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]
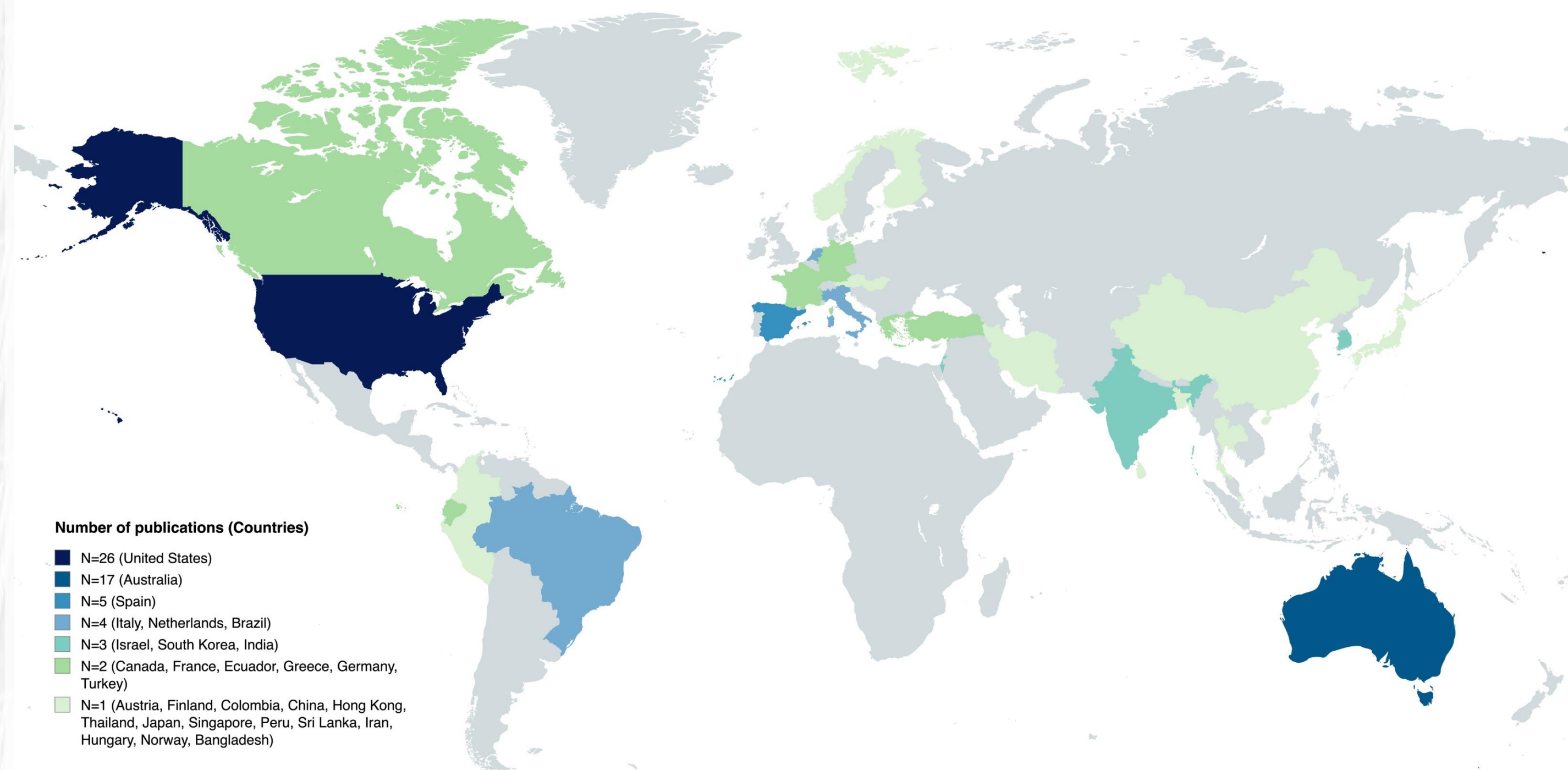
1. **Education:** Increasing knowledge or understanding.
2. **Persuasion:** Using communication to induce positive or negative feelings or stimulate action.
3. **Incentivization:** Creating expectation of reward.
4. **Training:** Imparting skills.
5. **Enablement:** Increasing means/reducing barriers 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):

