

Evidence Gaps Research Taxonomy Table

Topic: Research Gaps for Interventions for High Body Mass Index in Children and Adolescents

To fulfill its mission to improve health by making evidence-based recommendations for preventive services, the USPSTF routinely highlights the most critical evidence gaps for creating actionable preventive services recommendations. The USPSTF often needs additional evidence to create the strongest recommendations for everyone, especially those with the greatest burden of disease. In some cases, clinical preventive services have been well studied, but there are important evidence gaps that prevent the USPSTF from making recommendations for specific populations.

In this table, the USPSTF summarizes the gaps in the evidence for interventions for high body index in children and adolescents. The research taxonomy is intended to provide general guidance to investigators. Investigators are encouraged to develop research designs that are responsive to the research taxonomy outlined in the table, in collaboration with their research teams and areas of expertise and experience. The research developed will be reviewed according to standard USPSTF criteria for inclusion in its evidence report; inclusion criteria are summarized in the final Research Plan (<https://www.uspreventiveservicestaskforce.org/uspstf/document/final-research-plan/high-body-mass-index-children-adolescents-interventions>) and Procedure Manual (<https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/methods-and-processes/procedure-manual>).

| Research Gap | Key Questions* or Contextual Questions | Direct/ Indirect Pathway [†] | Type of Gap [‡] | Study Characteristics | Population | Intervention/ Comparison | Outcomes/Timing | Setting |
|---|--|---------------------------------------|---------------------------------|---|---|---|---|---|
| Research is needed on the benefits of behavioral and pharmacotherapy interventions on long-term health outcomes (at least 2 years). | KQ1, KQ2 | Both | Grade assignment, Health equity | RCTs; controlled clinical trials | Children and adolescents ages 2 to 18 years who have a higher BMI Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents) | Behavioral counseling interventions: Compared with no intervention Pharmacotherapy: Interventions approved by the FDA for long-term weight loss/management in children or adolescents, compared with placebo | Timing: At least 2 years or greater Outcomes: KQ1: Psychosocial outcomes (e.g., global quality of life, weight-related quality of life, psychosocial functioning outcomes; improvement in depressive symptoms) KQ2: Cardiometabolic outcomes, improvement in weight/BMI KQ3: Improvement in dietary patterns, increased physical activity | U.S. primary care settings or referable from primary care |
| Research is needed on the long-term harms (at least 2 years) of pharmacotherapy. | KQ4 | Both | Grade assignment, Health equity | RCTs; controlled clinical trials; observational studies with contemporaneous comparative groups | Children and adolescents ages 2 to 18 years who have a higher BMI | Pharmacotherapy interventions compared with no intervention | Timing: At least 2 years or greater | U.S. primary care settings or referable from primary care |

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| | | | | who are matched on demographic factors | Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents) | | <p>Outcomes: KQ4: Serious treatment-related harms at any time after initiation of intervention (e.g., GI-related harms, medical issues requiring hospitalization or urgent medical treatment)</p> <p>Harms associated with labeling or stigma (e.g., increased body image concerns, disordered eating, unhealthy relationship with food and exercise, negative mental health effects)</p> <p>Negative impacts on provider-patient relationship (e.g., care avoidance or dissatisfaction with care)</p> | |
| Research is needed on the long-term harms of behavioral interventions. | KQ4 | Both | Health equity | Longitudinal followup (5–10 years) of study participants from behavioral intervention RCTs | <p>Children and adolescents ages 2 to 18 years who have a higher BMI</p> <p>Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino,</p> | Long-term psychosocial outcomes in participants in behavioral interventions compared with those who did not participate (controlling for subsequent participation in weight-loss program) | <p>Outcomes: KQ4: Unhealthy weight management efforts (e.g., using laxatives or self-induced vomiting) or eating patterns (excessive fasting, overly restrictive eating, or bingeing)</p> <p>Exercise-induced injury</p> | U.S. primary care settings or referable from primary care |

