

Supplementary file S1: Tables S1-S3

Table S1. Search strategies for all databases

Database	Search strategy
Embase	<p>'child'/exp OR 'adolescent'/exp OR 'preschool child'/exp OR child*:ti,ab,kw OR adolesce*:ti,ab,kw OR juvenile*:ti,ab,kw OR pediater*:ti,ab,kw OR paediatric*:ti,ab,kw OR toddler*:ti,ab,kw OR preschool*:ti,ab,kw OR preteen*:ti,ab,kw OR teen*:ti,ab,kw OR youth*:ti,ab,kw OR kid*:ti,ab,kw</p> <p>AND</p> <p>'childhood obesity'/exp OR 'obesity'/exp OR overweigh*:ti,ab,kw OR obes*:ti,ab,kw</p> <p>AND</p> <p>'community participation'/exp OR 'participatory research'/exp OR 'participatory action research'/exp OR "CBPR":ti,ab,kw OR ((participat* NEAR/3 research*):ti,ab,kw) OR ((communit* NEAR/3 (participat* OR research* OR act* OR engag* OR partner* OR coalition* OR involv* OR contribut* OR cooperat* OR inform* OR consult* OR empower* OR effort* OR base* or basis*)):ab,ti,kw)</p> <p><u>Legend</u></p> <p>*: truncation of word</p> <p>ab: abstract</p> <p>exp: exploded</p> <p>kw: keywords</p> <p>NEAR/n: words must be within n words inclusive of each other in the record</p> <p>ti: title</p>
Pubmed	<p>"Child"[MeSH Terms] OR "child, preschool"[MeSH Terms] OR "Adolescent"[MeSH Terms] OR "pediatric"[Title/Abstract] OR "paediatric"[Title/Abstract] OR "child*"[Title/Abstract] OR "toddler*"[Title/Abstract] OR "preschool*"[Title/Abstract] OR "preteen*"[Title/Abstract] OR "teen*"[Title/Abstract] OR</p>

"adolesce*"[Title/Abstract] OR "youth*"[Title/Abstract] OR "juvenile*"[Title/Abstract] OR "kid"[Title/Abstract]
OR "kids"[Title/Abstract]

AND

"Pediatric Obesity"[MeSH Terms] OR "Obesity"[MeSH Terms] OR "Overweight"[MeSH Terms] OR
"overweigh*"[Title/Abstract] OR "obes*"[Title/Abstract]

AND

"Community Participation"[MeSH Terms] OR "Community-Based Participatory Research"[MeSH Terms] OR
"CBPR"[Title/Abstract] OR "participate research"[Title/Abstract:~3] OR "participate researches"[Title/Abstract:~3]
OR "participate researched"[Title/Abstract:~3] OR "participate researching"[Title/Abstract:~3] OR "participates
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"communities based"[Title/Abstract:~3] OR "communities basing"[Title/Abstract:~3] OR "communities basis"[Title/Abstract:~3]

Legend

*: truncation of word

~n: words terms are within 'n' number of words within each other, in either direction

Mesh: Medical subject heading

The
Cochrane
Library

MeSH descriptor: [Child] explode all trees OR MeSH descriptor: [Adolescent] explode all trees OR MeSH descriptor: [Child, Preschool] explode all trees or (pediatr* or paediatr* or child* or toddler* or preschool* or preteen* or teen* or adolesce* or youth* or juvenile* or kid*):ti,ab,kw

AND

MeSH descriptor: [Pediatric Obesity] explode all trees OR MeSH descriptor: [Obesity] explode all trees OR MeSH descriptor: [Overweight] explode all trees OR (overweigh* or obes*):ti,ab,kw

AND

MeSH descriptor: [Community Participation] explode all trees OR MeSH descriptor: [Community-Based Participatory Research] explode all trees OR (CBPR or (participat* NEAR/3 research*) or ((communit*) NEAR/3 (participat* or research* or act* or engag* or partner* or coalition* or involv* or contribut* or cooperat* or inform* or consult* or empower* or effort* or base* OR basing* OR basis*))) :ti,ab,kw

