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Supplementary File 2 - Review characteristics

Description: Table of included meta-analyses and their characteristics.

Review characteristics for studies providing unique effects							
Review Characteristics							
Review characteristics for meta-analyses providing unique effects							
First Author	Year	Design Restrictions	Sample Restrictions	Year Range Latest - Latest	Sample Age Restrictions (Age Range) ¹	Outcomes Assessed	Exposures Assessed
Abrami	2020	Include: Experimental designs	None specified	2009–2019	School-age Children (Early primary; Elementary)	<ul style="list-style-type: none">Literacy: Literacy comprehensionLiteracy: PhonicsPhonemic awarenessLiteracy: Reading comprehensionLiteracy: Reading fluencyLiteracy: Vocabulary knowledge	<ul style="list-style-type: none">Intervention: Literacy (Abacadabra; in schools)
Adelantado-Renau	2019	Include: Cross-sectional studies	None specified	1982–2019	Children; Adolescents (5.7-18.0)	<ul style="list-style-type: none">Learning: GeneralLiteracy: GeneralNumeracy: General	<ul style="list-style-type: none">Screen use: GeneralTV programs and movies: GeneralVideo games: General
Andrade	2019	Include: Interventions	Include: Overweight and obese	2010–2017	Children; Adolescents	<ul style="list-style-type: none">Healthy behavior: Self-efficacyPsychological health: DepressionPsychological health: EnjoymentSelf-perceptions: GeneralSelf-perceptions: Self-esteem	<ul style="list-style-type: none">Video games: Physically active
Arztmann	2022	None specified	None specified	2008–2020	School-age Children (Primary, Elementary; Middle school)	<ul style="list-style-type: none">Learning: BehaviorLearning: Motivation	<ul style="list-style-type: none">Video games: Educational (with competition)
Aspiranti	2020	Include: Interventions	Include: Autism	2013–2015	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Education (via touch screen)
Bartel	2015	None	Exclude: Atypical population (except for delayed sleep phase disorder or insomnia)	2012–2014	Adolescents (12.2-17.7)	<ul style="list-style-type: none">Sleep: Bedtime durationSleep: Duration to fall asleep	<ul style="list-style-type: none">Computer use: GeneralInternet use: GeneralScreen use: General (mobile phone)TV programs and movies: GeneralVideo games: General
Beck Silva	2022	Include: Randomised controlled trials and quasi-RCTs.	Exclude: Any disease Mental disorders	1999–2019	Adolescents	<ul style="list-style-type: none">Diet: Fat consumption	<ul style="list-style-type: none">Intervention: Nutrition (in schools)
Benavides-Varela	2020	Include: Randomised controlled trials	Include: Math difficulties	2006–2018	Children	<ul style="list-style-type: none">Numeracy: Mathematics	<ul style="list-style-type: none">Intervention: Mathematics
Blok	2002	None	Include: Regularly excluded: poor readers or dyslexics; exclude: Severe or multiple disabilities	1990–2000	All (5.4-11.5)	<ul style="list-style-type: none">Literacy: Reading fluency	<ul style="list-style-type: none">Intervention: Literacy
Bossem	2020	Include: Randomised controlled trials	Include: Chronic disease	2011–2018	Children (10.0-15.7)	<ul style="list-style-type: none">Physical health: FitnessPhysical health: GeneralPhysical health: Muscular fitness	<ul style="list-style-type: none">Video games: Health promoting content
Boyland	2016	Include: Experimental	None specified	2004–2015	Children; Adolescents (6.0-10.4)	<ul style="list-style-type: none">Diet: Food intake	<ul style="list-style-type: none">Advertising: Unhealthy food
Byun	2018	Include: All quantitative designs	None specified	2006–2014	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Video games: Numeracy
Cao	2020	Include: designs with control groups	Exclude: Brain damage	2002–2019	Children (3.4-14.3)	<ul style="list-style-type: none">Cognition: Executive functioningCognition: Executive functioning (cognitive flexibility)Cognition: Executive functioning (inhibition)Cognition: Executive functioning (working memory)	<ul style="list-style-type: none">Computer use: Executive functioning training
Champion	2019	Include: Randomised controlled trials	None specified	2003–2017	School-age Children (11.4-15.9)	<ul style="list-style-type: none">Body composition: BMIBody composition: BMI z-scoreBody composition: Fat-free massBody composition: Waist circumference	<ul style="list-style-type: none">Intervention: Lifestyle risk behaviour (at school)
Chan	2014	Include: Experimental; Quasi-experimental	None specified	2002–2012	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Dynamic geometry software
Chauhan	2017	Include: pre-post designs with or without control group	None specified	2001–2016	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Screen use: General (in schools)
Chen	2020	Include: Experimental designs	None specified	2008–2019	All	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Video games: Educational (with competition)
Cheung	2012	Include: Randomised controlled trials	None specified	1992–2010	School-age Children	<ul style="list-style-type: none">Literacy: Reading	<ul style="list-style-type: none">Intervention: Reading (in schools)
Cheung	2013	Include: Experimental; Quasi-experimental	None specified	1980–2010	School-age Children	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics (in schools)
Cho	2018	Include: experimental designs with control group	None specified	2008–2013	All	<ul style="list-style-type: none">Learning: Second language	<ul style="list-style-type: none">Screen use: General (mobile phone for language learning)
Claussen	2022	Include: Longitudinal; Retrospective	None specified	2004–2018	All	<ul style="list-style-type: none">Psychological health: ADHDPsychological health: ADHD Symptoms (inattention)	<ul style="list-style-type: none">Screen use: General
Clinton	2019	Include: randomised experimental designs	Exclude: Disabilities	2001–2016	All	<ul style="list-style-type: none">Literacy: Reading performance	<ul style="list-style-type: none">Screen use: Reading (vs paper)
Comeras-Chueca	2021	include: randomized and non-randomized controlled trials (control group with no intervention or traditional exercise intervention)	Exclude: Disabilities, diseases or disorders, overweight or obese	2008–2019	All (4.5-11.6)	<ul style="list-style-type: none">Body composition: BMIBody composition: BMI z-scoreBody composition: Fat-free massBody composition: Waist circumference	<ul style="list-style-type: none">Video games: Physically active
Comeras-Chueca	2021	Include: randomized and non-randomized controlled with control group with no intervention or traditional exercise intervention	Exclude: Participants with other than obesity	2010–2020	All (8.0-14.0)	<ul style="list-style-type: none">Body composition: BMI fat percentageBody composition: Fat-free massBody composition: Waist circumference	<ul style="list-style-type: none">Video games: Physically active
Coyne	2018	None	None specified	1975–2017	Children; Adolescents	<ul style="list-style-type: none">Prosocial Behavior: General	<ul style="list-style-type: none">Screen use: Prosocial content
Cunningham	2021	Include: Quantitative designs	None specified	2014–2018	All (11.2-16.8)	<ul style="list-style-type: none">Psychological health: Depression	<ul style="list-style-type: none">Social Media: General (duration)
Cushing	2010	Include: All quantitative designs; Experimental	None specified	1989–2009	Children; Adolescents	<ul style="list-style-type: none">Healthy behavior: General	<ul style="list-style-type: none">Intervention: Health behaviours
Darling	2017	Include: Intervention	None specified	2006–2016	Children; Adolescents (8.7-16.0)	<ul style="list-style-type: none">Body composition: Diet healthy eating behaviourPhysical activity: General	<ul style="list-style-type: none">Intervention: To promote health (via mobile phone)
Eirich	2022	Include: experimental or observational	Exclude: Atypically developing	1978–2021	Children (0.5-11.0)	<ul style="list-style-type: none">Psychological health: ExternalizingPsychological health: Internalizing	<ul style="list-style-type: none">Screen use: General
Feng	2021	Include: Quantitative designs	Include: Healthy children	2017–2019	Early childhood; Pre-school	<ul style="list-style-type: none">Body composition: BMI z-score	<ul style="list-style-type: none">Screen use: General (meeting guidelines)
