



Topic Brief: Obesity-Related Employment Absenteeism

Date: 3/1/2024

Nomination Number: 1039

Purpose: This document summarizes the information addressing a nomination submitted on November 18, 2022 through the Effective Health Care Website: [Link to nomination](#). This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

Issue: Obesity is a complex, chronic disease associated with multiple serious medical conditions that may impact workplace attendance and productivity.¹ In addition, many treatments for obesity, particularly newer pharmacological treatments, are not currently addressed by recommendations in existing clinical practice guidelines. The nominators are concerned with obesity-related employment absenteeism, presenteeism and equitable access to treatments for obesity. They would like AHRQ to develop a new systematic review on the comparative effectiveness of treatments for obesity to influence policy and coverage decisions.

Findings:

The EPC Program will not develop a new systematic review because there is limited original research that addresses the nomination; therefore, a new review is not feasible at this time.

Background

Obesity is a complex, chronic disease defined as excess body weight for a given height, and is associated with multiple medical conditions such as heart disease, Type 2 diabetes, musculoskeletal injuries, and some types of cancer.^{1,2} The prevalence of obesity in the United States between 2017 and March of 2020 was 42%, with non-Hispanic Black adults (49.9%) and Hispanic adults (45.6%) having higher age-adjusted rates of obesity than non-Hispanic Whites (41.4%) and non-Hispanic Asians (16.1%).³ The estimated annual medical cost of obesity in 2019 was \$173 billion.⁴ In addition to excess medical costs, obesity may affect employment factors, such as an employee's productivity.⁵ The estimated cost of obesity including medical expenditures and absenteeism for a company with 1,000 employees is \$277,000 per year.⁶

Screening for obesity is done by calculating a person's body mass index (BMI), which is determined by dividing body weight by height. While BMI does not measure body fat or health, it is correlated with adverse health outcomes related to obesity.⁷ Obesity is often divided into three categories: BMI ranging from 30 to < 35 is categorized as Class 1; BMI ranging from 35 to < 40 is Class 2; and BMI >40 is Class 3, also known as "severe" obesity.⁷

Treatments for obesity include lifestyle changes such as diet and exercise interventions; anti-obesity medications; and structural interventions that limit food intake, such as intragastric

balloons and bariatric surgery.⁸ The nominators are interested in increasing access to obesity treatment through policy and practice change with an emphasis on expanded access to newer anti-obesity pharmacological treatments. To advocate for policy and practice change, they would like an AHRQ systematic review on the effectiveness of obesity treatments to inform updated guidelines.

Scope

What is the effectiveness, comparative effectiveness, and harms of treatment for obesity?

Table 1. Questions and PICO (population, intervention, comparator, and outcome)

Questions	Effectiveness of treatment for obesity
Population	Adults >18 years with obesity (BMI > 30.0) employed full or part time Consider <ul style="list-style-type: none"> • Patient characteristics: race, ethnicity • Employment-related factors (e.g., sector/industry, setting) • Comorbidities (e.g., cardiovascular disease, diabetes, depression/anxiety)
Interventions	<ul style="list-style-type: none"> • Lifestyle: stress management, diet, exercise • Pharmacological • Surgical (e.g., gastric bypass)
Comparators	<ul style="list-style-type: none"> • Comparative effectiveness: intervention-to-intervention comparison • Effectiveness: placebo/control/TAU
Outcomes	<ul style="list-style-type: none"> • Presenteeism <ul style="list-style-type: none"> ○ Sickness presenteeism: presence at work when illness, either acute or chronic, interferes with work performance or engagement (e.g., SPS-6) ○ Job-stress-related presenteeism: presence at work when stressors from the work environment (e.g., relationships with management) hinder job performance or ability to focus on work (e.g., job-stress-related presenteeism scale) • Medical measures: long-term/short-term health, and mortality • Cost • Harms: any

Abbreviations: BMI=body mass index; SPS-6= Stanford Presenteeism Scale-6; TAU=treatment as usual.

Assessment Methods

We assessed nomination for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

See Appendix A.

Summary of Literature Findings

We did not find any recent, high quality systematic reviews addressing the nominated topic, and found only a small number of primary studies with varied interventions and outcomes. Of the seven primary studies we found,⁹⁻¹⁵ only two measured an outcome related to work productivity/presence.^{14, 15} The remainder reported on medical measures such as body weight and cardiovascular functioning measurements but did not address outcomes related to work attendance or productivity.

Table 2. Literature identified for each key question

Question	Systematic reviews (6/2020-6/2023)	Primary studies (6/2018-6/2023)
Effectiveness of treatment for obesity	Total: 0	Total: 7 <ul style="list-style-type: none"> • RCT⁹⁻¹³ • Observational^{14, 15} Clinicaltrials.gov <ul style="list-style-type: none"> • Recruiting: 0

Abbreviations: RCT=randomized controlled trial.

