Measurement of screen time among young children aged 0–6 years: a systematic review.

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Supplementary Table S1. Search strategy – Measurement of screen time among young children aged 0–6 years: a systematic review

Searches were conducted in March 2019 and updated to April 2020 by Caroline Terranova, Queensland University of Technology.

Database: PubMed (2009–2019)

1. sedentar* OR sedentary behavior [MeSH Terms]
2. “television” OR “TV” OR “DVD”
3. “computer” OR “laptop”
4. "video gam*" OR videogam* OR "electronic gam*" OR gaming OR video games [MeSH Terms]
5. “screen time” OR screentime OR “screen media” OR “electronic media” OR “screen based” OR “touch screen” OR screen time [MeSH Terms]
6. “social media” OR Facebook OR YouTube OR Twitter OR Snapchat OR Instagram OR social media [MeSH Terms]
7. smartphone OR “smart phone” OR “cell phone” OR “mobile phone” OR iphone OR ipad OR “mobile device*” OR cell phone use [MeSH Terms] OR cell phone [MeSH Terms]
8. or/1-7
9. child
10. children
11. toddler
12. infan*
13. “infant” [MeSH Terms]
14. “preschool*”
15. “pre-school*”
16. “child, preschool"[MeSH Terms]
17. or/9-16
18. 8 and 17
19. limit 18 to (“Publication date” (2009) and (“Ages” (newborn infant: birth to 1 month) or (infant: 1 to 23 months) or (preschool child: 2 to 5 years))

Supplementary Table S2. Articles reporting psychometric properties

Study	Reliability Type	Reliability Metric	Reliability [1]	Validity Type	Validity [1]
Asfour et al (2015)[59]	Internal consistency	Composite reliability	0.72		
Armoon et al (2019)[495]	Internal consistency	Cronbach's alpha	0.78		
Chen et al (2018)[108]	Internal consistency	Cronbach's alpha	0.78–0.85		
Dawson-McClure et al (2014)[85]	Internal consistency	Cronbach's alpha	0.6		
Halim et al (2013)[546]	Internal consistency	Cronbach's alpha	0.81		
Hu et al (2018)[481]	Internal consistency	Cronbach's alpha	0.8		
Hudon et al (2013)[149]	Internal consistency	Cronbach's alpha	0.74		
Hutton et al (2020)[13]	Internal consistency	Cronbach's alpha	0.74	Convergent	Cognitive test = −0.45, -0.57, -0.30, -0.42
Hutton et al (2020)[635]	Internal consistency	Cronbach's alpha	0.74		
Nikken et al (2015)[407]	Internal consistency	Cronbach's alpha	0.53–0.86		
Schmiedeler et al (2014)[351]	Internal consistency	Cronbach's alpha	0.71		
Bacardi-Gascon et al (2012)[404]	Test-retest	ICC	0.86	Concurrent	r = 0.34, Accelerometer
Barnett et al (2012)[50]	Test-retest	ICC	0.23–0.55		
Bonn et al (2012)[38]	Test-retest	ICC	0.85		
Campbell et al (2013)[118]	Test-retest	ICC	0.84–0.86		
Cardon et al (2016)[132]	Test-retest	ICC	0.67–0.81		
Carson et al (2017)[125]	Test-retest	ICC	0.82		
Carson et al (2017)[129]	Test-retest	ICC	0.82		
Carson et al (2019)[126]	Test-retest	ICC	0.82		
Dawson-Hahn et al (2015)[86]	Test-retest	ICC	0.82	Concurrent	r = 0.45–0.55, Television allowance, EMA
De Craemer et al (2015)[80]	Test-retest	ICC	0.67–0.81		
De Craemer et al (2016)[81]	Test-retest	ICC	0.67–0.81		
De Decker et al (2015)[78]	Test-retest	ICC	0.34-0.7		
Dwyer et al (2011)[77]	Test-retest	ICC	0.44	Concurrent	r = 0.25, Accelerometer
Goncalves et al (2019)[483]	Test-retest	ICC	0.98	Concurrent	ICC = 0.5–0.8, Activity diary
González-Gil et al (2014)[179]	Test-retest	ICC	0.606–0.812		

