

Interventions aimed at promoting healthy screen use among adolescents: A scoping review of a decade of health intervention research



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BACKGROUND & OBJECTIVE

- Screens pose risks for adolescents, such as cyberbullying and video game addiction. [1]
- Although interventions promoting healthy screen use are being developed, there remains a significant gap in synthesizing evidence to capture the evolving scope of this topic and identify research priorities. [2]
- This scoping review synthesizes existing literature on interventions aimed at promoting healthy screen use among adolescents, while addressing the populations, settings, study designs, intervention types, functions and outcome targets, in order to identify methodological trends, areas of consensus and disagreement, limitations, and research gaps.

Table 1. Inclusion criteria - the PICO (population, intervention, comparison, outcomes) strategy

	Inclusion criteria
Dates	2013 to 2024
Language	All languages
Country	All countries
Publication type	Peer-reviewed articles presenting empirical data
Study type	Experimental, quasi-experimental, or observational studies, including qualitative, quantitative, or mixed methods
Population (P)	Adolescents 10–19 years (studies with a subsample of adolescents between 10–19 years were included), parents of adolescents, or individuals involved in their education (e.g., educators, health professionals, law enforcement representatives)
Intervention (I)	Interventions or prevention programs of any duration, frequency, delivery, or components designed to promote healthy screen use
Comparison (C)	No restrictions concerning comparison
Outcomes (O)	Any primary and secondary outcomes related to healthy screen use

METHODOLOGY

- Followed Joanna Briggs Institute's (JBI) scoping review methodological framework [3]
- Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist [4]
- 3 Databases searched: Medline (Ovid), PsycInfo (Ovid), and ERIC (Ovid)
- We adopted Michie and colleagues' framework to classify interventions in terms of their functions. [5]
- 1. Education: Increasing knowledge or understanding.
- 2. Persuasion: Using communication to induce positive or negative feelings or stimulate action.
- 3. Incentivization: Creating expectation of reward.
- 4. Training: Imparting skills.
- 5. Enablement: Increasing means/reducing barriers to increase capability or opportunity. (Capability beyond education and training; opportunity beyond environmental restructuring.)
- 6. Coercion: Creating expectation of punishment or cost.
- 7. Restriction: Using rules to reduce the opportunity to engage in the target behavior (or to increase the target behavior by reducing the opportunity to engage in competing behaviors).
- 8. Environmental restructuring: Changing the physical or social context.
- 9. Modelling: Providing an example for people to aspire to or imitate

RESULTS & KEY FINDINGS

General characteristics of the included articles (N = 93):

6433 papers screened, Final N= 93 papers included, 81 distinct interventions

Figure 2. Intervention functions and corresponding strategies to promote healthy screen use among adolescents.

Figure 1. Global distribution of studies on healthy screen use interventions for adolescents.

Health education lessons Simulated experiences (e.g., driving distraction simulations) Interactive discussions Educational games that convey messages about the undesirable consequences of risky online behavior Motivational speaking and engagements Persuasion Education Reward systems for achieving health goals Competitions and challenges with prizes Modeling Providing role models in intervention settings Demonstrating behaviors through peer leaders Training workshops to develop relevant skills: Media literacy skills (e.g., online identity management, online **Functions of** • Psychosocial skills (e.g., communication, resistance and interventions negotiation, empathy, group collaboration, and advocacy), Cognitive skills (e.g., decision-making and problem-solving, Health-promoting physical adjustments in critical thinking and self-evaluation, and influence of the schools (e.g., reaction of physical activity spaces, provision of fitness equipment at • Emotional skills (e.g., emotion regulation, stress schools, structured environments to reduce management, time and attention management) sedentary behavior, and lunch-time physical Online training modules activity mentoring sessions) Peer educator training Modification of digital settings (e.g., disabling Interactive and experiential learning sessions Restriction Coercion Enablement Information evaluation training

Not used in included interventions

Key findings:

Hungary, Norway, Bangladesh)

Number of publications (Countries)

N=4 (Italy, Netherlands, Brazil)

N=2 (Canada, France, Ecuador, Greece, Germany,

N=1 (Austria, Finland, Colombia, China, Hong Kong,

Thailand, Japan, Singapore, Peru, Sri Lanka, Iran,

N=26 (United States) N=17 (Australia)

- The majority of interventions were school based (78%).
- 46% of the included studies conducted in high-income countries (e.g., United States and Australia). (figure 1)
- There was a limited representation of interventions in low-resource settings and across socioeconomic or cultural groups.
- Outcome evaluation was the predominant approach used, with 75 articles (81%) focusing on assessing the direct effects (i.e., effectiveness) of the interventions
- Most examined short-term interventions targeting recreational screen time.
- Other outcomes targeted included media literacy, cyberbullying, internet and gaming addiction, safe internet use, social media use, and mental and sexual health.

Rules to limit screen time or specific

unhealthy screen-related practices

Structured guidelines and protocols to curb

- 45% of studies incorporated two functions; 39% had a single function; and 16% had three functions.
- 78% of interventions attempted to educate adolescents, while 34% offered training activities (e.g., skill-based training to enhance digital literacy). (figure 2)
- Notably, 20% of published studies reported no significant intervention effects.

CONCLUSIONS & FUTURE DIRECTIONS

Conclusions:

- This review identifies a need for broader, multi-level strategies that account for contextual factors and social determinants in influencing screen use and its related health issues.
- Equity considerations were not a primary focus of most studies, underscoring an important gap in this literature.
- This scoping review indicate a substantial gap in our capability to foster healthier screen use behavior systematically and equitably among adolescents
- We call for a concerted effort among researchers, policymakers, and practitioners to establish a clear agenda prioritizing the development and evaluation of interventions that promote healthy screen use behaviors among adolescents

Proposed future directions for intervention & research

Engage stakeholders	Future interventions could increase engagement with stakeholders, including educators, parents, health professionals, policymakers, and especially adolescents, in designing and implementing interventions (i.e., co-construction with adolescents and stakeholders). This could enhance interventions' relevance and applicability and facilitate their integration into existing systems.
Explore intervention functions	Future interventions and research could further explore intervention functions that emphasize external influences (i.e., modelling, environmental restructuring, restriction, coercion), as these have been neglected compared to other intervention functions (e.g., education, training).
Target marginalized groups	There is a need for interventions targeting marginalized, underrepresented, and/or sexual minority populations to ensure interventions are equitable and effective across different groups.
Define "healthy screen use"	Researchers and program planners should clarify the definition and measurement of "healthy screen use" to identify key intervention goals and strengthen comparability of investigations.
Use diverse research designs	A greater diversity of experimental and quasi-experimental designs should be applied to ascertain adequately the overall impact of interventions as well as heterogeneity across contexts and individual characteristics.

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Conflicts of interest: none to declare; Full references list: upon request; Data availability: upon request

Findings from this scoping review were shared in French with a Bipartisan Commission mandated by the Government of Québec to address the impacts of screens and social networks on the health and development of youth. The French-language report is available online.



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Use of digital tools (apps) for health monitoring

Access to interactive health tracking systems

Web-based support platforms

Supportive group settings online

Provision of physical resources like pedometers

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