Ferguson	2017	None	None specified	2005–2017	Children; Adolescents	<ul style="list-style-type: none">Risky behavior: Sexual activity (initiation of sex)	<ul style="list-style-type: none">Screen use: Sexual content
Ferguson	2020	Include: Experimental; Quasi-experimental	None specified	2009–2013	All (7.8-17.5)	<ul style="list-style-type: none">Aggression: General	<ul style="list-style-type: none">Video games: Violent content
Folkvord	2018	Include: Interventions	None specified	2007–2018	Children; Adolescents	<ul style="list-style-type: none">Diet: Food intake (calories)	<ul style="list-style-type: none">Advertising: Advergames
Furenes	2021	Include: experimental or quasi-experimental	Exclude: Cochlear implants or autism Autism	2002–2019	Early childhood; Pre-school; School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Learning: Reading comprehensionLearning: Vocabulary learning	<ul style="list-style-type: none">e-Books: General
Gardella	2017	Include: Cross-sectional	None specified	2006–2014	Adolescents (12.5-16.8)	<ul style="list-style-type: none">Learning: Educational achievement problemsLearning: School attendance problems	<ul style="list-style-type: none">Internet use: Cyberbullying victimization
Garzón	2019	Include: Experimental with control group	None specified	NA	All	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Augmented reality (in schools)
Graham	2015	Include: Experimental; Quasi-experimental	None specified	2004–2011	School-age Children (Primary, Elementary; Middle school)	<ul style="list-style-type: none">Literacy: Writing	<ul style="list-style-type: none">Intervention: Writing feedback
Hammersey	2016	Include: Randomised controlled trials	Exclude: Those with special needs, require a special diet, or have a condition that would limit physical activity	2003–2013	Children; Adolescents	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Intervention: To promote healthy weight (obesity prevention)
Hao	2021	Include: Experimental with control group	Exclude: Disabilities	2012–2018	School-age Children	<ul style="list-style-type: none">Learning: Second language	<ul style="list-style-type: none">Intervention: English as foreign language
Hassan-Saleh	2019	Include: Experimental; Quasi-experimental	None specified	2008–2016	Children; Adolescents	<ul style="list-style-type: none">Literacy: Pronunciation	<ul style="list-style-type: none">Intervention: Pronunciation
He	2021	Include: Randomised controlled trials	None specified	2009–2018	Children; Adolescents (9.9-16.0)	<ul style="list-style-type: none">Physical activity: General	<ul style="list-style-type: none">Intervention: To promote physical activity (via mobile phone)
Hernandez-Jimenez	2019	Include: Experimental; Quasi-experimental	None specified	2009–2017	Children; Adolescents	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Video games: Physically active
Hurwitz	2018	None	None specified	1997–2018	Early childhood; Pre-school; School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Literacy: General	<ul style="list-style-type: none">Intervention: Literacy videos
Ivie	2020	Include: Correlational studies	None specified	2012–2019	Adolescents (14.0-18.0)	<ul style="list-style-type: none">Psychological health: Depression	<ul style="list-style-type: none">Social Media: General
Janssen	2020	Include: Experimental; Cross-sectional; Longitudinal	Include: Healthy children	2007–2019	Children	<ul style="list-style-type: none">Sleep: Duration	<ul style="list-style-type: none">Screen use: General
Kates	2018	None	None specified	2008–2016	School-age Children	<ul style="list-style-type: none">Learning: Literacy and numeracy	<ul style="list-style-type: none">Screen use: General (mobile phone)
Kim	2021	Include: experimental or quasi-experimental	None specified	2010–2018	School-age Children (Early Primary, Elementary)	<ul style="list-style-type: none">Literacy: GeneralNumeracy: General	<ul style="list-style-type: none">Screen use: Educational apps
Kroesbergen	2003	Include: Within subject design; between subject design	Include: Math difficulties	1985–1999	School-age Children (Primary, Elementary) (7.0-11.3)	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics (via computer in classrooms)
Kucukkalan	2019	Include: Experimental	Include: Dyscalculia	2007–2016	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Numeracy: General	<ul style="list-style-type: none">Intervention: Mathematics
Li	2010	Include: Experimental; Quasi-experimental	None specified	1991–2005	School-age Children	<ul style="list-style-type: none">Developmental: Gross motor (locomotor)Developmental: Gross motor (non-locomotor)Developmental: Gross motor (object control skills)	<ul style="list-style-type: none">Intervention: Active video games for motor skills
Li	2022	Include: Randomised controlled trials	Include: Atypically developing	2012–2020	Children; Adolescents	<ul style="list-style-type: none">Learning: Computational thinking	<ul style="list-style-type: none">Computer use: Programming exercises
Liao	2008	Include: All quantitative designs	None specified	1990–2003	School-age Children (Primary, Elementary)	<ul style="list-style-type: none">Learning: General	<ul style="list-style-type: none">Intervention: Education (via computer)
Liao	2014	Include: Randomised controlled trials	None specified	1999–2012	Children; Adolescents (4.0-14.7)	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Intervention: Screen time reduction
Liu	2019	Include: studies with control group	None specified	NA	All	<ul style="list-style-type: none">Cognition: Creativity	<ul style="list-style-type: none">Screen use: General
Lu	2021	Include: Cross-sectional only	Include: Healthy only	2014–2018	Adolescents	<ul style="list-style-type: none">Psychological health: Negative coping stylePsychological health: Positive coping style	<ul style="list-style-type: none">Screen use: General (mobile phone addiction)
Madigan	2020	Include: Observational	Exclude: Asd or intellectual disability	1973–2019	Children (0.5-10.6)	<ul style="list-style-type: none">Literacy: General	<ul style="list-style-type: none">Intervention: Education (general)Screen use: GeneralScreen use: General (mobile in background)TV programs and movies: GeneralTV programs and movies: General (in background)
Major	2021	Include: Randomised controlled trials	None specified	2007–2020	Children; Adolescents	<ul style="list-style-type: none">Cognition: Cognitive functioningCognition: Executive functioningCognition: GeneralDevelopmental: General	<ul style="list-style-type: none">Intervention: Literacy (Abacadabra; in schools)
Mallawaarachchi	2022	Include: Cross-sectional or longitudinal	Include: Non-clinical	2014–2020	Early childhood; Pre-school (1.5-5.4)	<ul style="list-style-type: none">Psychological health: Self-regulationSleep: General	<ul style="list-style-type: none">Screen use: General (mobile phone or tablet)
Mares	2005	None	None specified	1969–1989	Children	<ul style="list-style-type: none">Aggression: GeneralAggression: Reducing stereotypesAggression: Towards peers	<ul style="list-style-type: none">TV programs and movies: General
Mares	2013	None	None specified	1973–2010	Children	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Intervention: Sesame Street
Marker	2022	None specified	None specified	2001–2015	All (6.0-12.2)	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">Video games: General
Marshall	2004	None	None specified	1985–2002	Children; Adolescents	<ul style="list-style-type: none">Body composition	<ul style="list-style-type: none">TV programs and movies: GeneralTV programs and movies: General (via computer)
Martins	2019	Include: All quantitative designs	None specified	2003–2018	All	<ul style="list-style-type: none">Aggression: General	<ul style="list-style-type: none">Screen use: General
Martins	2022	Include: Cross-over or parallel randomized controlled trials	None specified	2006–2017	Children; Adolescents	<ul style="list-style-type: none">Diet: Food intake (calories)	<ul style="list-style-type: none">TV programs and movies: Mealtimes
Mazeas	2022	Include: Randomised controlled trials	Exclude: Contraindications to physical activity; Intellectual and cognitive impairments	2015–2019	All (10.3-17.8)		