See Appendix B for detailed assessments of all EPC selection criteria.

Summary of Selection Criteria Assessment

Obesity is a complex, chronic disease that is associated with significant morbidity in the US adult population. Obesity-related medical conditions can impact attendance and productivity at work. The nominators are concerned that treatment for obesity is not adequately covered by insurance providers and would like a systematic review to inform the development of guidelines on the effectiveness of treatments for obesity. We did not find any systematic reviews and found very few primary studies addressing the nomination.

Please see Appendix B for detailed assessments of individual EPC Program selection criteria.

References

1. American College of Cardiology/American Heart Association Task Force on Practice Guidelines OEP. Expert Panel Report: Guidelines (2013) for the management of overweight and obesity in adults. Obesity (Silver Spring). 2014 Jul;22 Suppl 2:S41-410. doi: <https://dx.doi.org/10.1002/oby.20660>. PMID: 24227637.
2. Centers for Disease Control and Prevention. Health Effects of Overweight and Obesity. Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion. <https://www.cdc.gov/healthyweight/effects/index.html>. Accessed on February 2 2024.
3. Stierman B, Afful J, Carroll MD, et al. National Health and Nutrition Examination Survey 2017–March 2020 Prepandemic Data Files Development of Files and Prevalence Estimates for Selected Health Outcomes <http://dx.doi.org/10.15620/cdc:106273>. Hyattsville, MD: 2021.
4. Ward ZJ, Bleich SN, Long MW, et al. Association of body mass index with health care expenditures in the United States by age and sex. PLoS ONE. 2021;16(3):e0247307. doi: <https://dx.doi.org/10.1371/journal.pone.0247307>.
5. Kudel I, Huang JC, Ganguly R. Impact of Obesity on Work Productivity in Different US Occupations: Analysis of the National Health and Wellness Survey 2014 to 2015. J Occup Environ Med. 2018 Jan;60(1):6-11. doi: <https://dx.doi.org/10.1097/jom.0000000000001144>. PMID: 29065062.

6. Centers for Disease Control and Prevention. Worker Productivity Measures. doi: <https://www.cdc.gov/workplacehealthpromotion/model/evaluation/productivity.html>.
7. Centers for Disease Control and Prevention. Defining Adult Overweight & Obesity. <https://www.cdc.gov/obesity/basics/adult-defining.html>. Accessed on February 2 2024.
8. Ruban A, Stoenchev K, Ashrafian H, et al. Current treatments for obesity. *Clin Med (Lond)*. 2019 May;19(3):205-12. doi: <https://doi.org/10.7861/clinmedicine.19-3-205>. PMID: 31092512.
9. Varady KA, Lin S, Oddo VM. Worksite-based intensive lifestyle therapies for diabetes remission. *Cell Rep Med*. 2022 10 18;3(10):100791. doi: <https://dx.doi.org/10.1016/j.xcrm.2022.100791>. PMID: 36260986.
10. Glanz K, Shaw PA, Kwong PL, et al. Effect of Financial Incentives and Environmental Strategies on Weight Loss in the Healthy Weight Study: A Randomized Clinical Trial. *JAMA netw*. 2021 09 01;4(9):e2124132. doi: <https://dx.doi.org/10.1001/jamanetworkopen.2021.24132>. PMID: 34491350.
11. Dorling JL, Hochsmann C, Tudor-Locke C, et al. Effect of an office-based intervention on visceral adipose tissue: the WorkACTIVE-P randomized controlled trial. *Appl Physiol Nutr Metab*. 2021 Feb;46(2):117-25. doi: <https://dx.doi.org/10.1139/apnm-2020-0175>. PMID: 33451268.
12. Tsukinoki R, Okamura T, Okuda N, et al. One-year weight loss maintenance outcomes following a worksite-based weight reduction program among Japanese men with cardiovascular risk factors. *J Occup Health*. 2019 Mar;61(2):189-96. doi: <https://dx.doi.org/10.1002/1348-9585.12039>. PMID: 30734418.
13. Ing CT, Miyamoto RES, Fang R, et al. Comparing Weight Loss-Maintenance Outcomes of a Worksite-Based Lifestyle Program Delivered via DVD and Face-to-Face: A Randomized Trial. *Health Educ Behav*. 2018 08;45(4):569-80. doi: <https://dx.doi.org/10.1177/1090198118757824>. PMID: 29504468.
14. Norrback M, Neovius M, Ottosson J, et al. Earnings and work loss from 5 years before to 5 years after bariatric surgery: A cohort study. *PLoS ONE*. 2023;18(5):e0285379. doi: <https://dx.doi.org/10.1371/journal.pone.0285379>. PMID: 37200271.
15. Ervasti J, Airaksinen J, Pentti J, et al. Does increasing physical activity reduce the excess risk of work disability among overweight individuals? *Scand J Work Environ Health*. 2019 07 01;45(4):376-85. doi: <https://dx.doi.org/10.5271/sjweh.3799>. PMID: 30640978.
16. Conaty EA, Denham W, Haggerty SP, et al. Primary Care Physicians' Perceptions of Bariatric Surgery and Major Barriers to Referral. *Obes Surg*. 2020 Feb;30(2):521-6. doi: <https://doi.org/10.1007/s11695-019-04204-9>. PMID: 31625056.