Legend

*: word truncation

MeSH: Medical Subject Heading

NEAR/n: terms are within 'n' number of words within each other, in either direction

ti,ab,kw: title, abstract, keyword

Cinahl (EBSCO)	MH "Child+" OR MH "Adolescence+" OR TI (pediatr* or paediatr* or child* or toddler* or preschool* or preteen* or teen* or adolesce* or youth* or juvenile* or kid*) OR AB (pediatr* or paediatr* or child* or toddler* or preschool* or preteen* or teen* or adolesce* or youth* or juvenile* or kid*)
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AND

MH "Pediatric Obesity" OR MH "Obesity+" OR TI (overweigh* or obes*) OR AB (overweight* or obes*)

AND

MH "Community Role" OR MH "Stakeholder Participation" OR MH "Consumer Participation" OR MH "Action Research" OR TI ("CBPR" or (participat* N3 research*) or (communit* N3 (participat* or research* or act* or engag* or partner* or coalition* or involv* or contribut* or cooperat* or inform* or consult* or empower* or effort* or base* or basing* or basis*))) OR AB ("CBPR" or (participat* N3 research*) or (communit* N3 (participat* or research* or act* or engag* or partner* or coalition* or involv* or contribut* or cooperat* or inform* or consult* or empower* or effort* or base* or basing* or basis*)))

Legend

*: truncation of word

+: explode

AB: abstract

MH: major subject heading

Nn: the terms are 'n' number of words within each other, in either direction

TI: title

Psycinfo (Ovid)	exp Nursery School Students/ OR exp Preschool Students/ OR exp Kindergarten Students/ OR exp Elementary School Students/ OR exp Junior High School Students/ OR exp High School Students/ OR (pediatr* or paediatr* or child* or toddler* or preschool* or preteen* or teen* or adolesce* or youth* or juvenile* or kid*).ab,ti,tw
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AND

exp Obesity/ OR exp Overweight/ OR (overweigh* or obes*).ab,ti,tw.

AND

exp Community Involvement/ OR exp Action Research/ OR (“CBPR” or (participat* adj3 research*) or (communit* adj3 (participat* or research* or act* or engag* or partner* or coalition* or involv* or contribut* or cooperat* or inform* or consult* or empower* or effort* or base* or basing* or basis*))).ab,ti,tw.

Legend

*: truncation of word

ab: abstract

adj/n: the terms are ‘n’ number of words within each other, in either direction

Exp: explode

ti: title

tw: text word

ProQuest Dissertations & Theses Global	subject(Children & youth) OR subject(Toddlers) OR subject(Preschool children) OR subject(Teenagers) OR noft(pediatr* OR paediatr* OR child* OR toddler* OR preschool* OR preteen* OR teen* OR adolesce* OR youth* OR juvenile* OR kid*)
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AND

subject(Overweight) OR subject(Obesity) OR noft(overweigh* OR obes*)

AND

subject(Participatory research) OR subject(Citizen participation) OR subject(Community action) OR noft(“CBPR” OR (participat* NEAR/3 research*) OR (communit* NEAR/3 (participat* OR research* OR act* OR engag* OR partner* OR coalition* OR involv* OR contribut* OR cooperat* OR inform* OR consult* OR empower* OR effort* OR base* OR basing* OR basis*)))

Legend

*: truncation of word

	NEAR/n: the terms are 'n' number of words within each other, in either direction noft: not in full text
Web of science (Thomson Reuters)	<p>TS=(child* OR adolesce* OR juvenile* OR pediater* OR paediatric* OR toddler* OR preschool* OR preteen* OR teen* OR youth* OR kid*)</p> <p>AND</p> <p>TS=(overweigh* OR obes*)</p> <p>AND</p> <p>TS=("CBPR" OR (participat* NEAR/3 research*) OR (communit* NEAR/3 (participat* OR research* OR act* OR engag* OR partner* OR coalition* OR involv* OR contribut* OR cooperat* OR inform* OR consult* OR empower* OR effort* OR base* OR basing* OR basis*)))</p> <p><u>Legend</u></p> <p>*: truncation of word</p> <p>TS: Topic (Searches title, abstract, author keywords, and Keywords Plus)</p>
Scopus (Elsevier)	<p>TITLE-ABS-KEY (child* OR adolesce* OR juvenile* OR pediater* OR paediatric* OR toddler* OR preschool* OR preteen* OR youth* OR kid*)</p> <p>AND</p> <p>TITLE-ABS-KEY (overweight* OR obes*)</p> <p>AND</p> <p>TITLE-ABS-KEY ("cbpr" OR (participat* w/3 research*) OR (communit* w/3 (participat* OR research* OR act* OR engag* OR partner* OR coalition* OR involv* OR contribut* OR cooperat* OR inform* OR consult* OR empower* OR effort* OR base* OR basing* OR basis*)))</p>

