Childhood Obesity Evidence Base: A Novel Taxonomic Meta-Analytic Method

TAXONOMY OVERVIEW

Contents

Intervention Component Taxonomy

The Intervention Components Taxonomy includes Intervention Components (hearafter referred to as "components") organized by 9 Intervention Component Categories developed via the grounded approach.

Intervention Component Categories

Identifier	Category
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A02	Instructional Strategies
A03	Activities for Supporting Caregivers
A04	Facilitator Training Activities
A05	Involvement of Facilitators
A06	Policy-Based Strategies
A07	Activities Related to Phycial Activity / Environment
A08	Activities Related to Food / Food Environment
A09	Characteristics of the Intervention

Intervention Component Categories, Activities, and Examples

The first column maps onto the associated dataset. Some Intervention Components target multiple levels of the Social Ecological Model (SEM). For example, of the interventions that included "Focus on Food Preparation Content", several taught food preparation to individuals while others provided that information through a social network. The table / mapping below lays out the relationship between components and the Social Ecological Model (SEM) level at which they are targeted in interventions or policies.

Intervention Components			SEM Level				
A01	**Activities to Support Behavior Change**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
1	Implement Structures of Accountability	*Written contracts; Daily activity logs*	X	X	X		
2	Incorporate Implementation of Self-Reflection Strategies	*Self-assessments; Self-monitoring strategies*	X	X	X		
3	Implement Media Campaigns	*Marketing strategies; Social network campaigns*			X		
4	Incorporate Financial Incentives	*Provide compensation for participation; Money in exchange for changes in behavior*	X	X	X		
5	Engage Caregivers in Praise/Encouragement for Positive Health-related Behavior	*Positive affirmation; Encouragement from caregivers*		X	X		
6	Engage Caregivers in Goal-Setting	*Parents identify desired changes; Goal-setting activities with mothers*		X			
7	Engage Caregivers to Serve as Role Models for Children	*Caregiver trained on how to model healthy behaviors*		X	X		
92	Engage Facilitators in Praise/Encouragement for Positive Health-related Behavior	*Positive feedback from facilitator/instructor*		X			

Intervention Components			SEM Level				
A02	**Instructional Strategies**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
8	Provide Toys/Books/Games/Stickers for Child Engagement	*Stickers with cartoon characters on food containers; Provide card games*	X	X	X		
9	Utilize Arts and Music	*Using crafts; Providing music CDs*	X	X	X		
10	Utilize Games, Imaginative Play, or Story-telling	*Use puppets to demonstrate satiety cues; Tell stories with health nutrition themes*	X	X	X		
11	Utilize a Stepped-Intensity Approach	*Interventions begin with 12-week, in person initial phase and decrease to weekly 30-minute phone calls*		X	X		
12	Utilize Written Activities	*Use worksheets or workbooks*	X	X		X	
13	Utilize Modeling/Demonstration	*Use props to demonstrate stomach capacity; Facilitators model behaviors for parents (Passive)*	X	X	X		
14	Utilize Media for Instruction	*Use audiovisual presentations powerpoint presentations, videos, etc.*	X	X	X		
15	Utilize Hands-On Approach	*Hands-on practice of games/activities/intervention*	X	X	X		
16	Utilize Reflective Listening	*Use open-ended questions; Use reflective listening*		X	X		
17	Utilize Discussion	*Facilitate parent discussion groups*	X	X	X		
18	Utilize Role-Playing for Instruction	*Use role-playing for mothers to practice intervention; Use role-playing for facilitator trainings*		X	X		
19	Utilize Group Instruction	*Parents placed in groups for trainings on intervention*		X	X	X	
20	Utilize Telephone Calls	*Intervention delivered to mothers via phone calls; Phone coaching*	X	X			
21	Utilize Dual Language Instruction/Materials	*Curriculum written in English and Spanish*		X	X	X	
89	Utilize Field Trips / Site Visits	*Site visits to farmers market, grocery stores, etc… to reinforce content*		X			
A03	**Activities for Supporting Caregivers**	**Examples**	Individual	Inter-personal	Organizational	Community	Societal
22	Engage Experts to Provide Technical Assistance to Caregivers	*Access to mental health providers for caregivers; dietician providing nutritional counseling to caregivers*	X	X	X		
24	Provide Audiovisual Media Resources to Caregivers	*Caregivers receive music to encourage children dancing*		X	X		
25	Provide Materials to Support Healthy Eating Patterns to Caregivers	*Measuring cups or placemats to demonstrate appropriate portion sizes*	X	X	X		
26	Provide Materials to Support Screen Time	*Suggestions for alternative activities to do with*		X			