Supplementary File 3 - Effect Characteristics

Description: Descriptive table for the included effects.

Effect Size Characteristics

Characteristics of included and excluded effect sizes

Variable	Effect Size Used	
	Not Used, N = 199¹	Used, N = 252¹
Review Year		
1982	0 (0%)	1 (0.4%)
1994	0 (0%)	3 (1.2%)
2002	0 (0%)	1 (0.4%)
2003	0 (0%)	1 (0.4%)
2004	6 (3.0%)	11 (4.4%)
2005	0 (0%)	4 (1.6%)
2008	0 (0%)	1 (0.4%)
2009	0 (0%)	2 (0.8%)
2010	0 (0%)	2 (0.8%)
2011	3 (1.5%)	3 (1.2%)
2012	1 (0.5%)	2 (0.8%)
2013	4 (2.0%)	12 (4.8%)
2014	1 (0.5%)	7 (2.8%)
2015	8 (4.0%)	16 (6.3%)
2016	16 (8.0%)	9 (3.6%)
2017	10 (5.0%)	8 (3.2%)
2018	6 (3.0%)	15 (6.0%)
2019	38 (19%)	50 (20%)
2020	25 (13%)	49 (19%)
2021	28 (14%)	24 (9.5%)
2022	53 (27%)	31 (12%)

¹ n (%); Median (IQR)

Effect Size Characteristics

Characteristics of included and excluded effect sizes

Variable	Effect Size Used	
	Not Used, N = 199¹	Used, N = 252¹
Outcome Category		
Education	41 (21%)	88 (35%)
Health Behaviour	56 (28%)	63 (25%)
Physical Health	63 (32%)	31 (12%)
Psychology	39 (20%)	69 (27%)
(missing)	0	1
Broad Outcome		
Aggression	0 (0%)	4 (1.6%)
Antisocial Behaviour	0 (0%)	3 (1.2%)
Body composition	46 (23%)	25 (9.9%)
Cardiometabolic health	4 (2.0%)	3 (1.2%)
Cognition	10 (5.0%)	21 (8.3%)
Developmental	0 (0%)	5 (2.0%)
Diet	17 (8.5%)	15 (6.0%)
Eye health	10 (5.0%)	0 (0%)
Healthy behavior	1 (0.5%)	4 (1.6%)
Learning	29 (15%)	43 (17%)
Literacy	10 (5.0%)	33 (13%)
Numeracy	2 (1.0%)	11 (4.4%)
Physical activity	19 (9.5%)	20 (7.9%)
Physical health	3 (1.5%)	1 (0.4%)
Prosocial Behavior	0 (0%)	3 (1.2%)

¹ n (%); Median (IQR)

Effect Size Characteristics

Characteristics of included and excluded effect sizes

Variable	Effect Size Used	
	Not Used, N = 199¹	Used, N = 252¹
Psychological health	23 (12%)	26 (10%)
Risky behavior	10 (5.0%)	7 (2.8%)
Science	0 (0%)	1 (0.4%)
Screen time	3 (1.5%)	4 (1.6%)
Self-perceptions	1 (0.5%)	2 (0.8%)
Sleep	11 (5.5%)	20 (7.9%)
Social interactions	0 (0%)	1 (0.4%)
Broad Exposure		
Advertising	14 (7.0%)	5 (2.0%)
Computer use	9 (4.5%)	11 (4.4%)
e-Books	0 (0%)	5 (2.0%)
Internet use	1 (0.5%)	7 (2.8%)
Screen use	77 (39%)	47 (19%)
Screen-based intervention	56 (28%)	92 (37%)
Social Media	6 (3.0%)	10 (4.0%)
TV advertising	1 (0.5%)	0 (0%)
TV programs and movies	12 (6.0%)	30 (12%)
Video games	23 (12%)	45 (18%)
Number of Contributing Studies	5 (3, 10)	8 (4, 16)
(missing)	9	3
Pooled Sample Size	1,894 (672, 9,752)	2,029 (737, 5,923)
Age Group		

¹ n (%); Median (IQR)

Effect Size Characteristics

Characteristics of included and excluded effect sizes

	Effect Size Used	
Variable	Not Used, N = 199¹	Used, N = 252¹
Adolescents	21 (11%)	57 (23%)
Children	47 (24%)	74 (29%)
Mixed	116 (58%)	102 (40%)
Young	12 (6.0%)	13 (5.2%)
Young children	3 (1.5%)	6 (2.4%)
Sample Type		
Atypically developing	1 (0.5%)	3 (1.2%)
Autism	6 (3.0%)	1 (0.4%)
Chronic disease	1 (0.5%)	4 (1.6%)
Dyscalculia	0 (0%)	1 (0.4%)
General	186 (93%)	228 (90%)
Math difficulties	1 (0.5%)	2 (0.8%)
Overweight and obese	4 (2.0%)	10 (4.0%)
Poor readers	0 (0%)	3 (1.2%)
Study Design		
Cross-sectional	4 (2.0%)	16 (6.3%)
Experimental	108 (54%)	129 (51%)
Longitudinal	8 (4.0%)	12 (4.8%)
Mixed or unclear	50 (25%)	79 (31%)
Observational	29 (15%)	16 (6.3%)
Study-level Data Available	150 (75%)	187 (74%)
Meets Statistical Certainty Criteria		

¹ n (%); Median (IQR)

Effect Size Characteristics

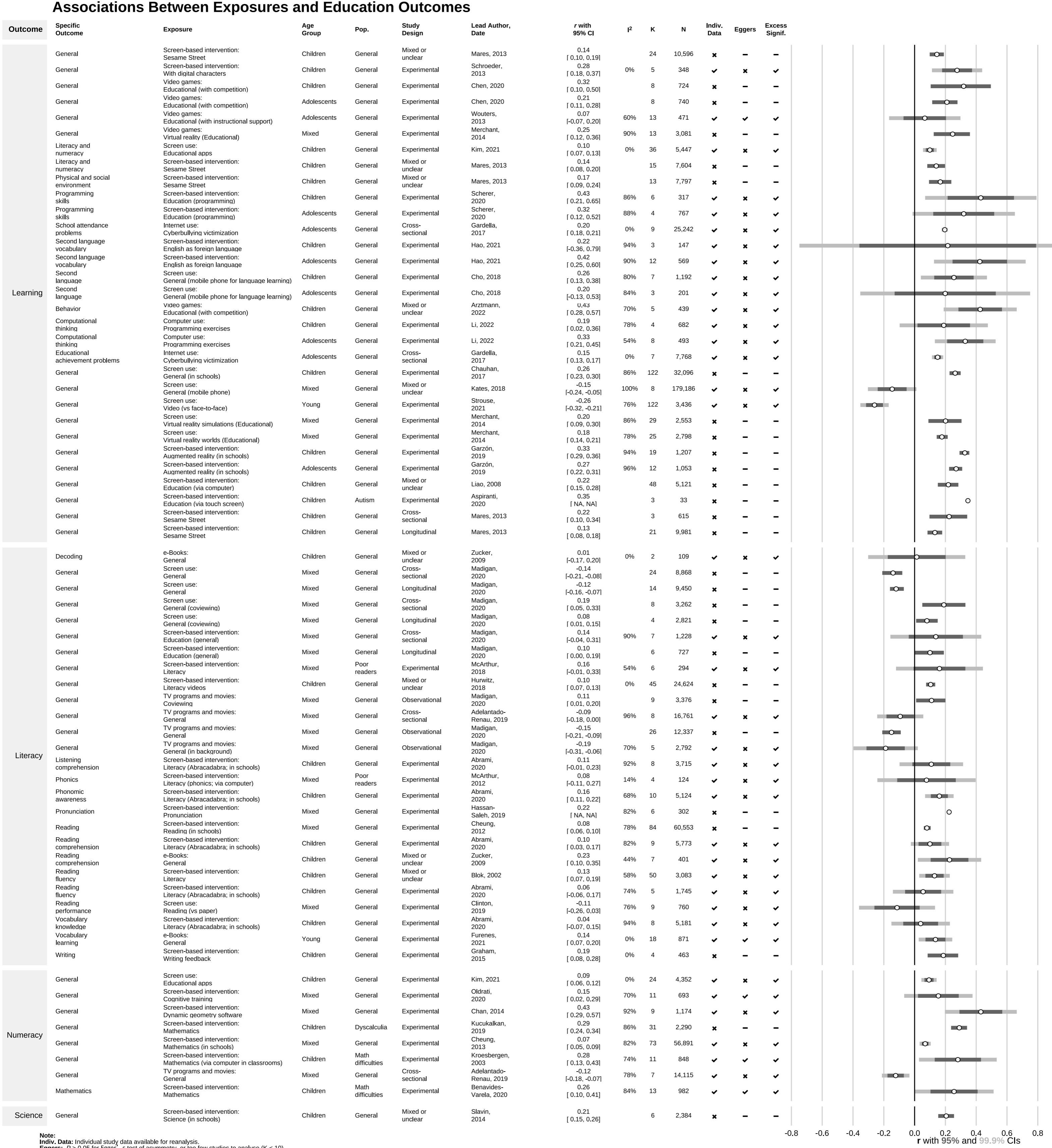
Characteristics of included and excluded effect sizes

Variable	Effect Size Used	
	Not Used, N = 199 ¹	Used, N = 252 ¹
Meets Criteria	8 (4.0%)	43 (17%)
Unclear	191 (96%)	209 (83%)

¹ n (%); Median (IQR)

Supplementary File 4 - Education Outcomes

Description: Additional education outcomes which did not meet certainty criteria.