Legend

*: truncation of word

ABS: abstract

KEY: keyword

W/n: the terms are 'n' number of words within each other, in either direction

Table S2. Table of included studies' characteristics

Study ID (Country)	Research Design/ Study Arms	Participant number/ Age mean (SD) or mean (range) or range	Community engagement: 1. Planning 2. Design 3. Implementati on 4. Data collection 5. Results analysis/disse mination	Intervention content (intervention change: behavioral/ environmental change/both)	Setting/ Personnel (mode of delivery: calls/in- person/newsletter/online)	Intervention overall duration (follow up from post- intervention)	Outcomes: 1. BMI-z 2. Fruits 3. Vegetables 4. SSB 5. MVPA 6. SST 7. EGT	Attrition rate	Any framework ? ITT?
Adab et al., 2018 (United Kingdom)	2 arm Cluster RCT: 1. WAVES (n = 1134) 2. Usual care (n = 1328)	T: Year 2 primary school children Age: 6-7 years old	1. Yes 2. Yes 3. Yes 4. No 5. No	-Health behavior skills -Physical activity (behavioral change)	School-based/ class teachers, school staff, sporting institution community coaches and staff (in-person)	1 year (18 months)	1. Yes 2. No 3. No 4. No 5. Yes 6. No 7. No	Post test: I: 13.9% C: 10.8% T: 12.3% Follow up (30 months): I: 23.2% C: 17.7% T: 20.3% Follow up (39 months): I: 67.3% C: 65.3% T: 66.3%	Yes Yes
Black et al., 2010 (United States)	2 arm RCT: 1. Challenge (n = 121) 2. Control (n = 114)	I: 62 girls, 59 boys Age: 13.3 years (1.0) C: 54 girls, 60 boys Age: 13.3 years (1.0)	1. No 2. Yes 3. Yes 4. No 5. No	-Goal setting -Healthy Eating -Mentorship -Participatory learning -Physical activity -Progress tracking (behavioral change)	Community- and home- based/ college-enrolled mentors (in-person)	10 months (14 months)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. No 7. No	Post test: I: 24.8% C: 18.4% T: 21.7% Follow up: I: 26.4% C: 21.1% T: 23.8%	Yes Yes
Buch- Andersen	2 arm CCT: 1. Danish Sundhed og	I: 105 girls, 96 boys	1. Yes 2. Yes 3. Yes	-Capacity building -Healthy eating practices	Community- and school- based/ after-school centers, childcare centers, civil	19 months (no follow up)	1. Yes 2. No 3. No	Baseline: I: 46.3% C: 48.8%	Yes Yes

et al., 2021 (Denmark)	Lokasamfund (n = 238) 2. Usual care (n = 214)	Age: 6.51 years (1.49) C: 90 girls, 76 boys Age: 6.21 years (1.80)	4. No 5. No	-Physical activity (both)	society organizations, local mass media, local stakeholders, primary schools, resource persons with various expertise, supermarkets		4. No 5. No 6. No 7. No	T: 47.5% Post test: I: 24.5% C: 21.7% T: 23.2%	
(in-person)									
Crespo et al., 2012 (United States)	4 arm Cluster RCT 1. Community only [Comm] (n = 218) 2. Family only [F] (n = 198) 3. Community and Family [Comm+F] (n = 165) 4. Control (n = 227)	T: kindergarten to Grade 2 elementary school children	1. No 2. Yes 3. Yes 4. No 5. No	-Active play -Environmental change -Healthy eating -Screen time (environmental change)	Community- and home-based/ promotoras (calls, in-person)	1 year (1 year, 2 years)	1. Yes 2. No 3. No 4. Yes 5. No 6. No 7. No	Post test: Comm: 9.3% F: 13.9% Comm+F: 11.0% C: 8.1% T: 10.4% Follow up (1 year): Comm: 28.7% F: 27.8% Comm+F: 27.0% C: 23.3% T: 26.6% Follow up (2 years): Comm: 40.7% F: 50.5% Comm+F: 49.1% C: 39.9% T: 44.5%	Yes No
Davis et al., 2016 (United States)	2 arm RCT: 1. CHILE (n = 214) 2. Usual care (n = 229)	T: 4-6 years old children	1. Yes 2. Yes 3. Yes 4. No 5. No	-Availability and visibility of healthier food options in grocery stores -Family engagement -Food service -Local healthcare provider engagement	Community- and school-based/ grocery stores, Head Start staff, healthcare providers, schools	2 years (no follow up)	1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	(attrition not stated)	Yes Yes

