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Review Article

Parent Self-Efficacy and Its Relationship with Children's Screen Viewing: A Scoping Review

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This scoping review examines the relationship between parent self-efficacy and children's screen viewing, to provide context, identify gaps and limitations of the current body of literature, and provide recommendations for future research. We identified 111 studies from a search of four academic databases, of which sixteen were within scope and met inclusion criteria. This review found that parents who identified as more self-efficacious in task-specific areas related to screen time had children with less screen viewing time. This finding suggests that parents who identify as more self-efficacious in these areas may implement more mediation strategies, in line with current public health guidelines. Overall, it highlights the importance of consistent policies that support parents in mediating screen access, whilst maximizing the benefits of screen viewing for learning.

1. Introduction

1.1. Background and Significance. Children's screen time viewing has increased significantly in the past two decades assisted by advancement in technology [1] and compounded by rapid increases in screen time, attributed to the global coronavirus pandemic [2]. Screen time refers to the amount of time that an individual spends looking at a screen, typically a computer, tablet, smartphone, or television [3]. Screen viewing forms a central part of daily life for children and adolescents, with one study indicating children accrue an average of 3.6 hours a day of screen time on a combination of devices [4]. During the pandemic, children's screen time was reported to increase by over 50 percent [5]. Tablets are quickly becoming the preferred option for children, a key reason being their lightweight, user-friendly design and high interactivity and engagement [6]. The rapid acceptance of tablets is believed to have influenced family dynamics and child development [7]. Increased tablet usage has coincided with changes in policy recommendations concerning the role and value of technology in the lives of young children [8].

Parents, as the primary caregivers, play a highly influential and important role in mediating screen access for their children, for example, one such intercession by parents is to either enhance, limit, or moderate screen time access [9]. Dependent upon the required outcome, parents often adopt a range of strategies to help their children access screens safely and responsibly [10]. Therefore, the type of mediation strategies employed and the subsequent amount of screen time a child or adolescent accesses vary considerably between families [11]. The frequency and form of parent mediation strategies adopted are attributed to a range of parent characteristics that extend beyond parental beliefs about the possible impact [12, 13]. One of the factors that can play a crucial role in parent mediation is the degree to which parents feel confident in themselves and their parenting abilities [14].

1.2. Bandura's Social Cognitive Theory and the Concept of Self-Efficacy. Bandura [15] coined the term "self-efficacy," defined as the degree to which one believes in his/her capacity to execute behaviours to produce desired outcomes. Extrapolating from this general definition, parent self-efficacy considers an individual's beliefs in oneself to achieve their desired outcomes related to their children in the domain of parenting, and perceptions of their ability to

successfully complete parenting tasks or raise children [16, 17]. Whilst general parent self-efficacy focuses broadly on the extent to which the parent feels competent in the parenting role [18], task-specific self-efficacy refers to the confidence an individual has in task-specific items [19]. Applying this concept to family interactions, task-specific parent self-efficacy addresses the confidence a parent has with a discrete parenting task and their knowledge of requisite skills [20]. For example, task-specific parent self-efficacy regarding screen viewing may refer to a parent's belief in their control over their child's screen viewing [21].

Albert Bandura's social cognitive theory highlights the role of cognitive processes and self-efficacy in shaping human behaviour. The theory underscores that people learn by observing and imitating the behaviour of others [15]. By creating a set of rules and expectations for the use of screens, parents' attitudes, beliefs, norms, and behaviours shape the shared social and physical environment, which, in turn, impact their children's behaviour [22]. The significance of parents' actions and beliefs in shaping a child's health behaviours and well-being cannot be understated [23]. Although a growing body of scientific research can help parents influence and set screen time for their children, sometimes, varying screen time recommendations can confuse parents [24].

1.3. Current Guidelines and Practices. Current guidelines provide conflicting messages to parents regarding children's screen viewing; therefore, implementing guidelines poses many challenges to parents [25]. The World Health Organization (WHO) guidelines on physical activity, sedentary behaviour, and sleep for children under five years of age [26] are prescriptive stating that children three to four years should have no more than one hour of sedentary screen time in the day. Additional guidelines offered by the American Academy of Pediatrics [27] are in keeping with these recommendations. In 2019, the Royal College of Paediatrics and Child Health (RCPCH) released the first guidelines for children's screen time in the UK. However, the RCPCH stated that it was unable to provide a formal cut-off for children's screen time due to the weak evidence regarding appropriate thresholds. Therefore, the recommendation from these guidelines is that children's screen times are negotiated by the parent upon the needs of the individual child [28]. The Canadian Paediatric Society previously provided prescriptive advice in line with WHO and AAP guidelines; however, they recently provided a position statement relaxing a firm cap to allow for interactive and engaging forms of screen use [29].

In Australia, some authorities, typically public health, adopt restrictive practices with a harm minimization approach and advocate for minimal screen time for children [25]; for example, the Australian 24-hour Movement Guidelines for Children and Young People state that sedentary recreational screen time should be limited to two hours per day [30]. Whilst other organizations may adopt a positive lens and promote the use of screen-based devices, if they are used in a balanced and responsible manner; for example, the Australian Early Learning Framework [31] endorses the inclusion of digital technology in early childhood education to enhance teaching and learning.

1.4. Clinical Relevance and Research Objectives. The clinical relevance of parent self-efficacy to the health and well-being of both parents and children has been established [23]. Parent mediation of their child's screen time is more than adhering to recommended guidelines, it also includes supervision, monitoring, and support [32]. Indeed, parents who feel efficacious are more likely to be engaged in promotive parenting strategies that support and encourage publicised healthy screen use habits, whilst parents with low parent self-efficacy may struggle to implement guidelines and give up when challenges arise [18]. Additionally, parents who are concerned with the negative effects of screen viewing may be more likely to employ strategies to mediate access or redirect their child to an alternate activity [33, 34]. Previous research has shown that although most parents used a range of mediation strategies for their child's screen use, they rarely sought or accessed advice or guidelines related to their use [10]. This highlights a need for greater awareness and understanding of the role of parent self-efficacy in shaping children's screen time use. Understanding the intricate relationship between parent self-efficacy and children's screen time had profound practical implications and potential benefits. The practical implications extend to public health, as informed and efficacious parents are more likely to implement guidelines and promote healthy habits [18]. By increasing parents' confidence in mediating screen access and fostering healthy screen use habits, parents can play a pivotal role in their child's well-being. Moreover, this knowledge can guide the development of clearer and more tailored education policies. Ultimately, a comprehensive understanding of the role of parent self-efficacy in shaping children's screen time has the potential to enhance children's health, well-being, and development in the increasingly digital world.