Author

Emily Gean
Cathy Gordon
Robin Paynter
Lisa Winterbottom

Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

Acknowledgements

Suchitra Iyer

Charli Armstrong

This report was developed by the Scientific Resource Center under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. HHS A 290-2017-00003C). The findings and conclusions in this document are those of the author(s) who are responsible for its contents; the findings and conclusions do not necessarily represent the views of AHRQ. No statement in this article should be construed as an official position of the Agency for Healthcare Research and Quality or of the U.S. Department of Health and Human Services.

Persons using assistive technology may not be able to fully access information in this report. For assistance contact EPC@ahrq.hhs.gov.

Appendix A: Methods

We assessed nomination for priority for a systematic review or other AHRQ Effective Health Care report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one. See Appendix B for detailed description of the criteria.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

Desirability of New Review/Absence of Duplication

We searched for high-quality, completed or in-process evidence reviews published in the last three years June 7, 2020-June 7, 2023 on the questions of the nomination from these sources:

- AHRQ: Evidence reports and technology assessments
 - AHRQ Evidence Reports <https://www.ahrq.gov/research/findings/evidence-based-reports/index.html>
 - EHC Program <https://effectivehealthcare.ahrq.gov/>
 - US Preventive Services Task Force <https://www.uspreventiveservicestaskforce.org/>
 - AHRQ Technology Assessment Program <https://www.ahrq.gov/research/findings/ta/index.html>
- US Department of Veterans Affairs Products publications
 - Evidence Synthesis Program <https://www.hsrd.research.va.gov/publications/esp/>
 - VA/Department of Defense Evidence-Based Clinical Practice Guideline Program <https://www.healthquality.va.gov/>
- Cochrane Systematic Reviews <https://www.cochranelibrary.com/>
- PROSPERO Database (international prospective register of systematic reviews and protocols) <http://www.crd.york.ac.uk/prospero/>
- PubMed <https://www.ncbi.nlm.nih.gov/pubmed/>
- Joanna Briggs Institute <http://joannabriggs.org/>

Impact of a New Evidence Review

The impact of a new evidence review was qualitatively assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

Feasibility of New Evidence Review

We conducted a limited literature search in PubMed and PsycInfo for the last five years June 7, 2018 – June 7, 2023. We reviewed all studies identified titles and abstracts for inclusion. We classified identified studies by question and study design to estimate the size and scope of a potential evidence review.

Search strategy

Ovid MEDLINE ALL 1946 to June 07, 2023

Date searched: June 8, 2023

1 Bariatric Medicine/ or Bariatric Surgery/ or Bariatrics/ or Body Mass Index/ or Obesity/ or Obesity Management/ or Obesity, Morbid/ (335484)

2 (adipos* or bariatric* or "body fat" or (("body mass index" or BMI) adj3 ("30" or "31" or "32" or "33" or "34" or "35" or "36" or "37" or "38" or "39" or "40" or "41" or "42" or "43" or "44" or "45"))) or obese or obesity or superobes*).ti,ab,kf. (504699)

3 or/1-2 (608045)

4 Absenteeism/ or Employee Performance Appraisal/ or Sick Leave/ or Workplace/ or (absentee* or ((absent or absence or appear* or attend* or chronic or missed or missing or nonattenden* or nonappear* or participat* or present or unexcused) adj3 (employ* or job\$1 or occupation* or work\$2 or working or workplace\$1 or worksite\$1))).ti,kf. or ((sick or sickness) adj (absen* or days or leave\$1 or time)).ti,ab,kf. (54694)

5 and/3-4 (1279)

6 limit 5 to english language (1222)

7 limit 6 to yr="2020 -Current" (204)

8 7 and ((meta-analysis or systematic review).pt. or (meta-anal* or metaanal* or ((evidence or review or scoping or systematic or umbrella) adj3 (review or synthesis))).ti. (19)

9 limit 6 to yr="2018 -Current" (342)

10 9 and ((controlled clinical trial or randomized controlled trial).pt. or (control or controls or controlled or placebo\$1 or random* or trial*).ti,ab,kf.) (118)