				-Nutrition -Physical activity					
				(both)					
Economos et al., 2013 (United States)	2 arm CCT: 1. Shape Up Somerville (n = 647) 2. Control (n = 1074)	T: Grade 1-3 children	1. Yes 2. Yes 3. Yes 4. No 5. No	-Access and availability of physical activity options and healthy food (both)	Community-, home- and school-based/ before-and after-school programs, city departments, food service providers, healthcare providers, media, parents, policy makers, restaurants, teachers	2 years (no follow up)	1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	Post test: I: 27.3% C: 22.1% T: 23.9%	Yes Yes
				(in-person)					
Elinder et al., 2012 (Sweden)	2 arm CCT: 1. SCIP-school programme (n = 328) 2. Usual care (n = 478)	T: Grade 2, 4, and 7 children	1. Yes 2. Yes 3. Yes 4. Yes 5. No	-Capacity building -Eating habits -Physical activity -Self-esteem (both)	School-based/ local school health teams, school staff (in-person)	2 years (no follow up)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. No	Post test: BMI-z: I: 5.5% C: 12.6% T: 9.7% Behaviour: I: 14% C: 14% T: 14%	Yes Yes
				(in-person)					
Folta et al., 2013* (United States)	2 arm CCT: 1. Shape Up Somerville (n = 647) 2. Control (n = 1074)	T: Grade 1-3 children	1. Yes 2. Yes 3. Yes 4. No 5. No	-Access and availability of physical activity options and healthy food (both)	Community-, home- and school-based/ before-and after-school programs, city departments, food service providers, healthcare providers, media, parents, policy makers, restaurants, teachers	2 years (no follow up)	1. No 2. No 3. No 4. Yes 5. No 6. Yes 7. No	Post test: Behaviour: I: 65.9% C: 45.5% T: 52.4%	Yes Yes
				(in-person)					
Fotu et al., 2011 (Tonga)	2 arm CCT: 1. Ma'alahi Youth Project (n = 2610) 2. Usual care (n = 2182)	I: 441 girls, 374 boys Age: 14.4 years (2.0) C: 526 girls, 371 boys Age: 15.2 years (1.8)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Capacity building -Education -Local fruit and vegetable promotion -Physical activity -Social marketing	Community-, policy- and school-based/ churches, community leaders, government, mass media, schools, student ambassadors, teachers, villages, youth groups,	2.5 years (no follow up)	1. Yes 2. No 3. No 4. Yes 5. No 6. Yes 7. Yes	Post test: I: 24.7% C: 35.7% T: 30.9%	Yes No
				(in-person)					