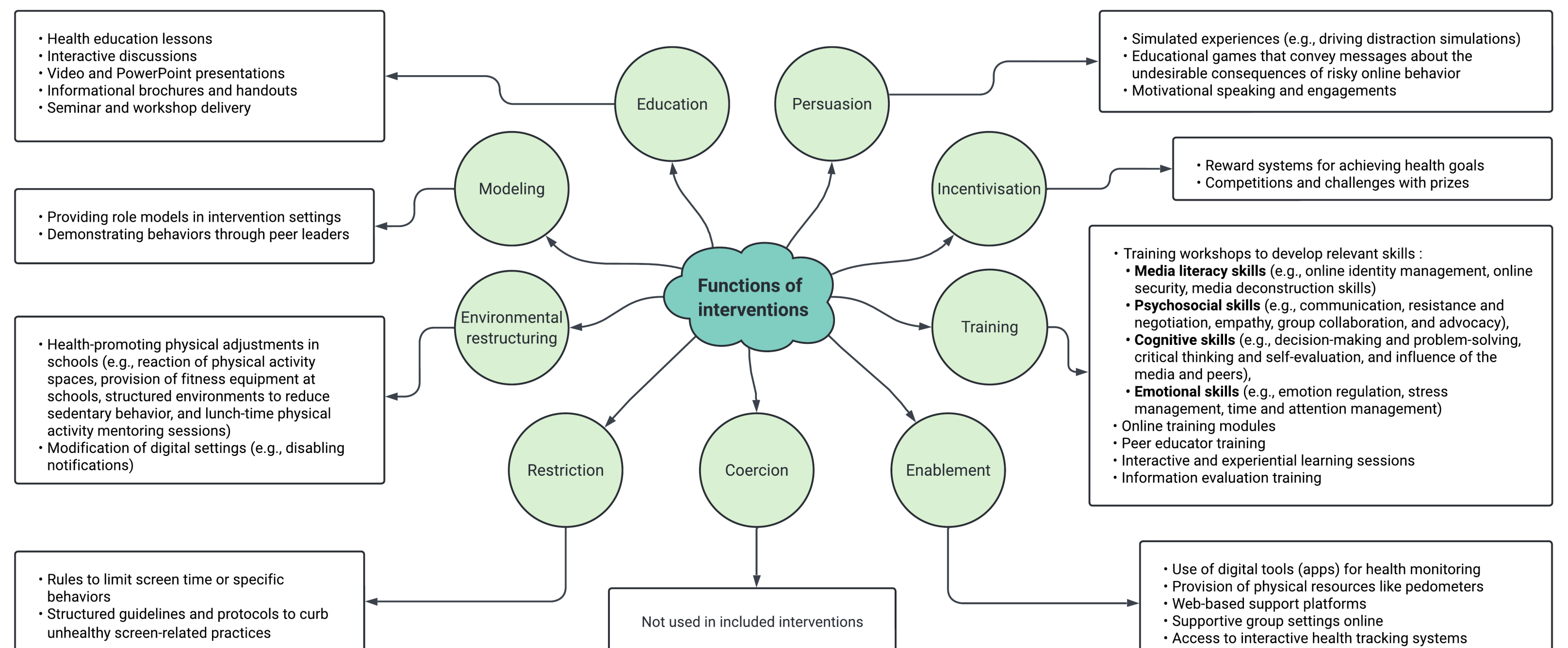**6433** papers screened, **Final N= 93** papers included, **81** distinct interventions

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

Number of publications (Countries)
- N=26 (United States)
- N=17 (Australia)
- N=5 (Spain)
- N=4 (Italy, Netherlands, Brazil)
- N=3 (Israel, South Korea, India)
- N=2 (Canada, France, Ecuador, Greece, Germany, Turkey)
- N=1 (Austria, Finland, Colombia, China, Hong Kong, Thailand, Japan, Singapore, Peru, Sri Lanka, Iran, Hungary, Norway, Bangladesh)

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

Key findings:

- 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.**
- **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.

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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