Whilst there have been reviews focusing on screen time and social media use [35], screen time and childhood obesity [36], and gaming and motivation [37], to the authors' knowledge, no existing scoping review has examined parent self-efficacy and its *relationship* to children's screen viewing time. Given the lack of understanding, the present review is aimed at systematically collecting, synthesizing, and presenting articles linking parent self-efficacy with children's screen time in order to provide context, identify gaps and limitations of the current body of literature, and provide recommendations for future research in this area.

2. Materials and Methods

Scoping reviews provide an opportunity to examine the extent and range of research activity, to summarize and disseminate research findings, to identify research gaps in existing literature, and to determine the value of completing a systematic review [38]. A scoping review was selected as the method of review with the intention of identifying primary research studies, determining the scope of the literature, and examining emerging evidence through critical assessment [39]. This scoping review spans 2010 (the earliest study located) through 2022 inclusive. The study was guided by the overarching research question, "What current

evidence supports the relationship between parent self-efficacy and child screen usage?" and further investigated the following research questions.

(1) What was the context of parent self-efficacy and child screen use in research that has been published?

(2) What are the implications of these findings for education and future research?

The scoping review was developed based on the preferred reporting items for systematic reviews and meta-analysis (PRISMA) extension for scoping reviews 2018 (PRISMAScR) [40].

2.1. Literature Search. Four electronic academic databases were searched for relevant studies: ERIC, Education Source, PsycInfo, and Scopus. These databases were selected due to their broad focus on academic research encompassing areas of education, health, and psychology to minimize bias. Figure 1 illustrates the flow diagram employed in this study. The search strategy included finding a small set of relevant "test articles" that were collected via a preliminary exploratory search; then, the systematic search terms were developed and validated by gauging their success at returning these "test articles." Keywords that were used for the search were the following: (PARENT∗ OR MOTHER OR FATHER OR CAREGIVER OR GUARDIAN) AND "SELF-EFFICACY" AND "SCREEN TIME" OR "TABLET". Due to the importance of the tablet in the family dynamic and development of the child, these specific search terms were selected. The search was conducted in June 2022 and was limited to peer-reviewed research and articles written in English.

2.2. Inclusion and Exclusion Criteria. To be included in the review, an article had to meet the screening criteria described in Table 1. A research study was excluded if it did not meet one or more criteria.

The initial search yielded 111 articles and thirty-five duplicate papers, and papers marked ineligible via automation were removed, leaving seventy-six papers for screening. Relevant articles were exported to EndNote 20 software for data management.

After applying the screening criteria, twenty papers were excluded due to not meeting inclusion criteria (see Figure 1). From there, fifty-six papers were sought for retrieval and assessed for eligibility. Of these fifty-six papers, eligible articles reported on a measurable relationship between parent self-efficacy and child/adolescent screen use. Accordingly, papers outside this scope, i.e., focusing on a child's personal self-efficacy and instrument validation, were excluded.

2.3. Interrater Reliability. Checks for interrater reliability occurred with the appraisal of the research articles during the eligibility phase. This interrater reliability check is aimed at confirming the identified research articles' quality and relevance to the research questions [41]. The research articles were appraised independently by two reviewers (S.M. and S.R.) who applied the inclusion and exclusion criteria to form a final list of studies for inclusion. Regular discussions between the two independent researchers occurred before a final meeting to discuss any criteria disagreements resulting in a final list of studies for inclusion. During this process, forty papers were excluded due to being out of scope (Figure 1, PRISMA diagram). Agreement by the researchers to the matched criteria resulted in the analysis of 16 papers.

2.4. Data Extraction and Synthesis. An extraction form was developed to analyse the sixteen papers and included the following categories for data synthesis: study origin/year of publication, participant characteristics, data collection methods including self-efficacy measure and reporting of the relationship between parent self-efficacy and screen time, citations, and main findings. Data was synthesized descriptively to map different aspects of the literature as outlined in our key questions. Data analysis and figures were completed via Microsoft Excel.

3. Results

3.1. Study Characteristics. A summary of findings for the included sixteen papers is reported in Table 2. The majority of studies were identified as quantitative, nonexperimental in research design ($n = 15$). One exception was a quantitative experimental design, which combined identifying relationships between factors when assessing the outcomes of a health intervention. Whilst most studies used surveys as their primary source of data collection, some combined this data with other methods, like accelerometers linking screen time to sedentary behaviour or physical activity. One paper, however, focused on examining recall of a campaign, rather than linking parental self-efficacy and screen time, although both were measured. All sixteen articles identified were published in journals with a health focus.

Articles report significant variations in the number of participants, with one study participation sample as low as 106 parents [54], whilst another was as high as 4006 parents [68]. Distinct study groups were identified with participants either parents in isolation [21, 22, 43, 44, 54, 58, 62, 64, 66, 68] or parents participating in a parent-child dyad [49, 51, 59, 67]. Some studies looked at mothers individually [42] or in mother-child dyads [70].

The age of the children in the studies ranged from 1 month to 18 years of age; however, most studies focused on the early years of ≤6 years of age. Three of the sixteen studies included children or adolescents aged over six years of age [44, 66, 68].

The countries where the studies occurred were compiled to identify geographical areas which carried out parent self-efficacy and screen time research. It is important to identify limitations and acknowledge that articles that were not published in English were excluded, and subsequently, non-English speaking countries may be underrepresented. The majority of studies were undertaken in Australia ($n = 6$), followed by Canada ($n = 3$). Other countries where studies were identified were Belgium, Brazil, Finland, Malaysia, the United Kingdom, and the United States of America.