Supplementary File 5 - Health-related Outcomes

Description: Additional health-related outcomes which did not meet certainty criteria.

Associations Between Exposures and Health-related Outcomes

The forest plot displays the results of 100 studies across 15 categories. Each study's effect size (r) and 95% confidence interval (CI) are shown as a horizontal line with a diamond marker. The x-axis represents the effect size (r), ranging from -0.8 to 0.8. The y-axis lists the outcome variables. Study characteristics (Age Group, Pop., Design, Date, Lead Author) are listed above each study entry. Statistical parameters (I², K, N, Indiv. Data, Eggers, Excess Signif.) are provided for each category.

Outcome	Specific Outcome	Exposure	Age Group	Pop.	Study Design	Lead Author, Date	r with 95% CI	I ²	K	N	Indiv. Data	Eggers	Excess Signif.
Aggression	Towards peers	Screen use: General	Mixed	General	Mixed or underar	Martins, 2019	0.01 [0.02, 0.05]	3	707	x	-	-	-
	Towards peers	TV programs and movies: General	Children	General	Mixed or underar	Mates, 2005	0.26 [0.20, 0.33]	15	747	x	-	-	-
	Towards peers	Video games: Violent content	Children	General	Longitudinal	Prescott, 2018	0.10 [0.07, 0.12]	7	3,583	x	-	-	-
Antisocial Behaviour	General	TV programs and movies: Violent content	Children	General	Mixed or underar	Paik, 1994	0.31 [0.21, 0.40]	351	x	-	-	-	-
	General	TV programs and movies: Violent content	Adolescents	General	Mixed or underar	Paik, 1994	0.22 [0.12, 0.32]	334	x	-	-	-	-
	General	TV programs and movies: Violent content	General	General	Mixed or underar	Paik, 1994	0.46 [0.41, 0.51]	1,117	x	-	-	-	-
Body composition	BMI z-score	Screen use: General (meeting guidelines)	Young	General	Mixed or underar	Fong, 2021	0.07 [0.09, 0.24]	86%	4	1,275	v	x	v
	BMI z-score	Video games: Physically active	Mixed	Overweight and obese	Experimental	Comeras-Chuca, 2021	-0.03 [0.11, 0.05]	0%	6	597	v	x	v
	Body fat percentage	Video games: Physically active	Mixed	Overweight and obese	Experimental	Comeras-Chuca, 2021	-0.30 [0.46, -0.14]	44%	3	408	v	x	v
	Body composition	Computer use: General	Mixed	General	Longitudinal	van Eekhs, 2016	0.08 [0.10, 0.27]	98%	5	7,888	v	x	v
	Body composition	Screen-based intervention: Lifestyle risk behaviour (at school)	Mixed	General	Experimental	Champion, 2019	-0.06 [0.21, 0.08]	30%	5	3,480	x	-	-
	Body composition	Screen-based intervention: Screen-time reduction	Mixed	General	Experimental	Liao, 2014	-0.08 [0.16, 0.01]	0%	5	541	v	x	v
	Body composition	Screen-based intervention: To promote healthy weight (via mobile phone app)	Adolescents	General	Experimental	Shin, 2019	-0.02 [0.08, 0.05]	0%	6	853	v	x	v
	Body composition	Screen-based intervention: To promote healthy weight (via mobile phone)	Mixed	General	Experimental	Darling, 2017	-0.21 [0.31, -0.09]	9	565	x	-	-	-
	Body composition	Screen-based intervention: To promote healthy weight (via mobile phone)	Adolescents	General	Experimental	Shin, 2019	-0.02 [0.07, 0.03]	0%	9	1,368	v	x	v
	Body composition	Screen-based intervention: To promote healthy weight (via text message)	Adolescents	General	Experimental	Shin, 2019	-0.01 [0.10, 0.07]	0%	3	505	v	x	v
	Body composition	Screen-based intervention: To promote healthy weight (via text message)	Mixed	General	Experimental	Hammersley, 2016	0.07 [0.12, 0.27]	88%	4	1,102	v	x	v
	Body composition	TV programs and movies: General	Mixed	General	Cross-sectional	Marshall, 2004	0.05 [0.04, 0.06]	43	28,716	x	-	-	-
	Body composition	TV programs and movies: General	Mixed	General	Longitudinal	van Eekhs, 2016	0.11 [0.02, 0.19]	98%	9	25,716	v	x	v
	Body composition	TV programs and movies: General	Mixed	General	Mixed or underar	Marshall, 2004	0.07 [0.06, 0.08]	70%	52	44,707	x	-	-
	Body composition	Video games: General	Mixed	General	General	Marshall, 2004	0.15 [0.04, 0.26]	78%	4	2,047	v	x	v
Fat-free mass	Video games: Physically active	Mixed	Overweight and obese	Experimental	Comeras-Chuca, 2021	-0.08 [0.32, 0.21]	76%	3	408	v	x	v	
Waist circumference	Video games: Physically active	Mixed	Overweight and obese	Experimental	Comeras-Chuca, 2021	-0.19 [0.55, 0.17]	90%	3	443	v	x	v	
BMI	Video games: Physically active	Mixed	Overweight and obese	Experimental	Comeras-Chuca, 2021	-0.10 [0.18, -0.01]	0%	4	488	v	x	v	
BMI	Video games: Physically active	Children	General	Experimental	Comeras-Chuca, 2021	-0.14 [0.26, -0.02]	62%	7	898	v	x	v	
Cardiometabolic health	Fitness	Video games: Health promoting content	Children	Chronic disease	Experimental	Bossem, 2020	0.16 [0.00, 0.32]	10%	2	161	v	x	v
	Fitness	Video games: Physically active	Children	General	Experimental	Comeras-Chuca, 2021	0.21 [0.01, 0.43]	90%	4	892	v	x	v
	Maximum oxygen consumption	Video games: Physically active	Children	General	Mixed or underar	Peng, 2011	0.82 [0.74, 0.87]	9	172	x	-	-	-
Cognition	Cognitive functioning	Screen-based intervention: Cognitive training	Mixed	General	Experimental	Olfrait, 2020	0.21 [0.13, 0.28]	88%	68	3,540	v	x	v
	Creativity	Screen use: General	Children	General	Experimental	Liu, 2022	0.20 [0.13, 0.27]	84%	60	3,648	v	x	v
	Creativity	Screen use: General	Adolescents	General	Experimental	Liu, 2022	0.29 [0.15, 0.42]	98%	46	9,620	v	x	v
	Executive functioning (accuracy)	Screen-based intervention: Education (via computer)	Children	General	Experimental	Takacs, 2019	0.21 [0.12, 0.28]	58%	28	1,563	x	-	-
	Executive functioning (cognitive flexibility)	Computer use: Executive functioning training	Children	General	Experimental	Takacs, 2019	0.09 [0.04, 0.22]	48%	12	1,015	x	-	-
	Executive functioning (inhibition)	Screen-based intervention: Education (via computer)	Children	General	Experimental	Takacs, 2019	0.12 [0.04, 0.22]	22%	22	1,512	x	-	-
	Executive functioning (inhibition)	Computer use: Executive functioning training	Children	General	Experimental	Takacs, 2019	0.11 [0.07, 0.17]	90%	15	894	x	-	-
	Executive functioning (working memory)	Screen-based intervention: Education (via computer)	Children	General	Experimental	Cao, 2020	0.09 [0.02, 0.14]	56%	28	2,170	x	-	-
	Executive functioning (working memory)	Computer use: Executive functioning training	Children	General	Experimental	Cao, 2020	0.12 [0.04, 0.22]	21	1,220	x	-	-	-
	Executive functioning (working memory)	Screen-based intervention: Education (via computer)	Children	General	Experimental	Takacs, 2019	0.23 [0.14, 0.32]	54%	36	2,975	v	x	v
	Executive functioning (working memory)	Computer use: Executive functioning training	Children	General	Experimental	Cao, 2020	0.19 [0.15, 0.25]	48%	34	2,585	x	-	-
	Executive functioning (working memory)	Screen-based intervention: Education (via computer)	Young	General	Observational	Mallavaarachchi, 2022	0.10 [0.20, 0.00]	40%	5	610	v	x	v
	Executive functioning	Screen-based intervention: Cognitive training	Mixed	General	Experimental	Olfrait, 2020	0.19 [0.03, 0.40]	92%	13	571	v	x	v
	Executive functioning	Screen-based intervention: Cognitive training	Young	General	Experimental	Scomti, 2019	0.13 [0.06, 0.18]	38%	57	2,606	v	x	v
	More screen time and perception of out-groups	Screen-based intervention: Sesame Street	Children	General	Mixed or underar	Mares, 2013	0.09 [0.06, 0.13]	17	5,837	x	-	-	-
Reducing stereotypes	TV programs and movies: General	Children	General	Mixed or underar	Mares, 2005	0.22 [0.18, 0.26]	37	1,814	x	-	-	-	
Verbal skills	Screen-based intervention: Cognitive training	Mixed	General	Experimental	Olfrait, 2020	0.20 [0.04, 0.35]	90%	19	948	v	x	v	
Visual-spatial skills	Screen-based intervention: Cognitive training	Mixed	General	Experimental	Olfrait, 2020	0.21 [0.11, 0.31]	52%	14	800	v	x	v	
Developmental	Gross motor (non-locomotor)	Screen-based intervention: Active video games for motor skills	Mixed	Atypically developing	Experimental	Li, 2022	0.27 [0.12, 0.41]	82%	17	556	v	x	v
	Gross motor (object control skills)	Screen-based intervention: Active video games for motor skills	Mixed	Atypically developing	Experimental	Li, 2022	0.16 [0.06, 0.40]	74%	5	214	v	x	v
	Gross motor (locomotor)	Screen-based intervention: Active video games for motor skills	Mixed	Atypically developing	Experimental	Li, 2022	0.31 [0.22, 0.40]	18%	14	472	v	x	v
	Language or speech	Screen use: General (mobile phone or tablet)	Young	General	Observational	Mallavaarachchi, 2022	-0.09 [0.21, 0.03]	82%	9	1,811	v	x	v
	Fat consumption	Screen-based intervention: Lifestyle risk behaviour (at school)	Mixed	General	Experimental	Champion, 2019	-0.03 [0.07, 0.01]	48%	5	5,210	v	x	v
Fat consumption	Screen-based intervention: Nutrition (in school)	Mixed	General	Experimental	Beck, 2022	-0.07 [0.12, -0.02]	0%	2	2,840	x	-	-	
Food intake (calories)	TV programs and movies: Mealtimes	Mixed	General	Experimental	Martins, 2022	0.03 [0.06, 0.12]	0%	4	486	v	x	v	
Fruit and vegetable intake	Screen-based intervention: Fruit and vegetable	Children	General	Experimental	Rodriguez-Rocha, 2019	0.12 [0.05, 0.28]	82%	4	965	v	x	v	
Fruit and vegetable intake	Screen-based intervention: Fruit and vegetable	Adolescents	General	Experimental	Rodriguez-Rocha, 2019	0.16 [0.09, 0.23]	56%	4	1,688	v	x	v	
Fruit and vegetable intake	Screen-based intervention: Lifestyle risk behaviour (at school)	Mixed	General	Experimental	Champion, 2019	0.03 [0.01, 0.07]	58%	6	6,034	v	x	v	
Fruit intake	Screen-based intervention: Lifestyle risk behaviour (at school)	Mixed	General	Experimental	Champion, 2019	0.03 [0.00, 0.07]	0%	3	2,739	v	x	v	
Healthy dietary behaviour	Screen-based intervention: To promote health (via mobile phone)	Mixed	General	Experimental	Cao, 2020	0.21 [0.15, 0.26]	22%	22	1,512	x	-	-	
Sugary drinks and snacks	Screen-based intervention: Lifestyle risk behaviour (at school)	Mixed	General	Experimental	Champion, 2019	-0.01 [0.05, 0.03]	54%	5	5,812	v	x	v	
Sugary drinks	Screen-based intervention: To promote health (via mobile phone)	Adolescents	General	Experimental	Shin, 2019	-0.23 [0.48, 0.03]	92%	3	758	v	x	v	
Unhealthy food choice	Advertising: Unhealthy food	Mixed	General	Experimental	Sadehgirad, 2016	0.11 [0.02, 0.24]	88%	12	2,053	x	-	-	
Unhealthy food choice	Advertising: Unhealthy food	Children	General	Experimental	Sadehgirad, 2016	-0.20 [0.64, 0.24]	100%	4	2,298	v	x	v	
Unhealthy food choice	Advertising: Unhealthy food	General	General	Experimental	Sadehgirad, 2016	0.22 [0.12, 0.32]	48%	8	710	v	x	v	
General	Video games: Health-promoting content	Mixed	General	Mixed or underar	Zhou, 2020	0.15 [0.03, 0.28]	70%	7	913	v	x	v	
Self-efficacy	Video games: Health-promoting content	Mixed	General	Mixed or underar	Zhou, 2020	0.15 [0.02, 0.28]	38%	5	391				