				(environmental change)					
Fulkerson et al., 2022 [®] (United States)	2 arm RCT: 1. New Ulm at Healthy Offerings via the Mealtime Environment (n = 58) 2. Wait-list control (n = 56)	I: 30 girls, 26 boys Age: 9.0 years (1.0) C: 30 girls, 16 boys Age: 9.0 years (1.1)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Capacity building -Cooking together as a family -Healthful home food environment -Positive family activities -Screen time -Snacks and family meals	Community-based/ health educator, registered dietician, students (calls, in-person)	7 months (no follow up)	1. Yes 2. Yes 3. Yes 4. No 5. Yes 6. No 7. No	Post test: I: 3.6% C: 4.3% T: 3.9%	Yes Yes
				(both)					
Gómez et al., 2018 (Spain)	2 arm Cluster RCT: 1. Thao-Child Health Program (n = 1041) 2. Control (n = 1209)	I: 445 girls, 529 boys Age: 10.2 years (0.64) C: 556 girls, 556 boys Age: 10.1 years (0.60)	1. No 2. Yes 3. Yes 4. No 5. No	-Capacity building -Dietary intake -Healthy lifestyle -Physical activity (behavioral change)	Community- and school-based/ associations, companies, health professionals, kindergarten, local producers and shop owners, media, schools, sports clubs (in-person)	2 years (no follow up)	1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	Baseline: I: 10.4% C: 13.3% T: 12.0% Post test: I: 6.4% C: 8.0% T: 7.3%	Yes Yes
Kattelman et al., 2019 [‡] (United States)	2 arm RCT: 1. iCook 4-H (n = 151) 2. Control (n = 77)	T: 125 girls, 103 boys Age: 9.35 years (0.67)	1. Yes 2. Yes 3. Yes 4. Yes 5. No	-Develop cooking skills -Enhance family mealtime -Physical activity (behavioral change)	Community-based/ 4-H staff, community paraprofessionals, extension educators, high school students, nutrition and nursing students, nutrition professionals, paraprofessionals (in-person)	2 years (no follow up)	1. No 2. No 3. No 4. No 5. Yes 6. No 7. No	Post test: I: 40.4% C: 54.5% T: 45.2%	Yes Yes
Kremer et al., 2011 (Fiji)	2 arm CCT: 1. Healthy Youth, Healthy Communities (n = 23530) 2. Usual care (n = 6255)	T: Secondary school students Age: 13-18 years old	1. Yes 2. Yes 3. Yes 4. No 5. No	-Community capacity building -Healthy eating -Physical activity (environmental change)	Community- and school-based / church groups, road traffic control officers, schools, teachers (in-person)	2 years (no follow up)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. No	Post test: I: 67.1% C: 54.7% T: 59.3%	Yes No
Malakellis et al., 2017	2 arm CCT: 1. Australian Capital	T: Secondary school students	1. Yes 2. Yes 3. Yes	-Active transport -Capacity building -Healthy eating	Community- and school-based/ local food producers, non-government and non-	3 years (no follow up)	1. Yes 2. Yes 3. Yes	Post test: I: 20.5% C: 37.7%	Yes No

(Australia)	Territory ‘It’s Your Move!’ (n = 891) 2. Usual care (n = 666)	Age: 12-16 years	4. No 5. No	-Healthy food policies -Physical activity (environmental change)	profit organization, school project officers, student ambassadors (in-person)	4. Yes 5. No 6. Yes 7. No	T: 25.5%	
Millar et al., 2011 (Australia)	2 arm CCT: 1. It’s Your Move! (n = 3505) 2. Usual care (n = 2508)	T: Secondary school students Age: 14.6 years (1.42)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Capacity building -Healthy eating -Physical activity (environmental change)	Community- and school-based/ schools, school project officers, student ambassadors, teachers, walking groups (in-person)	3 years (no follow up) 1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. No	Post test: I: 31.3% C: 34.5% T: 32.4%	Yes No
Peña et al.,2021 (United States)	2 arm Cluster RCT: 1. Juntos Santiago (n = 2299) 2. Usual care + access to educational leaflets and videos (n = 1573)	I: 670 girls,941 boys Age: 11.08 years (0.75) C: 252 girls, 45y boys Age: 11.15 years (0.79)	1. No 2. Yes 3. Yes 4. No 5. No	-Gamification -Healthy snacks -Physical activity -Reward system (both)	School-based/ trained monitors (in-person, online)	7 months (no follow up) 1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	Post test: I: 7.8% C: 7.1% T: 7.6%	Yes Yes
Sanigorski et al., 2008 (Australia)	2 arm CCT: 1. Be Active Eat Well (n = 1001) 2. Usual care (n = 1183)	I: 447 girls, 386 boys Age: 11.13 years (2.27) C: 478 girls, 496 boys Age: 10.31 years (2.14)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Capacity building -Nutrition -Physical activity -Screen time (both)	Community-, policy- and school-based/ dietician, government, schools, media, teachers (in-person)	3 years (no follow up) 1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	Post test: I: 16.8% C: 17.7% T: 13.4% Follow up: I: 24.7% C: 22.1% T: 23.5%	Yes No
Scherr et al., 2017 (United States)	2 arm Cluster RCT: 1. Shaping Healthy Choices Program (n = 198) 2. Usual care (n = 245)	I: 94 girls, 104 boys Age: 9.63 years (0.37) C: 117 girls,128 boys Age: 9.52 years (0.36)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Dietary intake -Physical activity (both)	School-based/ academic researchers, newsletter, nutrition educator, school (in-person, newsletter)	4 years (no follow up) 1. Yes 2. Yes 3. Yes 4. No 5. No 6. No 7. No	Post test: I: 2.4% C: 1.3% T: 1.8%	Yes No