Intervention Components			SEM Level				
	Reduction to Caregivers	*children; Devices that restrict amount to time TV is on*					
91	Provide Materials to Support Self-Control in Children*	*Caregivers provided with timer for child behavioral management.*					
27	Provide Written Resources to Caregivers	*Brochures, books, handouts, pamphlets intended to provide content knowledge*	X	X	X		
28	Provide Access to Social Media Platforms/Websites to Caregivers	*Utilization of protected website to support intervention*	X	X		X	
29	Provide Education About Obesity Risk/Awareness to Caregivers	*Dispelling myths about obesity; Guidance on how to interpret child BMI*		X			
30	Provide Education About Physical Activity to Caregivers	*Information about the importance of physical activity*	X	X			
31	Provide Education About Healthy Sleep Patterns to Caregivers	*Information on importance of healthy sleep and how to facilitate those habits*		X			
32	Provide Education About the Importance of Routines to Caregivers	*Information about the utility of healthy routines and habits in supporting child health*		X			
33	Provide Education about Nutrition and Healthy Eating Patterns to Caregivers	*Examples of healthy foods; Information about importance of nutrition; Information to help mothers understand and implement healthy child eating patterns*	X	X	X		
34	Provide Education about Child Behavior Management to Caregivers	*How to support development of self-control in children*	X	X			
35	Provide Education about Modeling Healthy Behaviors to Caregivers	*Education on how to model healthy behaviors for children (e.g., choosing fruit/vegetable snacks, daily physical activity).*		X	X		
36	Provide Education about Sources of Stress and Coping Strategies to Caregivers	*Common sources of stress and how to manage stress.*		X			
37	Provide Education about Social and Emotional Skills to Caregiver	*Information on conflict resolution, parent confidence, effective communication, etc.*		X			
38	Provide Education about the Importance of Built Environment to Caregivers	*Introducing the concept of a built environment (e.g., parks) and how it can be modified to support healthy behaviors*		X		X	
39	Provide Education about Health and Wellness Content to Caregivers	*Connections between food and health; Helping parents to define what health means for them*		X	X		
40	Include Activities to Promote Problem-Solving to Caregivers	*Problem-solving strategies for either caregivers or whole family*		X			
41	Provide Education about the Importance of Screen Time Reduction to Caregivers	*Information on why it is important to reduce screen time*		X			
42	Implement Personalized Support for Caregivers	*Additional coaching in response to BMI increase; Personalized recommendations for sleep*	X	X	X		

Intervention Components			Individual	Interpersonal	Organizational	Community	Societal
43	Implement Follow-Up Support for Caregivers	*Coaching sessions for mothers; Follow-ups after clinic visit*		X	X		
88	Implement Support Groups for Caregivers	*Support group for parents, family members, and other caregivers*		**X**			
A04	**Facilitator Training Activities**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
44	Use a Train the Trainer Model	*Professional development providers are trained in the intervention, and these providers then train those that will ultimately deliver the intervention*	X	X	X	X	
45	Provide Curricular Materials to Facilitators	*Educative materials provided to facilitators to support their understanding and delivery of the intervention*	X	X	X		
46	Provide Regular Training Opportunities for Facilitators	*Yearly trainings; Regular follow up trainings*	X		X		X
47	Provide Initial or One-Time Training Opportunities for Facilitators	*Training provided before intervention*	X	X	X		
48	Provide Physical Activity Education and Training to Facilitators	*Information about the importance of physical activity*		X	X		
49	Provide Healthy Eating Education and Training to Facilitators	*Information to help facilitators understand and implement healthy child feeding patterns*		X	X	X	
50	Provide Food Preparation Education and Training to Facilitators	*Information on how to prepare or serve foods*			X		
51	Provide Nutrition Education and Training to Facilitators	*Examples of healthy foods; Information about importance of nutrition*	X	X	X		
A05	**Involvement of Facilitators[1]**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
52	Delivered by Pediatricians/Healthcare Providers	*Use of well child visit to deliver intervention; pediatricians or other healtcare provides (e.g., physican assistants, nurses) delivered all or part of the intervention*	X	X	X	X	
53	Delivered by Childcare Providers	*Intervention is delivered in a childcare setting; childcare providers/teachers/assistants delivered all or part of the intervention*			X		
54	Delivered by Families	*Intervention is delivered at home; family members delivered all or part of the intervention;*		X			