Supplementary File 7 - Search Strategy

Description: The search strategies used in each database

PubMed Search Strategy

((infant[MeSH Terms] OR child[MeSH Terms] OR minors[MeSH Terms] OR school age population[MeSH Terms] OR pediatrics[MeSH Terms] OR adolescen*[MeSH Terms]) **OR** (boy*[Title/Abstract] OR child*[Title/Abstract] OR girl*[Title/Abstract] OR kindergarten[Title/Abstract] OR paediatric[Title/Abstract] OR pediatric[Title/Abstract] OR infan* OR baby[Title/Abstract] OR babies[Title/Abstract] OR toddler*[Title/Abstract] OR "young child*" [Title/Abstract] OR "early childhood" [Title/Abstract] OR "early years" [Title/Abstract] OR pre-school*[Title/Abstract] OR preschool*[Title/Abstract] OR "pre school*" [Title/Abstract] OR "school age*" [Title/Abstract] OR school-age*[Title/Abstract] OR youth*[Title/Abstract] OR adolescen*[Title/Abstract] OR "young pe*" [Title/Abstract] OR teen*[Title/Abstract] OR preadolescen*[Title/Abstract])) **AND** ((television[MeSH Terms] OR computers[MeSH Terms] OR video games[MeSH Terms] OR sedentary lifestyle[MeSH Terms] OR smartphone[MeSH Terms] OR cell phones[MeSH Terms] OR computers, handheld[MeSH Terms]) **OR** (Television[Title/Abstract] OR TV[Title/Abstract] OR "Screen viewing" [Title/Abstract] OR "Screen time" [Title/Abstract] OR "Screen exposure" [Title/Abstract] OR Computer*[Title/Abstract] OR "Video gam*" [Title/Abstract] OR Sedentary[Title/Abstract] OR Inactivity[Title/Abstract] OR "E gam*" [Title/Abstract] OR e-gam*[Title/Abstract] OR Tablet*[Title/Abstract] OR "Cell phone*" [Title/Abstract] OR "Mobile Phone*" [Title/Abstract] OR "Mobile us*" [Title/Abstract] OR "Media time" [Title/Abstract] OR "Media us*" [Title/Abstract] OR "handheld device*" [Title/Abstract] OR "game device*" [Title/Abstract] OR "gaming device*" [Title/Abstract] OR "game console*" [Title/Abstract] OR "gaming console*" [Title/Abstract] OR "electronic media" [Title/Abstract] OR smartphone*[Title/Abstract] OR "smart phone*" [Title/Abstract])) **AND** ((Review[Title] OR meta-analysis[Title] OR meta-regression[Title] OR synthesis [Title] OR meta-synthesis[Title] OR "meta analysis" [Title] OR "meta regression" [Title] OR "meta synthesis" [Title]) **OR** (Review[Publication Type] OR Meta-Analysis[Publication Type])))