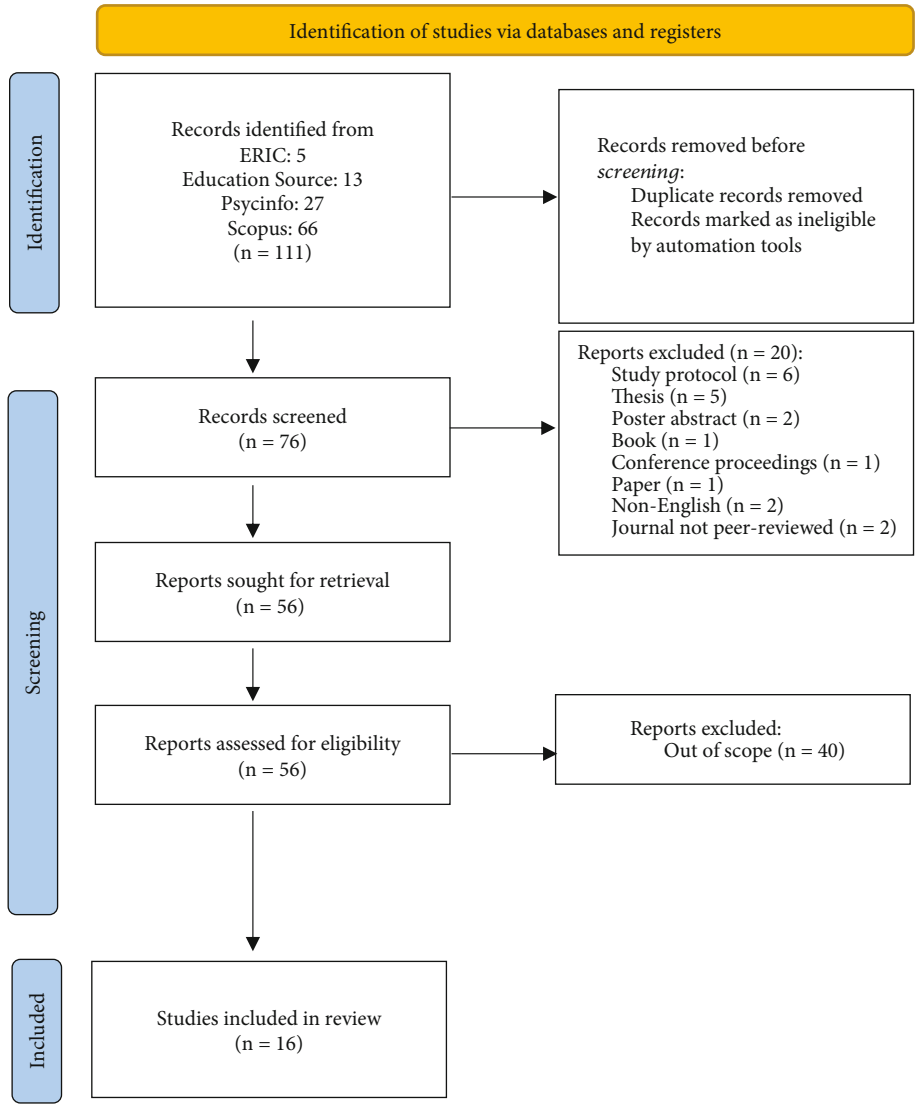

Figure 1: PRISMA diagram.

Table 1: Inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Publication type	Scholarly articles of original research published in peer-reviewed journals	Book chapters, technical reports, reviews, study protocols, dissertations, or proceedings
Research method and results	There was an identifiable method and result section describing how the empirical study was conducted, and the findings were discussed.	Reviews of other articles, opinions, or discussion papers
Language	Article was written in English	Non-English languages were excluded
Participants	Report data from parents/family carers aged 18 years or over	Data is not reported from parents/family carers aged 18 years or over

Bandura's social cognitive theory [72] was the most cited theoretical framework ($n = 4$) [42, 54, 58, 64]. Socioecological models also guided research ($n = 2$) [22, 70]; the remaining ten papers did not reference a theoretical framework or approach within their studies.

3.2. Parent Self-Efficacy Measures. Parent self-efficacy was primarily measured by self-report utilizing a variety of measures to ascertain parent's degree of confidence in managing their children's behaviour. Fifteen of the sixteen studies measured task-specific parent self-efficacy, whilst one measured general parent self-efficacy. The task-specific parent self-efficacy questions had varying task focus areas, including where parents manage their children's behaviours by limiting or restricting their children's screen time, controlling their child's eating habits, limiting their child's sedentary

Table 2: Scoping review article summary.

Authors, year, country	Participant characteristics		Data collection	Parent self-efficacy measure		Children's screen time measure	Parent self-efficacy-screen time relationship reported	Main findings (direction)
	Parent	Child/ adolescent		Research focus	Description			
Campbell et al. [42]; Australia	140 mothers	6-20 months & 4-5 years	Survey	Task-specific: control eating/ limit sedentary behaviour/ increase physical activity	Respondents rated their confidence in influencing or controlling children's eating and sedentary behaviours and limited viewing using 12 questions.	Parent self-report (survey)—child's daily TV/video/ DVD time on weekdays and weekends, scaled 0-6 hrs in 30 min increments. Average computed: (weekday × 5 + weekend × 2)/7	Higher maternal self-efficacy to limit viewing time is inversely associated with screen time exposure in both age groups of children.	Negative
Carson and Janssen [43]; Canada	746 parents	<5 years	Survey	Task-specific: limit/restrict screen time	Parents' confidence in reducing or eliminating their child's screen time was assessed by one item: "How confident are you that you could say no to your child's request to participate in screen time (TV/computer/video games) activities?"	Parent self-report (survey)—screen time assessed via two items relating to the time per day the child watches/plays: (1) TV/videos/DVDs and (2) video/ computer games. 7-point scale from "none" to "≥3 hrs/day" for weekdays and weekends. Weighted means for each, overall screen time = sum of watching (e.g.,TV) + playing game scores.	Higher levels of parent self-efficacy are associated with lower levels of screen time among children aged 0-5 years.	Negative
De Lepeleere et al. [44]; Belgium	207 parents	6-12 years	Survey	Task-specific: promote a healthy lifestyle	The parental self-efficacy questions were created based on the translation of the GEMS (Girls Health Enrichment Multisite Study) questionnaire [45], the validated questionnaire of parental self-efficacy for enhancing healthy lifestyles in their children [46] and section L of the Aventuras Para Ninos parent survey [47].	Parent self-report (survey)—utilized and adapted from the Flemish Physical Activity Questionnaire (FPAQ, [48]). Screen time is quantified by summing minutes of TV watching and computer/console gaming, measured in daily hours for weekdays and weekends.	Parenting practices and related parental self-efficacy were not associated with children's screen time. Children had a lower screen time if parents limited their own gaming.	Not significant
Downing et al. [49]; Australia	937 parent-child dyads	3-5 years	Survey & accelerometer	Task-specific: promote a healthy lifestyle	Healthy Active Preschool and Primary Years (HAPPY) Study-Social correlates questionnaire [50].	Parent self-report (survey)—parents reported child's TV/video/DVD, computer use, and game time in hrs/min for weekdays and weekends. Responses are converted to minutes for standardized total screen time assessment.	Higher levels of parental self-efficacy to limit screen time are associated with less screen time for both boys and girls.	Negative

Table 2: Continued.