Taylor et al., 2007 (New Zealand)	2 arm CCT: 1. APPLE Project (n = 279) 2. Control (n = 234)	I: 112 girls, 138 boys Age: 7.7 years (1.8) C: 111 girls, 108 boys Age: 7.7 years (1.6)	1. Yes 2. Yes 3. Yes 4. No 5. No	-Healthy eating -Noncurricular physical activity (both)	Community- and school-based/ community activity coordinators, schools, teachers (in-person)	2 years (no follow up)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. No 7. No	Post test: I: 45.9% C: 41.5% T: 43.9%	Yes No
Tomayko et al., 2019 (United States)	2 arm RCT: 1. Wellness journey (n = 225) 2. Safety journey (n = 225)	I: 115 girls, 110 boys Age: 45.9months (12.8) C: 111 girls, 114 boys Age: 44.1 months (13.2)	1. No 2. Yes 3. No 4. No 5. No	-Healthy eating habits -Physical activity -Screen time -Sleep habits (behavioral change)	Home-based/ site coordinators, parents (in-person, newsletter, online)	1 year (no follow up)	1. Yes 2. No 3. No 4. Yes 5. No 6. No 7. No	(attrition not stated)	Yes No
White et al., 2019 (United States)	2 arm RCT: 1. iCook 4-H (n = 151) 2. Control (n = 77)	T: 125 girls, 103 boys Age: 9.35 years (0.67)	1. Yes 2. Yes 3. Yes 4. Yes 5. No	-Develop cooking skills -Enhance family mealtime -Physical activity (behavioral change)	Community-based/ 4-H staff, community paraprofessionals, extension educators, high school students, nutrition and nursing students, nutrition professionals, paraprofessionals (in-person)	2 years (no follow up)	1. Yes 2. No 3. No 4. No 5. No 6. No 7. No	Post test: I: 40.4% C: 54.5% T: 45.2%	Yes Yes
Wong et al., 2016 (United States)	2 arm CCT: 1. Heathy Kids-Houston Program (n = 524) 2. Usual care (n = 353)	I: 265 girls, 259 boys Age: 10.30 years (0.04) C: 156 girls, 197 boys Age: 10.22 years (0.05)	1. No 2. Yes 3. Yes 4. No 5. No	-Dietary intake -Healthy lifestyle -Physical activity (behavioral change)	Community-based/ clinical pediatric psychologist, community centers, government, health fitness professional, nutritional epidemiologist, school, transport authorities (in-person)	18 weeks (no follow up)	1. Yes 2. No 3. No 4. No 5. Yes 6. No 7. No	Post test: I: 45.0% C: 47.0% T: 45.8%	No No

Legend: ANGELO = Analysis Grid for Elements Linked to Obesity; AR = action research methodology; BMI = body mass index; BMI-z = standardized BMI score; C = control; CBPR = community-based participatory research; CCT = controlled clinical trial; Comm = Community-only intervention; Comm+F = Family-plus-Community intervention; EGT = electronic game time; F&V = fruits and vegetables; F = Family-only intervention; I = intervention; ITT = intent-to-treat; MVPA = moderate-to-vigorous activity; N = No; NA = not applicable; RCT = randomized controlled trial; SD = standard deviation; SSB = sugar-sweetened beverages; SST = small screen time [i.e., television (TV), video, digital versatile discs (DVD)]; T = total; TST = total screen time; Y = Yes; ‡ = reported secondary outcomes for main study only; ⊕ = secondary outcomes reported at clinicaltrials.gov