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[1] Delivery method was captured in the Intervention Context Taxonomy

Intervention Components			SEM Level				
		may include events specifically intended to engage families					
55	Delivered by Community Organizations	*Intervention components are delivered via community organizations; community organizations delivered all or part of the intervention.*			X	X	
A06	**Policy-Based Strategies**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
58	Implement Nutrition Standards	*Aligning with national nutritional standards, daycare using organizational (or city/state mandated) nutritional standards*			X		
59	Implement Earned Income Tax Credit*	*Adjustments to Earned Income Tax credit that increase family income. Note that this was described in only one article*					
60	Implement Policies for Regulating of Food/Beverage Costs*	*Policies that reduce cost of healthy foods/beverages and increase cost of sugary beverages*					
61	Implement Policies for Regulation of Food/Beverage Access	*Policies that increase access to health foods/beverages and reduce access to less health foods/beverages*			X		X
62	Implement SNAP/WIC Policies	*Modifications to WIC or SNAP that increase purchase power or allow for them to be used in farmers markets, etc.*			X		
63	Implement Policies for Increasing Physical Activity	*Community lobbied for renovation of park in order to increase park safety and increase use*			X		
	Activities Related to Phycial Activity / Environment	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
64	Focus on Physical Activity Education	*Teach about enjoyment of physical activity; Teach about importance of physical activity*	X	X	X		
65	Focus on Importance of Reduced Screen Time	*Teach why reducing screen time is important*	X	X			
66	Provide Materials/Space to Support Physical Activity to Caregivers	*Play equipment including toys; Access to outdoor play spaces*	X	X	X		
67	Provide Materials/Space to Support Physical Activity to Facilitators	*Play equipment including toys; Access to outdoor play spaces*		X	X		
68	Engage Caregivers in Supporting Physical Activities	*Suggestions for specific physical activities to do with child; Suggestions for how to utilize local parks to increase physical activity*		X			
69	Engage Childcare Providers in Supporting Physical Activity	*Suggestions of specific physical activities for child; Suggestions for how to utilize outdoor space to increase physical activity*	X	X	X		
70	Implement Reduction of Sedentary Behaviors	*Changing built environment to discourage TV watching; Limiting amount of time children*	X	X	X		

Intervention Components			SEM Level				
		spend watching TV					
71	Implement "Fun" Physical Activities to Engage Children	*Dance workshops; karate classes*	X	X	X		
72	Include Structured Physical Activities	*Child participates in structured physical activity, vigorous physical activity, etc*	X	X	X		
93	Include Free Play	*Intervention incorporates time for children to engage in free/open-ended play activities; may be indoor or outdoor.*	X	X	X		
A08	**Activities Related to Food / Food Environment**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
73	Focus on Food Preparation Education	*Demonstration on how to cut food or how to serve food*	X	X			
74	Focus on Nutrition-Related Education	*Teach about nutritional choices*	X	X	X		
75	Provide Food to Encourage Healthy Eating to Children	*Children are given bite-sized pieces of fruit and vegetables*	X	X	X		
76	Provide Healthy Recipes/Shopping Lists/Menus to Caregivers	*Caregivers are provided with shopping lists and/or recipes to facilitate healthy eating*	X	X			
77	Engage Childcare Providers in Facilitating Healthy Eating Patterns	*Preschool teachers serve meals and snacks on schedule; Preschool teachers eat family style with children*		X	X		
90	Engage Caregivers in Facilitating Healthy Eating Patterns	*Caregivers serve meals in response to children's satiety cues.*		X			
78	Decrease Less Healthy Food Options	*Childcare providers do not give children juice; salty or sugary foods/beverages are removed from children's menu*	X	X	X		
79	Increase Healthy Food Options	*Childcare providers serve whole grains daily; Require that healthy side items are bundled with meals by default*	X	X	X		
80	Include Opportunities for Children to Prepare Foods	*Children cut, mix, or serve foods*	X	X		X	
81	Include Opportunities for Children to Try New Foods	*Asking children to try unfamiliar foods*	X	X	X		
A09	**Characteristics of the Intervention**	**Examples**	Individual	Interpersonal	Organizational	Community	Societal
82	Utilize Recognized Standards or Recommendations	*Intervention is aligned to or incorporates recommendations /standards (national, state, content-area, etc.)*	X	X	X	X	
83	Utilized Research-Based Approaches or Curriculum	*Intervention is informed by or uses curriculum that is research-based.*	X	X	X	X	
84	Documentation of Intervention Implementation/Quality	*Systematic procedures for defining and measuring implementation or quality of intervention; treatment fidelity*				X	X
85	Engage Caregiver / Family in Intervention Development	*Involved families in developing intervention*				X	X