Authors, year, country	Participant characteristics		Data collection	Parent self-efficacy measure		Children's screen time measure	Parent self-efficacy-screen time relationship reported	Main findings (direction)
	Parent	Child/ adolescent		Research focus	Description			
Goncalves et al. [51]; Brazil	318 parent-child dyads	3-5 years	Survey & health data	Task-specific: limit/restrict screen time	Parental self-efficacy for limiting screen time was assessed using three items from the parenting self-efficacy scale used in the Infant Feeding Activity and Nutrition Trial (InFANT Study) [52].	Parent self-report (survey)—used He et al. [53] instrument. Parents reported child's daily TV, video, and computer/game time, with separate weekday and weekend categories: <1 h, 1-2 h, ≥3 h.	Higher levels of parental self-efficacy to limit screen time are inversely associated with child screen time.	Negative
Halpin et al. [54]; Australia	106 parents	0-4 years	Survey	Task-specific: limit/restrict screen time	Screen Time Self-Efficacy Scale (STSES) [55] is a 14-item scale used to assess parents' self-efficacy for managing their child's screen time under various challenging or stressful circumstances.	Parent self-report (survey)—Children's Screen Time History Questionnaire (CSTHQ; [56]) used to collect child and parent screen time details.	Low levels of parental self-efficacy for managing screen time are strongly correlated with higher levels of children's screen time.	Negative
Jago et al. [21]; UK	954 parents	5-6 years	Survey	Task-specific: limit/restrict screen time	Parents' self-efficacy was measured in relation to reducing the child's screen viewing behaviour using three questions that were based on Bandura's recommendations [57].	Parent self-report (survey)—questionnaire on child's screen time for TV and computer/ laptop, reported separately for each device and for weekdays and weekends. Response options included none, 1-30 minutes, 31 minutes-1 hour, 1-2 hours, 2-3 hours, 3-4 hours, or >4 hours.	Higher levels of parental self-efficacy to limit screen time are associated with lower levels of screen viewing among 5- to 6-year-old children.	Negative
Lampard, Jurkowski, and Davison [58]; USA	147 parents	2-6 years	Survey	Task-specific: limit/restrict screen time	Self-efficacy to restrict child screen time was measured using three items developed for this study.	Parent self-report (survey)—screen time evaluated using the New York State Department of Health Eat Well Play Hard Survey and the Fragile Families and Child Wellbeing Survey. Parents reported average child screen time for (a) TV/ DVDs/videos, (b) video games, and (c) leisure computer use on weekdays and weekends. Average daily minutes is calculated with formula (weekday × 5 + weekend × 2)/7.	Greater self-efficacy to restrict screen time was associated with greater restriction of child screen use, after controlling for parent screen time.	Negative

Table 2: Continued.

Authors, year, country	Participant characteristics		Data collection	Parent self-efficacy measure		Children's screen time measure	Parent self-efficacy-screen time relationship reported	Main findings (direction)
	Parent	Child/ adolescent		Research focus	Description			
Lee et al. [59]; Canada	203 parent-child dyads	1-2 years	Survey & accelerometer	Task-specific: increase physical activity	Barrier self-efficacy for supporting toddlers' physical activity included seven items primarily based on a previous study [60].	Parent self-report (survey)—adapted from the Canadian Health Measures Survey [61]. Parents reported average daily hours/minutes for (1) TV/ videos/DVDs on various devices and (2) video/computer games. Total screen time is calculated by summing weighted averages of weekday and weekend times for each activity.	Higher parental confidence in managing toddlers' screen time correlates with more effective screen time limiting practices. As parental barrier self-efficacy increases, there is a decrease in the amount of screen time allowed for the child.	Negative
Määttä et al. [22]; Finland	808 parents	3-6 years	Survey	Task-specific: limit/restrict screen time	Questions assessing parental self-efficacy for limiting children's screen time items adapted from previous studies.	Parent self-report (diary)—parents documented child's sedentary behaviour over 7 days, including TV, DVD/video watching, and tablet/smartphone use, excluding preschool hours. Reported activities' total time in hrs/min are converted to minutes, aggregated daily. Daily average screen time is derived from a weighted average of weekdays (5/ 7) and weekends (2/7).	Higher parental self-efficacy for limiting children's screen time is associated with lower screen time for preschool children, accounting for parental education.	Negative
Mansor et al. [62]; Malaysia	789 parents	<5 years	Survey	Task-specific: increase physical activity	The study employed a validated study instrument adapted from various studies measuring parent's self-efficacy in relation to influencing the child's physical activity and reflected the confidence level of the parent in situations related to a child's physical activity.	Parent self-report (survey)—questions based on Bernard et al. [63] about the average time spent by the child on each media device per weekday and weekend	Parents with low self-efficacy to influence physical activity encounter more barriers to reducing children's screen time, resulting in a higher likelihood of their child engaging in excessive screen use.	Negative
Pathirana et al. [64]; Australia	640 parents	<5 years	Survey (pretest/ posttest)	Task-specific: increase physical activity, control eating, and limit/restrict screen time	Questions on self-efficacy of carers on promoting healthy foods, limiting unhealthy foods, promoting physical activity, and limiting screen time. These self-efficacy measures were adopted from the work of Campbell et al. [42].	Parent self-report (survey)—developed collaboratively by Griffith University, Playgroup Queensland, and Queensland Health [65]. Questions determined children's screen time (TV, DVD, video, computer, video games) for the previous day.	Higher levels of parental self-efficacy in limiting screen time are negatively correlated with the amount of screen time children engage in.	Negative

Table 2: Continued.

