284 impetus to regulate and reduce consumption of UPFs may be reduced (benefitting
285 manufacturers of UPFs). (Several of the pharmaceutical companies producing weight-loss
286 medications have financial links to companies that benefit from UPF production). Such
287 corporate interests are highly problematic for public health: at best, they weaken confidence
288 in the neutrality of health science; at worst, they risk manipulating policy to exacerbate
289 medicalized dependence for profit.

290 Another concern is that semaglutide might not make children healthier, even if it causes
291 weight loss. In societies where fat bodies are equated with poor health, a reduction in visible
292 obesity may be misinterpreted as evidence of a healthier population and of well-functioning
293 systems. Yet a slimmer body does not necessarily signify better health. As noted earlier,
294 semaglutide can lead to malnutrition and loss of muscle mass if not carefully managed. Data
295 also suggests that cardiometabolic improvement are seen in trials are only achieved *with*
296 changes in diet and exercise. It is possible then for children on semaglutide to lose weight

297 while remaining in poor health—a risk heightened if the structural determinants of ill health
298 remain unaddressed.

299 At the clinical level, healthcare providers should work towards a holistic body health message
300 and dispel myths that equate body size with health while emphasizing comprehensive
301 nutrition-focused healthcare plans. These plans should also account for the structural
302 limitations children and their families face and manage expectations accordingly. To the
303 extent that it is within clinicians’ means, advocacy in favour of structural change is also
304 recommended. For a summary of recommendations, see table 4.

305 6. *Future Frontiers*

306 We have argued that a number of ethical tensions surround the use of semaglutide in children.
307 On the one hand, semaglutide holds significant promise: it may improve children’s
308 cardiometabolic health, alleviate stigma-related mental health burdens, and promote
309 autonomy by expanding options and enabling healthier futures. On the other hand, due to
310 access limitations, persistent stigma, and the structural factors underlying childhood obesity,
311 semaglutide may exacerbate healthcare inequities, undermine autonomy through coercive
312 pressures, and intensify experiences of stigmatization for some children.

313 Semaglutide’s full potential and risks in pediatric care and beyond remain uncertain. For this
314 reason, we contend that caution must be exercised when prescribing semaglutide to paediatric
315 populations. It is also why one must remain attentive to future developments. These may
316 include the expansion of semaglutide use beyond its current therapeutic indications,
317 encompassing not only cosmetic applications but also potential prescriptions for conditions
318 involving impulse control, such as binge eating or addictive behaviors, where GLP-1 receptor
319 agonists may prove effective. These possibilities raise pressing questions for ethicists and
320 clinicians alike: how should legitimate medical need in children be defined, and where should
321 the boundaries of acceptable use be drawn? Such emerging frontiers merit close attention as
322 the landscape of pediatric healthcare continues to evolve.

323

Table 4: Recommendations for Semaglutide Use in Children

Domain	Recommendations
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Clinical practice Prescribe only with lifestyle interventions including individualised exercises plans and nutrition focused goals; monitor physical and mental health; manage weight regain risks; avoid compounding stigma; dispel myths equating size with health.

Autonomy support Avoid coercion; offer multiple healthcare options; build children’s knowledge and skills for future health decisions.

Stigma reduction Focus on health goals, not weight; shift away from body ideals; reject shame-based practices.

Risk mitigation Educate on side effects; manage expectations; monitor risks of malnutrition, weight cycling, and psychological harm.

Policy & structural change Address structural determinants (healthcare, nutritious food security, education, sleep, leisure); clinicians should advocate for reforms where possible.

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