Version 1= Above

Version 2 = delete terms following final "AND", limit results "Review" after search

MEDLINE Search Strategy

(MH ("child" OR "minors" OR Infant OR "school age population" OR "pediatrics" OR "Adolescen*") **OR** TI (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR "pre school*" OR "school age*" OR school-age* OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*) **OR** AB (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR "pre school*" OR "school age*" OR school-age* OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*)) **AND** (MH ("television" OR "computers" OR "video games" OR "sedentary lifestyle" OR "smartphone" OR "cell phones" OR "computers, handheld") **OR** TI (Television OR TV OR "Screen viewing" OR Screen time OR Screen exposure OR Computer* OR Video gam* OR

Sedentary OR Inactivity OR "E gam*" OR e-gam* OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us**" OR "Media time" OR "Media us**" OR "handheld device**" OR "game device**" OR "gaming device**" OR "game console**" OR "gaming console**" OR "electronic media" OR smartphone* OR "smart phone**") **OR AB** (Television OR TV OR "Screen viewing" OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR "E gam*" OR e-gam* OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us**" OR "Media time" OR "Media us**" OR "handheld device**" OR "game device**" OR "gaming device**" OR "game console**" OR "gaming console**" OR "electronic media" OR smartphone* OR "smart phone**")) **AND** (TI (Review OR meta-analysis OR "meta analysis" OR meta-regression OR "meta regression" OR synthesis OR meta-synthesis OR "meta synthesis"))

Version 1 = above

Version 2 = delete terms following final "AND". Restrict results to review articles.

CINAHL Search Strategy

((MH ("child" OR "Minors (Legal)" OR "pediatrics" OR "Infant")) **OR** TI ("boy*" OR "child*" OR "girl*" OR "kindergarten" OR "paediatric" OR "pediatric" OR "infan*" OR "baby" OR "babies" OR "toddler*" OR "young child**" OR "early childhood" OR "early years" OR "pre-school**" OR "preschool*" OR "pre school*" OR "school age**" OR "school-age**" OR "adolescen**" OR "youth*" OR "young pe*" OR teen* OR "preadolescen**") **OR AB** ("boy*" OR "child*" OR "girl*" OR "kindergarten" OR "paediatric" OR "pediatric" OR "infan*" OR "baby" OR "babies" OR "toddler*" OR "young child**" OR "early childhood" OR "early years" OR "pre-school**" OR "preschool*" OR "pre school*" OR "school age**" OR "school-age**" OR "adolescen**" OR "youth*" OR "young pe*" OR teen* OR "preadolescen**")) **AND** (MH ("television" OR "computers" OR "video games" OR "lifestyle, sedentary" OR "smartphone" OR "cellular phone" OR "computers, hand-held") **OR** TI ("Television" OR "TV" OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR "Computer*" OR "Video gam*" OR "Sedentary" OR "Inactivity" OR "E gam*" OR "e-gam*" OR "Tablet**" OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device**" OR "game device**" OR "gaming device**" OR "game console**" OR "gaming console**" OR "electronic media" OR "smartphone**" OR "smart phone**") **OR AB** ("Television" OR "TV" OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR "Computer**" OR "Video gam*" OR "Sedentary" OR "Inactivity" OR "E gam*" OR "e-gam**" OR "Tablet**" OR "Cell phone**" OR "Mobile Phone**" OR "Mobile us**" OR "Media time" OR "Media us**" OR "handheld device**" OR "game device**" OR "gaming device**" OR "game console**" OR "gaming console**" OR "electronic media" OR "smartphone**" OR "smart phone**")) **AND** (TI("Review" OR "meta-analysis" OR "meta analysis" OR "meta-regression" OR "meta regression" OR "synthesis" OR "meta-synthesis" OR "meta synthesis"))

PsycINFO Search Strategy

((MA("pediatrics")) **OR** (TI (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child**" OR child* OR "early childhood" OR "early years" OR

pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR preadolescen*)) **OR** (AB (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child**" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR preadolescen*)) **OR** (KW (boy* OR OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child**" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR preadolescen*)) **AND**
 ((MA("Television" OR "Television Viewing" OR "Screen Time" OR "Mobile Devices" OR "Sedentary behavior" OR "computers" OR "computer games" OR "cellular phones")) **OR** (TI(Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **OR** (AB(Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **OR** (KW(Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **AND** (TI(Review OR systematic review OR meta-analysis OR meta-regression OR synthesis OR meta-synthesis OR "meta analysis" OR "meta regression" OR "meta synthesis"))

SPORTDiscus search strategy

((SU ("infant" OR "children" OR "school children" OR "pediatrics" OR "youth" OR "teenagers*")))**OR** (TI
 (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR
 "young child**" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre
 school* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR
 preadolescen*)) **OR** (AB (boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby
 OR babies OR toddler* OR "young child**" OR child* OR "early childhood" OR "early years" OR
 pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR adolescen* OR youth* OR
 young pe* OR teen* OR preadolescen*)) **OR** (KW (boy* OR girl* OR kindergarten OR paediatric OR
 pediatric OR infan* OR baby OR babies OR toddler* OR "young child**" OR child* OR "early childhood"
 OR "early years" OR pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR
 adolescen* OR youth* OR young pe* OR teen* OR preadolescen*)) **AND** ((SU ("Video games" OR
 "SEDENTARY behavior in children" OR "SEDENTARY lifestyles" OR "COMPUTER games")) **OR** (TI
 (Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam*
 OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR
 Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR

game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **OR** (AB (Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **OR** (KW (Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **AND** (TI(Review OR Systematic review OR meta-analysis OR meta-regression OR synthesis OR meta-synthesis OR meta analysis OR meta regression OR meta synthesis))

Education Source Search Strategy

((SU (Children OR Youth OR adolescence)) **OR** (TI (boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR "pre school*" OR "school age*" OR "school-age*" OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*))) **OR** (AB (boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR "pre school*" OR "school age*" OR "school-age*" OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*))) **OR** (KW (boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR "pre school*" OR "school age*" OR "school-age*" OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*))) **AND** ((SU (computers OR video games)) **OR** (TI (Television OR TV OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR Computer* OR "Video gam*" OR Sedentary OR Inactivity OR "E gam*" OR "e-gam*" OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "electronic media" OR smartphone* OR "smart phone*")) **OR** (AB (Television OR TV OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR Computer* OR "Video gam*" OR Sedentary OR Inactivity OR "E gam*" OR "e-gam*" OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "electronic media" OR smartphone* OR "smart phone*")) **OR** (KW (Television OR TV OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR Computer* OR "Video gam*" OR Sedentary OR Inactivity OR "E gam*" OR "e-gam*" OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "electronic media" OR smartphone* OR "smart phone*"))) **AND** (TI(Review OR "meta-analysis" OR "meta analysis" OR "meta-regression" OR "meta regression" OR synthesis OR "meta-synthesis" OR "meta synthesis"))

Version 1= as above

Version 2 = delete terms following final "AND", limit results "Review" after search

Embase Search Strategy

(child or pediatrics or adolescent or "minor (person)").sh. **OR** (boy* or girl* or kindergarten or paediatric or pediatric or infan* or baby or babies or toddler* or young child* or child or early childhood or early

years or pre-school* or preschool* or pre school* or school age* or school-age* or adolescen* or youth* or young pe* or teen* or preadolescen*).ti,ab,kw.

AND

(television or computer or video game or sedentary lifestyle or smartphone or mobile phone or television viewing).sh. **OR** (Television or TV or Screen viewing or Screen time or Screen exposure or Computer* or Video gam* or Sedentary or Inactivity or E gam* or e-gam* or Tablet* or Cell phone* or Mobile Phone* or Mobile us* or Media time or Media us* or handheld device* or game device* or gaming device* or game console* or gaming console* or electronic media or smartphone* or smart phone*).ti,ab,kw.