11 9 and (Case-Control Studies/ or Cohort Studies/ or Comparative Study/ or Controlled Before-After Studies/ or Cross-Sectional Studies/ or Epidemiologic Studies/ or exp Evaluation Studies as Topic/ or Follow-Up Studies/ or Historically Controlled Study/ or Interrupted Time Series Analysis/ or Longitudinal Studies/ or Prospective Studies/ or Retrospective Studies/ or ("case-control" or cohort\$1 or "before-after" or ((comparative or epidemiologic or evaluation) adj3 study) or cross-sectional or follow-up or (historic* adj4 control*) or "interrupted time" or longitudinal\$2 or prospective\$2 or retrospective\$2).ti,ab,kf.) (194)

Ovid EBM Reviews - Cochrane Central Register of Controlled Trials May 2023

Date searched: June 8, 2023

1 Bariatric Medicine/ or Bariatric Surgery/ or Bariatrics/ or Body Mass Index/ or Obesity/ or Obesity Management/ or Obesity, Morbid/ (27288)

2 (adipos* or bariatric* or "body fat" or (("body mass index" or BMI) adj3 ("30" or "31" or "32" or "33" or "34" or "35" or "36" or "37" or "38" or "39" or "40" or "41" or "42" or "43" or "44" or "45"))) or obese or obesity or superobes*).ti,ab,kf. (63733)

3 or/1-2 (71937)

4 Absenteeism/ or Employee Performance Appraisal/ or Sick Leave/ or Workplace/ or (absentee* or ((absent or absence or appear* or attend* or chronic or missed or missing or nonattenden* or nonappear* or participat* or present or unexcused) adj3 (employ* or job\$1 or occupation* or work\$2 or working or workplace\$1 or worksite\$1))).ti,kf. or ((sick or sickness) adj (absen* or leave\$1)).ti,ab,kf. (3864)

5 and/3-4 (215)

6 limit 5 to yr="2018 -Current" (64)

Ovid APA PsycInfo 1806 to May Week 5 2023

Date searched: June 8, 2023

1 Bariatric Surgery/ or Body Mass Index/ or Obesity/ (34231)

2 (adipos* or bariatric* or "body fat" or (("body mass index" or BMI) adj3 ("30" or "31" or "32" or "33" or "34" or "35" or "36" or "37" or "38" or "39" or "40" or "41" or "42" or "43" or "44" or "45"))) or obese or obesity or superobes*).ti,ab,id. (51097)

3 or/1-2 (55482)

4 Employee Absenteeism/ or Employee Leave Benefits/ or Workplace Intervention/ or (absentee* or ((absent or absence or appear* or attend* or chronic or missed or missing or nonattenden* or nonappear* or participat* or present or unexcused) adj3 (employ* or job\$1 or occupation* or work\$2 or working or workplace\$1 or worksite\$1))).ti,ab,id. or ((sick or sickness) adj (absen* or leave\$1)).ti,ab,id. (37210)

5 and/3-4 (427)

6 limit 5 to english language (418)

7 limit 6 to yr="2020 -Current" (61)

8 7 and (meta-anal* or metaanal* or ((evidence or scoping or systematic) adj3 (review or synthesis))).ti. (3)

9 limit 6 to yr="2018 -Current" (120)

10 limit 9 to "0300 clinical trial" (14)

11 limit 9 to ("0400 empirical study" or "0430 followup study" or "0450 longitudinal study" or "0451 prospective study" or "0453 retrospective study" or "0600 field study" or 1800 quantitative study) (102)

ClinicalTrials.gov

Appendix B. Selection Criteria Assessment

Selection Criteria	Assessment
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes.
1b. Is the nomination a request for an evidence report?	Yes.
1c. Is the focus on effectiveness or comparative effectiveness?	Yes.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes. The prevalence of obesity in the U.S. between 2017 and March of 2020 was about 42%. ³
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the U.S. population or for a vulnerable population	Yes. The prevalence of adult obesity in the U.S. between 2017 and March of 2020 was about 42%, and Non-Hispanic Black and Hispanics have higher age-adjusted rates of obesity than non-Hispanic Whites and non-Hispanic Asians. ³ The estimated annual medical cost of obesity in 2019 was \$173 billion. ⁴
2c. Incorporates issues around both clinical benefits and potential clinical harms	Yes.
2d. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes. The estimated annual medical cost of obesity in 2019 was \$173 billion. ⁴
3. Desirability of a New Evidence Review/Absence of Duplication	
3. A recent high-quality systematic review or other evidence review is not available on this topic	Yes. We did not find any recent, high quality systematic reviews addressing the nomination.
4. Impact of a New Evidence Review	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	Yes. There are no recent, comprehensive, evidence-based guidelines addressing all types of treatment for obesity.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes. There is practice variation in the treatment of obesity. ¹⁶
5. Primary Research	
5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies)	Size/scope of review: 7 studies out of a review of the entire search yield. The estimated size of a systematic review would be limited.

Abbreviations: AHRQ=Agency for Healthcare Research and Quality, US=United States.