Table S3. GRADE summary of evidence table

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Universal community engagement interventions	Comparison	Relative (95% CI)	Absolute (95% CI)		
BMI-z score												
12	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^e	none ^j	6918	5381	-	MD 0.02 lower (0.07 lower to 0.03 higher)	⊕○○○ Very low	IMPORTANT
Fruit intake (dichotomous)												
3	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^f	none	1252/2641 (47.4%)	1191/2995 (39.8%)	RR 0.94 (0.87 to 1.02)	24 fewer per 1,000 (from 52 fewer to 8 more)	⊕○○○ Very low	IMPORTANT
Fruit intake (continuous)												

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Universal community engagement interventions	Comparison	Relative (95% CI)	Absolute (95% CI)		
3	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^g	none	254	223	-	SMD 0.03 SD lower (0.24 lower to 0.17 higher)	⊕○○○ Very low	IMPORTANT
Vegetable intake (dichotomous)												
3	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^h	none	1486/2641 (56.3%)	1828/2995 (61.0%)	RR 0.92 (0.89 to 0.96)	49 fewer per 1,000 (from 67 fewer to 24 fewer)	⊕○○○ Very low	IMPORTANT
Vegetable intake (continuous)												
3	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^g	none	254	223	-	SMD 0.02 SD lower (0.23 lower to 0.19 higher)	⊕○○○ Very low	IMPORTANT

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Universal community engagement interventions	Comparison	Relative (95% CI)	Absolute (95% CI)		
Sugar-sweetened beverages (dichotomous)												
4	randomised trials	very serious ^a	very serious ^c	serious ^d	not serious ^f	none	1843/2868 (64.3%)	2515/3432 (73.3%)	RR 0.93 (0.82 to 1.05)	51 fewer per 1,000 (from 132 fewer to 37 more)	⊕○○○ Very low	IMPORTANT
Sugar-sweetened beverages (continuous)												
3	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ^g	none	671	563	-	SMD 0.25 SD lower (0.38 lower to 0.13 lower)	⊕○○○ Very low	IMPORTANT
Moderate-to-vigorous physical activity (continuous)												
4	randomised trials	very serious ^a	not serious ^b	serious ^d	not serious ⁱ	none	856	795	-	SMD 0 SD lower (0.10 lower to 0.1 higher)	⊕⊕○○ Low	IMPORTANT

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Universal community engagement interventions	Comparison	Relative (95% CI)	Absolute (95% CI)		
Small screen time (dichotomous)												
4	randomised trials	very serious ^a	very serious ^c	serious ^d	not serious ^f	none	1911/2804 (68.2%)	2547/3432 (74.2%)	RR 0.95 (0.86 to 1.05)	37 fewer per 1,000 (from 104 fewer to 37 more)	⊕○○○ Very low	IMPORTANT
Electronic game time (dichotomous)												
4	randomised trials	very serious ^a	very serious ^c	serious ^d	not serious ^f	none	1535/2804 (54.7%)	2183/3432 (63.6%)	RR 0.93 (0.81 to 1.07)	45 fewer per 1,000 (from 121 fewer to 45 more)	⊕○○○ Very low	IMPORTANT
Legend: CI = confidence interval; MD = mean difference; RR - risk ratio; SMD = standardized mean difference												

Explanations

- a. Almost all studies have unclear/high overall bias
- b. I-square statistics $\leq 40\%$, low heterogeneity
- c. I-square statistics $\geq 75\%$, considerable heterogeneity
- d. Universal pediatric populations were from different countries, undergoing different interventions of different durations
- e. No studies with small sample size, and only one study with wide CI (upper or lower limit crosses MD of 0.5 in either direction)

- f. No studies with small sample size and wide CI (upper or lower limit crosses RR of 0.25 in either direction)
- g. No studies with small sample size and wide CI (upper or lower limit crosses SMD of 0.5 in either direction)
- h. No studies with small sample size. Only one study with wide CI (upper or lower limit crosses RR of 0.25 in either direction)
- i. No studies with small sample size. Only one study with wide CI (upper or lower limit crosses SMD of 0.5 in either direction)
- j. Visual inspection of funnel plot indicates no observed pattern of publication bias