Hesketh et al (2015)[165]	Test-retest	ICC	0.57 (range 0.20–0.92)		
Hesketh et al (2017)[164]	Test-retest	ICC	0.69		
Hinkley et al (2012)[158]	Test-retest	ICC	0.68		
Hinkley et al (2012)[410]	Test-retest	ICC	0.52–1.00		
Hinkley et al (2013)[159]	Test-retest	ICC	0.68		
Hinkley et al (2014)[156]	Test-retest	ICC	0.49–0.74		
Hinkley et al (2017)[157]	Test-retest	ICC	0.23–0.69		
Hinkley et al (2017)[161]	Test-retest	ICC	0.68		
Hinkley et al (2018)[162]	Test-retest	ICC	0.68–0.69		
Hnatiuk et al (2015)[155]	Test-retest	ICC	0.84		
Keita et al (2014)[235]	Test-retest	r	0.94		
Knowlden et al (2015)[231]	Test-retest	Pearson's r	0.72		
Knowlden et al (2018)[461]	Test-retest	Pearson's r	0.72		
Kong et al (2016)[213]	Test-retest	r	0.94		
Lee et al (2017)[209]	Test-retest	ICC	0.82		
Lee et al (2018)[208]	Test-retest	ICC	0.82		
Lioret et al (2020)[451]	Test-retest	ICC	0.69– >0.79		
Lissner et al (2012)[201]	Test-retest	Cohen's kappa	0.56		
Loprinzi et al (2016)[197]	Test-retest	ICC	0.67		
Mendoza et al (2013)[272]	Test-retest	ICC	0.82	Concurrent	r = -0.18–0.04, Accelerometer, television allowance r = 0.45 - 0.55, EMA r=0.47-0.51
Mendoza et al (2014)[271]	Test-retest	ICC	0.82		
Mendoza et al (2016)[273]	Test-retest	ICC	0.82	Concurrent	r = 0.45–0.55 Television allowance, EMA r = 0.47 -0.51
Must et al (2014)[252]	Test-retest	Spearman's r	0.84–0.92		
Ogren et al (2020)[448]	Test-retest	ICC	0.82	Concurrent	r = 0.84, Direct observation, television allowance r=0.45-0.55, EMA r=0.47-0.51
Prioreschi et al (2019)[440]	Test-retest	ICC	>0.40		

Schrempft et al (2015)[606]	Test-retest	ICC	0.87		
Sigmund et al (2016)[344]	Test-retest	ICC	0.8		
Swindle et al (2018)[626]	Test-retest	% agreement	0.63		
Thompson et al (2013)[323]	Test-retest	ICC	0.61–0.68 and 0.79–0.94		
Venetsanou et al (2020)[418]	Test-retest	ICC	0.68		
Verbestel et al (2015)[390]	Test-retest	ICC	0.49–0.74		
Buscemi et al (2016)[34]	Test-retest and internal consistency	Pearson's r, Cronbach's alpha	0.94 & 0.70		
Cespedes et al (2014)[532]				Concurrent	r = 0.60, Direct observation
Eijkemans et al (2019)[490]				Concurrent	r = 0.05, Accelerometer
Francis et al (2011)[191]				Concurrent	r = 0.31–0.61, Direct observation
Janz et al (2017)[135]				Concurrent	r = 0.31–0.61, Direct observation
Loprinzi et al (2013)[196]				Concurrent	r = -0.26, Direct observation
Okely et al (2009)[241]				Concurrent	r = -0.26, Accelerometer
Sarker et al (2015)[356]				Concurrent	r = -0.05, Accelerometer
Schary et al (2012)[349]				Concurrent	r = -0.26, Accelerometer
Thompson et al (2018)[321]				Concurrent	r = 0.84, Direct observation
Wen et al (2010)[375]				Concurrent	Spearman r = -0.08, Accelerometer
Zimmerman et al (2012)[362]				Concurrent	r = 0.84, Direct observation

Abbreviations: ICC: Intraclass correlation coefficients EMA: ecological momentary assessment.

[1] The range reported for reliability and validity varies by study based on what was reported in the article – ranges may represent individual items (type of screen, day recalled i.e. weekday/weekend day), samples (e.g. ethnicity of parents, age of children), or time points.