Intervention Components			SEM Level				
86	Engage Childcare Providers in Intervention Development	*Involved childcare providers in developing intervention.*			X		
87	Engage Pediatricians/Healthcare Providers in Intervention Development	*Involved pediatricians or other healthcare providers in developing intervention.*		X	X		
57	Used a Culturally-Tailored Intervention	*Intervention is tailored to race/ethnicity/cultural group; delivered in native language.*		X	X	X	
23	Implement Home-Visits	*In-home training and case workers making home visits*	X	X			
56	Utilize a Multi-Level Approach	*Intervention program used a combination of healthcare providers, parents, childcare providers, or community members/organizations.*		X	X	X	

Denotes componentss that were created from training set of articles or added by the COEB External Expert Panel but are not present in the final dataset (which was used for taxonomic meta-analysis and the final Results paper)

Intended Recipients Taxonomy

Intended Recipients (Children) Characteristics	Definition
Level of Education	Reported level of education for children
Age Group	Reported Age Group of children participants
Living Arrangements	Family structure (i.e., living with both parents, living with one parent, living with grandparents)
Gender	Gender of child
Language Spoken at Home	Information about language spoken and/or language proficiency (i.e. English language learner (ELL) status)
Physical / Learning Differences	Learning, behavioral, mental, or physical differences
Race/Ethnicity	Race or ethnicity of child
Socio-Economic Status	Socioeconomic status of child
Technology Access	Extent to which child has access to technology in the home
Health Status	BMI, at risk for obesity, physical activity level, etc.

Specific Intended Recipients components can be found in the accompanying dataset

Intervention Context Taxonomy

Intervention Context Category	Definition
Community Type	Rural, suburban, urban
Geographic Location	Region, state, city, country
Intervention Setting	Where intervention takes place; within a school, childcare center, clinic, etc.
Instructor/Facilitator Education and Experience	Includes number of years providing instruction and degrees/certifications.
Instructor/Facilitator Gender	Gender of instructor(s)
Instructor/Facilitator Language	Native language or language proficiency of instructor(s)
Instructor/Facilitator Race/Ethnicity	Race/Ethnicity of instructor(s)
School Grade Level	The range of grade levels accommodated at the school (i.e., "K-5;" "high school;" "university")
School/District/Community Language Status	Description of language proficiency at the school or district level (i.e., student body is mostly ELL)
School/District/Community Race/Ethnicity Composition	Description of racial/ethnic makeup of school or district
School/District/Community Socio-Economic Status	Description of school or district SEL, including "low income;" "wealthy;" "50% free or reduced-price lunch;" etc.
Caregiver/Parent Employment Status	Description of whether parents are employed and to what extent
Caregiver/Parent Health Status	Characteristics of health status including BMI, obesity status, pregnancy/breastfeeding, overall health, etc.
Caregiver/Parent Relationship Status	Whether caregivers/parents are single, divorced, separated, married, etc.
Caregiver/Parent Language Status	Languages spoken by caregivers/parents
Caregiver/Parent Age	Age ranges or absolute numbers of years
Technology Present in Home	Types of technologies available include computers and phones

Specific Intervention Context components can be found in the accompanying dataset

Outcomes Taxonomy

The Outcomes Taxonomy categorizes common child-level individual outcomes. These were identified across the 40 reports used for taxonomy development ("training set"). Given the pilot nature of this project, taxonomic meta-analysis of the final 51 studies was restricted to those with measures of Body Mass Index (under the outcome "Weight Status").

Individual Outcomes	Definitions	Examples
Weight Status	Attained healthy or recommended weight/Body Mass Index (BMI)	Change in height/weight/BMI (kg/m^2, percentage, z-scores).
Physical Activity	Demonstrated positive changes in hysical activity and/or maintained healthy physical activity	Change in physical activity frequency, intensity, or duration.
Diet	Demonstrated positive changes in food intake and/or maintained healthy diet	Change in vegetable/fruit consumption; Change in sugar sweetened beverage consumption; Consuming recommended amounts of carbohydrates, protein, and fat
Sleep	Demonstrated positive changes in sleep behavior and/or maintained healthy sleep behavior	Change in sleep hygiene/sleep quantity and/or quality; Change in bed-time routine