Authors, year, country	Participant characteristics		Data collection	Parent self-efficacy measure		Children's screen time measure	Parent self-efficacy-screen time relationship reported	Main findings (direction)
	Parent	Child/ adolescent		Research focus	Description			
Priebe et al. [66]; Canada	944 parents	5-17 years	Survey	Task-specific: limit/restrict screen time	One item, rated on a 4-point scale, was used to assess parents' confidence in their ability to help their child reduce screen time.	Parent self-report (survey)—parents asked average daily hours/minutes the child spends watching TV, using computer, and playing video games in free time, for typical weekday and weekend. Focus on recreational screen time, excluding homework time.	There is no specific mention of the association between parental self-efficacy and children's screen time. The evaluation primarily focuses on the recall of the campaign promoting active play and its impact on parental support for screen time and play.	Not applicable
Raj et al. [67]; Malaysia	489 parent-child dyads	<5 years	Survey & health data	Task-specific: increase physical activity	Parents were asked to indicate their self-efficacy in influencing their child's physical activity level ranging from (1) "not confident" to (5) "very confident."	Parent self-report (survey)—adapted from Bernard et al. [63]. Assessed child's screen time for (1) TV (incl. videos, DVDs, consoles), (2) computers, and (3) handheld devices, on weekdays and weekends. Averaged device-specific time using ([weekday × 5 + weekend × 2]/7) formula; total screen time = sum across all devices.	Parents with moderate self-efficacy to influence their child's physical activity are 2.3 times more likely to have children with excessive screen time compared to parents with higher self-efficacy.	Negative
Smith et al. [68]; Australia	4006 parents	Preschool, Grade K, 2, 4, 6, 8, and 10	Survey	Task-specific: increase physical activity	Parents were asked to rate their confidence in influencing their child's physical activity in a series of challenging situations, which were identified from focus group consultations with parents undertaken by the NSW Health Department.	Parent self-report (survey)—screen viewing questions measured the usual daily time spent on TV, recreational computer use, and electronic games. Based on the NSW Population Health Survey [69].	Children of parents with high self-efficacy in influencing physical activity are about 3.72 times more likely to adhere to screen time guidelines than children of parents with low self-efficacy.	Negative
Xu, Wen, and Rissel [70]; Australia	497 mother-child dyads	2 years	Survey	General	Global parent self-efficacy questions from "Growing up in Australia: The Longitudinal Study of Australian Children" (FAHCSIA, AIFS, ABS [71]).	Parent self-report (survey)—mothers reported child's total time spent on (i) TV programs, (ii) DVDs/videos, (iii) computer use, and (iv) electronic games, covering weekdays and weekends.	No association between parental self-efficacy and children's screen time.	No association

behaviour, increasing their child's physical activity, or promoting a healthy lifestyle, with some research studies including several of these task-specific parental self-efficacy focus areas; see Table 2.

There was considerable variation in the number of survey questions used to measure self-efficacy. Some studies included one parent self-efficacy survey question relating to how they managed their child's behaviours and emotions in relation to the focus area of study, for example, asking a question on how parental self-efficacy influenced their child's physical activity [43, 66, 67]. Another study used a 14-item parental self-efficacy scale to indicate how confident they were in managing their child's screen time broadly [54]. See Table 2 for further information relating to parent self-efficacy measures.

3.3. Research Focus. The largest number of articles focused on the relationship between parent factors such as self-efficacy and their role in screen time alone as the primary focus. Other studies looked at the relationship between parent self-efficacy and screen time as part of a broader evaluation of health outcomes such as physical activity [44, 59], child nutrition and diet [42], obesity [51], and health campaigns [64, 66].

3.4. Reporting of the Relationship between Parent Self-Efficacy and Screen Time. Thirteen out of sixteen studies found that parent self-efficacy is inversely associated with child/adolescent screen time, indicating that higher levels of parental self-efficacy to limit screen time are linked with reduced screen time for children. The remaining studies reported no association or limited results; two studies [66, 70] reported no relationship between parent self-efficacy and child screen time. Specifically, Priebe et al. [66] did not report an association as their evaluation primarily focused on the recall of a campaign promoting active play and its impact on parental support for screen time and play, rather than directly examining the link between parental self-efficacy and children's screen time. One study reported limited results [44] whereby the only significant finding was that children had lower screen time when parents limited their own gaming, despite no association found between parenting practices and related parental self-efficacy, and children's screen time. Further detail can be found in Table 2.

4. Discussion

This study used the following research questions to guide this scoping review: "What was the context of parent self-efficacy and child screen use research published?" and "What are the implications of these findings for education and future research?" No known existing scoping review has been completed in this area, so the present review is aimed at systematically collecting, synthesizing, and presenting all existing articles linking parent self-efficacy with children's screen time, in order to provide context, identify gaps and limitations of the current body of literature, and provide recommendations for future research in this area. The broad evidence body, with minor exception, provided evidence that task-specific parent self-efficacy is significantly negatively correlated with screen time of children and adolescents, whilst no relationship was identified between general parent self-efficacy and children's screen time.

Parents that identify themselves as more self-efficacious concerning limiting screen viewing, controlling sedentary behaviour, increasing physical activity, or promoting a healthy lifestyle have children or adolescents with less screen viewing time [21, 22, 42, 43, 49, 51, 54, 58, 59, 62, 64, 67, 68]. This finding suggests that parents who identify as more self-efficacious in areas related to screen time may implement more mediation strategies, in line with current public health guidelines that advocate for minimal screen use, such as the guidelines offered by the World Health Organization [26] and the American Academy of Pediatrics [27].

Two of the identified studies contradict this general finding. Priebe et al. [66] found no results that parent task self-efficacy is related to children's screen time. It is important to acknowledge that parent self-efficacy was measured on a single item 4-point scale which may have reduced the power of this item. Whilst finding no results, Priebe et al. [66] acknowledge the importance of self-efficacy as a precursor to parent behaviours regarding limiting screen time. Similarly, De Lepeleere et al. [44] found limited results of a relationship between parent task-specific self-efficacy and children's screen time but acknowledge that this was anomalous to the expectation, attributing this result to the high values of parent self-efficacy in their cohort.

The one study included that measured general parent self-efficacy [70] found no association between parent self-efficacy and children's screen time; however, high global parent self-efficacy was associated with children spending ≥2 h/day playing outdoors. There is a limited research body investigating the association of general parent self-efficacy and children's screen time; however, findings suggest that task-specific parent self-efficacy may have a greater impact on decreasing children's screen time than general parent self-efficacy. According to Bandura's self-efficacy theory [73], task-specific self-efficacy is a better predictor of performance, as specific self-efficacy beliefs guide one's behaviour. In contrast, another position on measures of task self-efficacy is that they are more valid when the task is clearly defined [20], which interestingly contrasts with the ambiguity of the current advertised guidelines. Although the relationship between task-specific parent self-efficacy and children's screen time appears well established, the task-specific parent self-efficacy is underpinned by parents' skills in managing health behaviours such as physical activity and diet.

Collectively, this data is consistent with broader parental task-specific self-efficacy research and the notion that parents who exhibit high levels of self-efficacy make health-affirming decisions that positively influence their child's behaviour [74, 75]. All studies examined operated from a health agenda and highlight a gap for further research investigating the relationship between parent self-efficacy and children's screen time from an educational approach. One could hypothesize that the public health agenda of minimising access to screen time is louder than the conflicting advice

from educators, or alternatively, parents with high levels of self-efficacy are more drawn to a health agenda.