AND

(Review or meta?analysis or meta?regression or synthesis or meta?synthesis).ti. **OR** (review).pt.

Note: Run each block of searches separately and then combine with AND afterwards. A single, combined search generates an error message.

Cochrane Search Strategy

((minor* OR "school age population" OR boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR "young child*" OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre school* OR school age* OR school-age* OR toddler* OR adolescen* OR youth* OR young pe* OR teen* OR preadolescen*):ti,ab,kw **OR** MESH(child OR minors OR school age population OR pediatrics OR adolescent)) **AND** ((television OR computers OR "video games" OR "sedentary lifestyle" OR smartphone OR "cell phones" OR TV OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR Computer* OR "Video gam*" OR "Sedentary" OR Inactivity OR "E gam*" OR e-gam* OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "gaming console*" OR "electronic media" OR smartphone* OR "smart phone*"):ti,ab,kw **OR** MESH (television OR computers OR video games OR sedentary lifestyle OR smartphone OR cell phones OR computers, handheld)) **AND** ((Review OR "meta analysis" OR "meta regression" OR synthesis OR "meta synthesis"):ti)

Version 1: as above

Version 2: Delete terms after final 'AND' and restrict results to reviews using Cochrane's tagging of studies.

Scopus Search Strategy

Version 1:

(TITLE-ABS-KEY(minor* OR "school age population" OR boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre school* OR school age* OR "school-age*" OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*)) **AND** (TITLE-ABS-KEY(television OR computers OR "video games" OR "sedentary lifestyle" OR smartphone OR "cell phones" OR TV OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR Computer* OR "Video gam*" OR "Sedentary" OR Inactivity OR "E gam*" OR e-gam* OR Tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "gaming console*" OR "electronic media" OR smartphone* OR "smart phone*")) **AND** (TITLE(Review OR "meta analysis" OR "meta-analysis" OR "meta-regression" OR "meta regression" OR synthesis OR "meta synthesis" OR "meta-synthesis"))

Version 2:

(TITLE-ABS-KEY (minor* OR "school age population" OR boy* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR "young child*" OR child* OR "early childhood" OR "early years" OR pre-school* OR preschool* OR pre AND school* OR school AND age* OR "school-age*" OR adolescen* OR youth* OR "young pe*" OR teen* OR preadolescen*)) **AND** (TITLE-ABS-KEY (television OR computers OR "video games" OR "sedentary lifestyle" OR smartphone OR "cell phones" OR tv OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR computer* OR "Video gam*" OR "Sedentary" OR inactivity OR "E gam*" OR e-gam* OR tablet* OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "gaming console*" OR "electronic media" OR smartphone* OR "smart phone*")) **AND** (LIMIT-TO (DOCTYPE , "re"))

Web of Science Search Strategy

(TS= ("boy*" OR "girl*" OR "kindergarten" OR "paediatric" OR "pediatric" OR "infan*" OR "baby" OR "babies" OR "toddler*" OR "young child*" OR "child*" OR "early childhood" OR "early years" OR "pre-school*" OR "preschool*" OR "pre school*" OR "school age*" OR "school-age*" OR "adolescen*" OR "youth*" OR "young pe*" OR "teen*" OR "pre#adolescen*")) **AND** (TS= ("Television" OR "TV" OR "Screen viewing" OR "Screen time" OR "Screen exposure" OR "Computer*" OR "Video gam*" OR "Sedentary" OR "Inactivity" OR "E gam*" OR "e-gam*" OR "Tablet*" OR "Cell phone*" OR "Mobile Phone*" OR "Mobile us*" OR "Media time" OR "Media us*" OR "handheld device*" OR "game device*" OR "gaming device*" OR "game console*" OR "gaming console*" OR "electronic media" OR "smartphone*" OR "smart phone*")) **AND** (TI= ("Review" OR "systematic review" OR "meta-analysis" OR "meta analysis" OR "meta-regression" OR "meta-regression" OR "synthesis" OR "meta-synthesis" OR "meta synthesis"))

ProQuest Social Science Premium Collection Search Strategy

((su(Children OR babies OR boys OR girls OR preschool children OR teenagers OR adolescents OR pediatrics)) **OR** (ab(boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR young child* OR early childhood OR early years OR pre-school* OR preschool* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR pre-adolescen*)) **OR** (ti(boy* OR child* OR girl* OR kindergarten OR paediatric OR pediatric OR infan* OR baby OR babies OR toddler* OR young child* OR early childhood OR early years OR pre-school* OR preschool* OR school age* OR school-age* OR adolescen* OR youth* OR young pe* OR teen* OR pre-adolescen*))) **AND** ((SU(television OR computers OR video games OR mobile phone)) **OR** (ab(Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*)) **OR** (ti(Television OR TV OR Screen viewing OR Screen time OR Screen exposure OR Computer* OR Video gam* OR Sedentary OR Inactivity OR E gam* OR e-gam* OR Tablet* OR Cell phone* OR Mobile Phone* OR Mobile us* OR Media time OR Media us* OR handheld device* OR game device* OR gaming device* OR game console* OR gaming console* OR electronic media OR smartphone* OR smart phone*))) **AND** (TI(review OR meta-analysis OR meta-regression OR synthesis OR meta-synthesis OR meta analysis OR meta regression OR meta synthesis))

ERIC Search Strategy

((SU(child) OR SU(youth) OR SU(minor) OR SU(adolescent) OR SU(school) OR SU(pediatrics)) **OR** (AB, TI(minor*) OR AB, TI("school age population") OR AB, TI(boy*) OR AB, TI(child*) OR AB, TI(girl*) OR AB, TI(kindergarten) OR AB, TI(paediatric) OR AB, TI(pediatric) OR AB, TI(infan*) OR AB, TI(baby) OR AB, TI(babies) OR AB, TI(toddler*) OR AB, TI("young child*") OR AB, TI("early childhood") OR AB, TI("early years") OR AB, TI(pre-school*) OR AB, TI(preschool*) OR AB, TI("pre school*") OR AB, TI("school age*") OR AB, TI(school-age*) OR AB, TI(adolescen*) OR AB, TI(youth*) OR AB, TI("young pe*") OR AB, TI(teen*) OR AB, TI(preadolescen*))) **AND** ((SU(television) OR SU(computers) OR SU(video games) OR SU(sedentary lifestyle) OR SU(cell phone) OR SU(mobile phone)) **OR** (AB, TI(television) OR AB, TI(computers) OR AB, TI("video games") OR AB, TI("sedentary lifestyle") OR AB, TI(smartphone) OR AB, TI("cell phones") OR AB, TI(TV) OR AB, TI("Screen viewing") OR AB, TI("Screen time") OR AB, TI("Screen exposure") OR AB, TI(Computer*) OR AB, TI("Video gam*") OR AB, TI("Sedentary") OR AB, TI(Inactivity) OR AB, TI("E gam*") OR AB, TI(e-gam*) OR AB, TI(Tablet*) OR AB, TI("Cell phone*") OR AB, TI("Mobile Phone*") OR AB, TI("Mobile us*") OR AB, TI("Media time") OR AB, TI("Media us*") OR AB, TI("handheld device*") OR AB, TI("game device*") OR AB, TI("gaming device*") OR AB, TI("game console*") OR AB, TI("gaming console*") OR AB, TI("electronic media") OR AB, TI(smartphone*) OR AB, TI("smart phone*"))) **AND**

(TI(Review) OR TI("meta analysis") OR TI("meta regression") OR TI(synthesis) OR TI("meta synthesis") OR
TI("meta-analysis") OR TI("meta-regression") OR TI("meta-synthesis"))

Supplementary File 9 - Included Studies

Description: References for the included studies.

Included Studies

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Supplementary File 5 - Health-related Outcomes

Description: Additional health-related outcomes which did not meet certainty criteria.

Codebook for the Complete Effects Data

Autogenerated data summary from dataReporter

2023-06-22 00:05:26.378869

Data report overview

The dataset examined has the following dimensions:

Feature	Result
Number of observations	451
Number of variables	32

Variable list

author_year

First author and publication year of meta-analysis.