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| | | | | | Native American/Alaska Native, and non-Hispanic Black children and adolescents) | | | |
| Research is needed on the comparative benefits and harms of weight-loss vs. weight-neutral healthy lifestyle interventions in children and adolescents with a high BMI. | KQ1, KQ2, KQ3, KQ4 | Both | General | RCTs; controlled clinical trials | Children and adolescents ages 2 to 18 years who have a higher BMI Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents) | Behavioral weight loss counseling interventions compared with weight-neutral healthy lifestyle interventions (in which weight loss is not encouraged) | Timing at least 2 years or greater Outcomes: KQ1: Psychosocial outcomes (e.g., global quality of life, weight-related quality of life, psychosocial functioning outcomes; improvement in depressive symptoms) KQ2: Cardiometabolic outcomes, improvement in weight/BMI KQ3: Improvement in dietary patterns, increased physical activity | U.S. primary care settings or referable from primary care |
| Research is needed on the best timing for interventions for weight management. Research is needed to understand whether there are certain ages in childhood and adolescence when interventions might provide a higher likelihood of treatment benefit. | Foundational or Contextual | N/A | General | RCTs, controlled clinical trials, and observational studies with subgroup analyses by appropriate age-grouped cohorts Subgroup analyses by age using data from existing trials | Children and adolescents ages 2 to 18 years who have a higher BMI Trials should include populations with a higher prevalence of high BMI (e.g., | Compare behavioral interventions among children and adolescents across appropriate age-grouped cohorts | Timing: At least 2 years or greater Comparisons include different age groups Outcomes: KQ1: Psychosocial outcomes (e.g., global quality of life, weight-related quality of life, psychosocial functioning | U.S. primary care settings or referable from primary care |

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| | | | | | <p>Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents)</p> <p>Sufficient numbers by age groups to consider health outcomes across different subgroups</p> | | <p>outcomes; improvement in depressive symptoms)</p> <p>KQ2: Cardiometabolic outcomes, improvement in weight/BMI</p> <p>KQ3: Improvement in dietary patterns, increased physical activity</p> | |
| Research is needed on the maintenance of weight loss after behavioral interventions and assessment of long-term (>5 years) benefits and harms. | KQ1, KQ4 | Direct | General | RCTs, controlled clinical trials with longitudinal followup of weight loss maintenance; longitudinal followup of participants in existing RCTs | <p>Children and adolescents ages 2 to 18 years who have a higher BMI</p> <p>Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents)</p> | <p>Behavioral counseling interventions compared with no intervention</p> <p>Following completion of behavioral intervention, compare a maintenance intervention with no intervention</p> | <p>Timing: At least 5 years</p> <p>Outcomes: KQ1: Psychosocial outcomes (e.g., global quality of life, weight-related quality of life, psychosocial functioning outcomes; improvement in depressive symptoms)</p> <p>KQ2: Cardiometabolic outcomes, maintenance in weight/BMI</p> <p>KQ3: Improvement in dietary patterns, increased physical activity</p> | U.S. primary care settings or referable from primary care |

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| Research is needed on the best practices for initial and ongoing weight-related discussions with children and adolescents and their families. | Contextual | N/A | General | Qualitative, survey, and experimental research to identify patient preferences for discussing weight and weight-related behavior with individuals and families RCTs, controlled clinical trials to compare different approaches to initial and ongoing discussions with children and their families | Children and adolescents ages 2 to 18 years who have a higher BMI Trials should include populations with a higher prevalence of high BMI (e.g., Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black children and adolescents) | Within counseling interventions in children and adolescents, compare effective counseling approaches to weight discussions on outcomes (e.g., preferred terminology during counseling, consent process, discussions focused on shared decision making) | Outcomes: KQ1: Psychosocial outcomes (e.g., quality of life outcomes, especially weight-related quality of life, psychosocial functioning outcomes; improvement in depressive symptoms, patient preferences, patient-reported outcomes, patient-provider communication) KQ4: Harms associated with labeling or stigma (e.g., increased body image concerns, disordered eating, unhealthy relationship with food and exercise, negative mental health effects) Negative impacts on provider-patient relationship (e.g., care avoidance or dissatisfaction with care) Timing includes immediate and up to 2 years | U.S. primary care settings or referable from primary care |

Note: In general, pragmatic trials are preferred.

* Key questions are an integral part of the approach to conducting systematic reviews that the USPSTF uses in its recommendation process. Along with the analytic framework, these questions specify the logic and scope of the topic, and are critical to guiding the literature searches, data abstraction, and analysis processes (<https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/methods-and-processes/procedure-manual>).

† The direct pathway is typically derived from RCTs of the targeted screening or preventive intervention that adequately measure the desired health outcomes in the population(s) of interest. If certainty for net benefit cannot be derived from the direct pathway, then the USPSTF determines if the evidence is sufficient across the key questions and linkages in the indirect pathway to determine overall certainty.

‡ Types of gaps may include: grade assignment (moving from an I statement to a letter grade), change in letter grade (e.g., from a C to B or C to D), health equity (e.g., populations with a disproportionate burden of the condition), combined (e.g., grade assignment and health equity), or general gap (e.g., uptake of a clinical preventive service).

Abbreviations: BMI=body mass index; FDA=U.S. Food and Drug Administration; GI=gastrointestinal; RCT=randomized, controlled trial; USPSTF=U.S. Preventive Services Task Force.