Research on health behaviour change indicates that enhanced self-efficacy can lead to subsequent health behaviour change [76], and it is likely that this phenomenon extends to parent self-efficacy. Bandura's social cognitive theory [72] was the most cited theoretical framework, and socioecological models were also identified as guiding research. This was unsurprising due to the common use of this theory and model in the practice of health promotion [77, 78].

Most parents acknowledge the benefits of screen viewing for learning; however, they find managing access to realise these benefits in the home a significant challenge [79]. This finding regarding parents' self-efficacy is important because it has implications for supporting parents to mediate screen access in the home environment, whilst maximizing the benefits of screen viewing for learning.

4.1. Strengths and Limitations. The scoping review addresses a novel and important research area by examining the relationship between parent self-efficacy and children's screen time. The fact that there is no known existing scoping review in this specific domain underscores the novelty and significance of this study. Four electronic databases were searched to locate articles for the scoping review enhancing its rigor and reliability in capturing relevant research articles. It is likely that additional articles may exist outside of these databases. However, these databases were selected due to their broad focus on academic research encompassing education, health, and psychology, areas considered the focus for this review. Local and national contexts play a role when researching a topic, and these environmental contexts will influence cultural norms for parenting styles and expectations in addition to the child behaviours in question and their screen viewing time. Additionally, as previously highlighted, articles that were not published in English were excluded, and subsequently, non-English speaking countries may be underrepresented.

Application of the inclusion and eligibility criteria to the searches resulted in a surprisingly small number of papers for inclusion in this review, given the breadth of the parent self-efficacy research base [18, 23, 80, 81]. Nonetheless, piloting the search strategy and searching the reference list allowed confidence in the conclusion that relevant research was included in the scoping review. The study thoroughly synthesized the available evidence from multiple studies, providing a comprehensive overview of the relationship between parent self-efficacy and children's screen time. The inclusion of a diverse set of studies contributes to the robustness of the findings.

Potential bias when selecting and assessing publications during the screening process is always a risk; however, a strength within this research was the addition of an independent reviewer as interrater reliability will offset some bias [41]. To minimize the effects of selection bias, the inclusion and exclusion criteria and the PRISMA statement were distinctly used to identify publications suitable for review [40]. This reduces the ambiguity and possibility of poor reproducibility, which potentially decreases random error.

Most studies consistently employed a quantitative, nonexperimental survey design for their research, typically measuring both general and task-specific parent self-efficacy via self-report [81]. All included studies used parent self-reports to assess both parent self-efficacy and children's screen time. Although survey methods, as noted by Demetriou et al. [82], are effective for collecting such data, this review suggests the potential benefit of exploring alternative research designs. This recommendation stems from the frequent occurrence of systematic self-report bias in health data collection, a nonrandom discrepancy between reported and actual data highlighted by Bauhoff [83]. Additionally, social desirability bias, answers which reflect an attempt to enhance socially desirable characteristics, may also be vulnerable to survey conditions [84]. Therefore, this raises concerns regarding overreliance on purely self-report mode as the method of data collection in investigating this relationship. The addition of qualitative research methods may provide a broader and deeper understanding of the identified relationship between parent self-efficacy and children's screen viewing.

Whilst this review sought to find information on a relationship between parent self-efficacy and screen time in children less than 18 years of age, most findings focused on early childhood. Just three of the sixteen studies included children or adolescents aged over six years. This may be in part due to the current limited availability of research in this area and appropriate scales measuring parent self-efficacy; this area has seen a focus of development of scales for infants and fewer scales and preexisting studies examining self-efficacy in parents of school-aged children [19]. Additionally, the review placed emphasis on the use of tablets as a vehicle for screen time. Adolescents exhibit greater ownership of smartphones compared to tablets [85]. A more refined understanding could be achieved through age-specific analyses categorizing study samples into distinct developmental stages such as early childhood, middle childhood, and adolescence. This approach offers the potential to enhance our understanding of the evolving dynamics surrounding technology ownership as individuals progress through the various stages of life.

Whilst this review focuses on children's screen time, it primarily considers the aspect of restrictive mediation, which involves setting time limits. Padilla-Walker et al. [34] identify three main types of parental mediation of media: restrictive mediation, active mediation, and coviewing. It is acknowledged that parents employ various forms of mediation to influence their children's screen use, and these other forms are not addressed in this review. Furthermore, it is important to recognize that time limits may not always be applicable, especially when screen time is used for activities such as homework, or video calls with family or friends [86].

The primary focus of the research articles varied from child health behaviours and diet to physical activity. The difference in research approach must be considered when assessing the generalisability of these findings. Studies that have adopted a health lens and are focused on health agendas, for example, preventing childhood obesity [51,

64], may have recruited a particular sample or elicited results or outcomes that support a primary health agenda.

4.2. Implications for Education, Research, and Practice. No consistent measure of parent self-efficacy was applied across studies. Many studies adopted their own measures tailoring specific questions for the purpose of their study. The majority of the studies focused on measuring task-specific self-efficacy over general parent self-efficacy, rating confidence in specific domains such as their confidence to control sedentary behaviours [42, 87] or their express confidence in their ability to reduce screen time [21, 22, 43, 54, 58, 64, 66]. A systematic review of self-report measures of parent self-efficacy identified that adequate parent self-efficacy measures with good psychometric properties exist, yet none remained widely adopted [81]. The need for a more consistent definition and measurement of parent self-efficacy has been identified in other previous systematic reviews [18, 23, 80]. When selecting a scale consideration regarding the specificity of the scale is required, there is a belief that task-specific measures of parent self-efficacy may have greater predictive validity due to their greater sensitivity [19], which may, in part, explain the relationship observed between task-specific self-efficacy and children's screen time and the lack of relationship between general parent self-efficacy and children's screen time. A measurement of parents' task-specific self-efficacy with a focus on supporting their child's education and learning development goals and, in turn, examining the relationship to their screen time may provide further insight into the attitudes, beliefs, and confidence of parents regarding their role in supporting their child's learning and management of screen time. Notably, in the study by Coyne et al. [88], it was observed that higher levels of general parent self-efficacy were linked to increased parental media efficacy and decreased problematic media use in children. Additional exploration into the impact of general parent self-efficacy on children's screen time may be justified, given the potential significance of broader parenting skills in addressing problematic media behaviours during childhood.

Future studies should consider the methodological and conceptual limitations of published findings to further explore the relationship between parent self-efficacy and screen time in children. Establishing an observable theoretical link between parent self-efficacy, other parent factors, and children's screen time would further inform policies and guidelines to build parents' confidence in their decision-making regarding these aspects of their child's development.