Feature	Result
Variable type	character
Number of missing obs.	0 (0 %)
Number of unique values	134
Mode	“Oh, 2022”

outcome_category

Category the outcome belongs to.

Feature	Result
Variable type	character
Number of missing obs.	1 (0.22 %)
Number of unique values	4
Mode	“education”

plain_language_outcome

Specific outcome for the effect.

Feature	Result
Variable type	character

Feature	Result
Number of missing obs.	0 (0 %)
Number of unique values	140
Mode	"Learning: General"

plain_language_exposure

Specific exposure for the effect.

Feature	Result
Variable type	character
Number of missing obs.	0 (0 %)
Number of unique values	92
Mode	"Screen use: General"

age_group

Broad age group of the participants, if specified.

Feature	Result
Variable type	character
Number of missing obs.	0 (0 %)
Number of unique values	5
Mode	"Mixed"

original_effect_size_metric

Type of effect size original_effect_size refers to.

Feature	Result
Variable type	character
Number of missing obs.	6 (1.33 %)
Number of unique values	7
Mode	"d"

original_effect_size

Effect size reported in the original meta-analysis.

Feature	Result
Variable type	numeric
Number of missing obs.	0 (0 %)

Feature	Result
Number of unique values	285
Median	0.22
1st and 3rd quartiles	0.01; 0.68
Min. and max.	-788.59; 1185

original_cilb

Lower bound for the 95% confidence interval of the reported effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	19 (4.21 %)
Number of unique values	265
Median	0.05
1st and 3rd quartiles	-0.15; 0.35
Min. and max.	-2146.87; 303

original_ciub

Upper bound for the 95% confidence interval of the reported effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	19 (4.21 %)
Number of unique values	289
Median	0.44
1st and 3rd quartiles	0.12; 1.2
Min. and max.	-5.68; 2068

original_k

Number of studies reported as contributing to the reported effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	14 (3.1 %)
Number of unique values	52
Median	7
1st and 3rd quartiles	4; 12
Min. and max.	1; 274

original_n

Number of participants reported as contributing to the reported effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	0 (0 %)
Number of unique values	422
Median	1836
1st and 3rd quartiles	639.5; 7389
Min. and max.	3; 527696

original_i2

Reported heterogeneity (as I-Squared) for the reported effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	157 (34.81 %)
Number of unique values	198
Median	67.28
1st and 3rd quartiles	24.1; 82.85
Min. and max.	0; 99.8

converted_r

Effect size as converted to Pearson's r (where possible).

Feature	Result
Variable type	numeric
Number of missing obs.	199 (44.12 %)
Number of unique values	177
Median	0.1
1st and 3rd quartiles	-0.02; 0.2
Min. and max.	-0.26; 0.82

converted_cilb

Lower bound for the 95% confidence interval of the converted effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	208 (46.12 %)
Number of unique values	179
Median	0.02
1st and 3rd quartiles	-0.11; 0.09

Feature	Result
Min. and max.	-0.54; 0.76

converted_ciub

Upper bound for the 95% confidence interval of the converted effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	208 (46.12 %)
Number of unique values	193
Median	0.19
1st and 3rd quartiles	0.06; 0.3
Min. and max.	-0.2; 0.87

reanalysis_estimate

Effect size from the reanalysis of the study-level data (where possible).

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	0.08
1st and 3rd quartiles	-0.04; 0.18
Min. and max.	-0.47; 0.61

reanalysis_cilb

Lower bound for the 95% confidence interval of the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	-0.01
1st and 3rd quartiles	-0.16; 0.06
Min. and max.	-0.67; 0.45

reanalysis_ciub

Upper bound for the 95% confidence interval of the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	0.16
1st and 3rd quartiles	0.05; 0.29
Min. and max.	-0.35; 0.79

reanalysis_cilb999

Lower bound for the 99.9% confidence interval of the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	-0.1
1st and 3rd quartiles	-0.22; 0.01
Min. and max.	-1; 0.35

reanalysis_ciub999

Upper bound for the 99.9% confidence interval of the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	0.22
1st and 3rd quartiles	0.1; 0.39
Min. and max.	-0.27; 1

reanalysis_k

Number of studies contributing to the reanalysed effect size.

Feature	Result
Variable type	integer
Number of missing obs.	204 (45.23 %)
Number of unique values	48
Median	7
1st and 3rd quartiles	4; 12.5

Feature	Result
Min. and max.	1; 122

reanalysis_n

Number of participants contributing to the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	234
Median	1836
1st and 3rd quartiles	687.5; 5611.5
Min. and max.	26; 527696

reanalysis_i2

Heterogeneity (as I-Squared) for the reanalysed effect size.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	199
Median	73.94
1st and 3rd quartiles	26.23; 88.62
Min. and max.	0; 99.51

reanalysis_eggers_p

P-value for the Egger's test for publication bias.

Feature	Result
Variable type	numeric
Number of missing obs.	365 (80.93 %)
Number of unique values	86
Median	0.22
1st and 3rd quartiles	0.03; 0.51
Min. and max.	0; 0.98

reanalysis_eggers_cilb

Lower bound for the 95% confidence interval for the Egger's test for publication bias.

Feature	Result
Variable type	numeric
Number of missing obs.	365 (80.93 %)
Number of unique values	86
Median	-0.05
1st and 3rd quartiles	-0.19; 0.1
Min. and max.	-2.05; 0.65

reanalysis_eggers_ciub

Upper bound for the 95% confidence interval for the Egger's test for publication bias.

Feature	Result
Variable type	numeric
Number of missing obs.	365 (80.93 %)
Number of unique values	86
Median	0.29
1st and 3rd quartiles	0.1; 0.65
Min. and max.	-0.96; 1.56

reanalysis_tes_obsr

Number of observed significant tests (from Test of Excess Significance).

Feature	Result
Variable type	integer
Number of missing obs.	204 (45.23 %)
Number of unique values	32
Median	3
1st and 3rd quartiles	1; 6
Min. and max.	0; 110

reanalysis_tes_expect

Number of expected significant tests (from Test of Excess Significance).

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	3.21
1st and 3rd quartiles	1.62; 6.67

Feature	Result
Min. and max.	0.05; 108.26

reanalysis_tes_ratio

Ratio of observed to expected significant tests (from Test of Excess Significance).

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	219
Median	0.91
1st and 3rd quartiles	0.57; 1.09
Min. and max.	0; 2.9

reanalysis_tes_p

P-value for the Test of Excess Significance.

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	222
Median	0.8
1st and 3rd quartiles	0.58; 0.95
Min. and max.	0.01; 1

reanalysis_tes_power

Power for each of the tests (from the Test of Excess Significance).

Feature	Result
Variable type	character
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Mode	"0.793; 0.52; 0.463"

reanalysis_tes_theta

Value of theta used to compute the tests (from the Test of Excess Significance).

Feature	Result
Variable type	numeric
Number of missing obs.	204 (45.23 %)
Number of unique values	244
Median	0.08
1st and 3rd quartiles	-0.04; 0.18
Min. and max.	-0.47; 0.61

Report generation information:

- Created by: Taren Sanders (username: taren).
- Report creation time: Thu Jun 22 2023 00:05:26
- Report was run from directory: /home/taren/GitHub/screen_umbrella
- dataReporter v1.0.2 [Pkg: 2021-11-11 from CRAN (R 4.3.0)]
- R version 4.3.0 (2023-04-21).
- Platform: x86_64-pc-linux-gnu (64-bit)(Australia/Sydney).
- Function call:

```
dataReporter::makeDataReport(data = out_effects, output = "pdf", mode = "summarize", smartNum = FALSE, file = "supplementary_files/codebook.Rmd", replace = TRUE, openResult = FALSE, checks = list(character = "showAllFactorLevels", factor = "showAllFactorLevels", labelled = "showAllFactorLevels", haven_labelled = "showAllFactorLevels", numeric = NULL, integer = NULL, logical = NULL, Date = NULL), listChecks = FALSE, maxProbVals = Inf, addSummaryTable = FALSE, codebook = TRUE, reportTitle = "Codebook for the Complete Effects Data")
```