It is worth noting also that whilst parents of both genders were often recruited, there was an imbalanced gender distribution with more females responding; therefore, the generalisability of these findings must also be considered. An opportunity exists to expand research by recruiting a more representative sample inclusive of adolescents and more male participants in the parent role.

Future research directions include prioritizing the development and adoption of standardized measures for parent self-efficacy (both general and task-specific), ensuring a more balanced gender distribution and diverse demographic representation, conducting longitudinal studies to explore temporal dynamics, and integrating qualitative methods for a richer understanding. Additionally, there is a need to incorporate methods that go beyond parent self-report, such as objective measures or observational approaches. These approaches are collectively aimed at providing clearer, more robust insights that can inform policies and interventions to assist parents in effectively managing children's screen time in educational and health contexts.

This study's conclusions have significant implications for both public health and education. By highlighting the impact of parent self-efficacy on children's screen time, it informs strategies to support parents in mediating screen access and optimizing the educational benefits of technology. The study indirectly points out the importance of consistent and contemporary guidelines regarding screen time for children. It suggests that the conflicting advice from various sources might create confusion among parents. This has implications for policy development and guidance provided by health and education authorities.

5. Conclusions

This scoping review highlights a relationship between task-specific parent self-efficacy and children's screen time, with parents who feel more efficacious in decreasing screen time or sedentary behaviour reporting children with less screen time. This finding is at odds with new and emerging guidelines regarding the removal of screen time restrictions. An aging health agenda may be overpowering over alternate emerging health advice or advice provided from an educational viewpoint.

Consistent and contemporary guidelines are important to ensure that even parents who feel confident in their parenting decisions know what behaviours to promote, encourage, mediate, and avoid as their children interact with screens and technology, with emphasis on the importance of access in the development of their child's digital literacy. Further research investigating the relationship between general parent self-efficacy or other varying task-specific parent self-efficacy levels outside of a health focus and within an educational context is needed to understand this phenomenon. Notably, building parents' self-efficacy in providing digital literacy opportunities will empower parents to make informed choices to balance their child's development in both health and education.

In summary, the study provides a comprehensive examination of the relationship between parent self-efficacy and children's screen time, offering valuable insights, implications for both health and education, and a roadmap for future research. Its systematic approach and unique focus contribute to its strengths and highlight its importance in understanding and addressing the challenges associated with children's screen time.

Data Availability

The data that supports the findings of this study are available on request from the corresponding author, S.M.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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References

[1] R. Barr, "Growing up in the digital age: early learning and family media ecology," *Current Directions in Psychological Science*, vol. 28, no. 4, pp. 341–346, 2019.

[2] A. D. Ribner, L. Coulanges, S. Friedman et al., "Screen time in the coronavirus 2019 era: international trends of increasing use among 3- to 7-Year-Old children," *Journal of Pediatrics*, vol. 239, pp. 59–66.e1, 2021.

[3] L. Marciano and A. L. Camerini, "Recommendations on screen time, sleep and physical activity: associations with academic achievement in Swiss adolescents," *Public Health*, vol. 198, pp. 211–217, 2021.

[4] G. Thomas, J. A. Bennie, K. De Cocker, O. Castro, and S. J. H. Biddle, "A descriptive epidemiology of screen-based devices by children and adolescents: a scoping review of 130 surveillance studies since 2000," *Child Indicators Research*, vol. 13, no. 3, pp. 935–950, 2020.

[5] S. Madigan, R. Eirich, P. Pador, B. A. McArthur, and R. D. Neville, "Assessment of changes in child and adolescent screen time during the COVID-19 pandemic," *JAMA Pediatrics*, vol. 176, no. 12, pp. 1188–1198, 2022.

[6] S. Papadakis and M. Kalogiannakis, "Mobile educational applications for children: what educators and parents need to know," *International Journal of Learning and Organisation*, vol. 11, no. 3, pp. 256–277, 2017.

[7] H. K. Kabali, M. M. Irigoyen, R. Nunez-Davis et al., "Exposure and use of mobile media devices by young children," *Pediatrics*, vol. 136, no. 6, pp. 1044–1050, 2015.

[8] C. K. Blackwell, A. R. Lauricella, and E. Wartella, "The influence of TPACK contextual factors on early childhood educators' tablet computer use," *Computers & Education*, vol. 98, pp. 57–69, 2016.

[9] P. Nikken and M. Schols, "How and why parents guide the media use of young children," *Journal of Child and Family Studies*, vol. 24, no. 11, pp. 3423–3435, 2015.

[10] S. M. Milford, L. Vernon, J. J. Scott, and N. F. Johnson, "An initial investigation into parental perceptions surrounding the impact of mobile media use on child behavior and executive functioning," *Human Behavior and Emerging Technologies*, vol. 2022, Article ID 1691382, 11 pages, 2022.

[11] A. R. Lauricella, E. Wartella, and V. J. Rideout, "Young children's screen time: the complex role of parent and child factors," *Journal of Applied Developmental Psychology*, vol. 36, pp. 11–17, 2015.

[12] K. L. Modecki, S. Low-Choy, B. N. Uink, L. Vernon, H. Correia, and K. Andrews, "Tuning into the real effect of smartphone use on parenting: a multiverse analysis," *Journal of Child Psychology and Psychiatry*, vol. 61, no. 8, pp. 855–865, 2020.

[13] K. L. Modecki, R. E. Goldberg, P. Wisniewski, and A. Orben, "What is digital parenting? A systematic review of past measurement and blueprint for the future," *Perspectives on Psychological Science*, vol. 17, no. 6, pp. 1673–1691, 2022.

[14] W. Shin, "Empowered parents: the role of self-efficacy in parental mediation of children's smartphone use in the United States," *Journal of Children and Media*, vol. 12, no. 4, pp. 465–477, 2018.

[15] A. Bandura, "Self-efficacy: toward a unifying theory of behavioral change," *Psychological Review*, vol. 84, no. 2, pp. 191–215, 1977.

[16] Y. Fang, M. Boelens, D. A. Windhorst, H. Raat, and A. van Grieken, "Factors associated with parenting self-efficacy: a systematic review," *Journal of Advanced Nursing*, vol. 77, no. 6, pp. 2641–2661, 2021.

[17] A. J. Vance and D. H. Brandon, "Delineating among parenting confidence, parenting self-efficacy and competence," *Advances in Nursing Science*, vol. 40, no. 4, pp. E18–E37, 2017.

[18] T. L. Jones and R. J. Prinz, "Potential roles of parental self-efficacy in parent and child adjustment: a review," *Clinical Psychology Review*, vol. 25, no. 3, pp. 341–363, 2005.

[19] R. Črnčec, B. Barnett, and S. Matthey, "Review of scales of parenting confidence," *Journal of Nursing Measurement*, vol. 18, no. 3, pp. 210–240, 2010.

[20] A. Y. Wang and R. S. Richarde, "Global versus task-specific measures of self-efficacy," *The Psychological Record*, vol. 38, no. 4, pp. 533–541, 1988.

[21] R. Jago, L. Wood, J. Zahra, J. L. Thompson, and S. J. Sebire, "Parental control, nurturance, self-efficacy, and screen viewing among 5- to 6-year old children: a cross-sectional mediation analysis to inform potential behavior change strategies," *Childhood Obesity*, vol. 11, no. 2, pp. 139–147, 2015.

[22] S. Määttä, R. Kaukonen, H. Vepsäläinen et al., "The mediating role of the home environment in relation to parental educational level and preschool children's screen time: a cross-sectional study," *BMC Public Health*, vol. 17, no. 1, p. 688, 2017.

[23] A. M. Albanese, G. R. Russo, and P. A. Geller, "The role of parental self-efficacy in parent and child well-being: a systematic review of associated outcomes," *Child: Care, Health and Development*, vol. 45, no. 3, pp. 333–363, 2019.

[24] A. Brown and E. Smolenaers, "Parents' interpretations of screen time recommendations for children younger than 2 years," *Journal of Family Issues*, vol. 39, no. 2, pp. 406–429, 2018.

[25] L. Straker, J. Zabatiero, S. Danby, K. Thorpe, and S. Edwards, "Conflicting guidelines on young children's screen time and use of digital technology create policy and practice dilemmas," *The Journal of Pediatrics*, vol. 202, pp. 300–303, 2018.

[26] World Health Organization, *Guidelines on Physical Activity, Sedentary Behaviour and Sleep for Children under 5 Years of Age*, World Health Organization, 2019, December 2022, https://apps.who.int/iris/handle/10665/311664.

[27] American Academy of Pediatrics (AAP), "Beyond screen time: a parents guide to media use," *Pediatric Patient Education*, 2021.

[28] Royal College of Paediatrics and Child Health, *The Health Impacts of Screen Time: A Guide for Clinicians and Parents*, Royal College of Paediatrics and Child Health, 2019, December 2022, https://www.rcpch.ac.uk/sites/default/files/2018-12/rcpch_screen_time_guide_-_final.pdf.

[29] Canadian Paediatrics Society, "Screen time and preschool children: promoting health and development in a digital world," *Paediatr Child Health*, vol. 28, no. 3, pp. 184–192, 2023, December 2022, https://cps.ca/en/documents/position/screen-time-and-preschool-children.

[30] Department of Health and Aged Care, *24-Hour Movement Guidelines – Children and Young People (5 to 17 Years)*, Commonwealth of Australia, 2021, December 2022, https://www.health.gov.au/resources/publications/24-hour-movement-guidelines-children-and-young-people-5-to-17-years-brochure.

[31] Department of Education, Employment and Workplace Relations, *Belonging, Being and Becoming: The Early Years Learning Framework for Australia*, Commonwealth of Australia, 2009, December 2022, http://www.deewr.gov.au/Earlychildhood/Policy_Agenda/Quality/Documents/Final%20EYLF%20Framework%20Report%20-%20WEB.pdf.

[32] C. McDonald-Brown, K. Laxman, and J. Hope, "Sources of support and mediation online for 9-12-year old children," *E-Learning and Digital Media*, vol. 14, no. 1-2, pp. 52–71, 2017.

[33] R. Brito and P. Dias, ""Which apps are good for my children?": How the parents of young children select apps," *International Journal of Child-Computer Interaction*, vol. 26, no. 12, article 100188, 2020.

[34] L. M. Padilla-Walker, S. M. Coyne, A. M. Fraser, W. J. Dyer, and J. B. Yorgason, "Parents and adolescents growing up in the digital age: latent growth curve analysis of proactive media monitoring," *Journal of Adolescence*, vol. 35, no. 5, pp. 1153–1165, 2012.

[35] C. L. Odgers, S. M. Schueller, and M. Ito, "Screen time, social media use, and adolescent development," *Annual Review of Developmental Psychology*, vol. 2, no. 1, pp. 485–502, 2020.

[36] K. Fang, M. Mu, K. Liu, and Y. He, "Screen time and childhood overweight/obesity: a systematic review and meta-analysis," *Child: Care, Health and Development*, vol. 45, no. 5, pp. 744–753, 2019.

[37] A. Martucci, M. C. Gursesli, M. Duradoni, and A. Guazzini, "Overviewing gaming motivation and its associated psychological and sociodemographic variables: a PRISMA systematic review," *Human Behavior and Emerging Technologies*, vol. 2023, Article ID 5640258, 156 pages, 2023.

[38] H. Arksey and L. O'Malley, "Scoping studies: towards a methodological framework," *International Journal of Social Research Methodology*, vol. 8, no. 1, pp. 19–32, 2005.

[39] Z. Munn, M. D. J. Peters, C. Stern, C. Tufanaru, A. McArthur, and E. Aromataris, "Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach," *BMC Medical Research Methodology*, vol. 18, no. 1, p. 143, 2018.

[40] A. C. Tricco, E. Lillie, W. Zarin et al., "PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation," *Annals of Internal Medicine*, vol. 169, no. 7, pp. 467–473, 2018.

[41] J. Belur, L. Tompson, A. Thornton, and M. Simon, "Interrater reliability in systematic review methodology: exploring variation in coder decision-making," *Sociological Methods & Research*, vol. 50, no. 2, pp. 837–865, 2021.

[42] K. Campbell, K. Hesketh, A. Silverii, and G. Abbott, "Maternal self-efficacy regarding children's eating and sedentary behaviours in the early years: associations with children's food intake and sedentary behaviours," *International Journal of Pediatric Obesity*, vol. 5, no. 6, pp. 501–508, 2010.

[43] V. Carson and I. Janssen, "Associations between factors within the home setting and screen time among children aged 0–5 years: a cross-sectional study," *BMC Public Health*, vol. 12, no. 1, 2012.

[44] S. De Lepeleere, I. De Bourdeauhuij, G. Cardon, and M. Verloigne, "Do specific parenting practices and related parental self-efficacy associate with physical activity and screen time among primary schoolchildren? A cross-sectional study in Belgium," *BMJ Open*, vol. 5, no. 9, article e007209, 2015.

[45] N. E. Sherwood, W. C. Taylor, M. Treuth et al., "Measurement characteristics of activity-related psychosocial measures in 8- to 10-year-old African-American girls in the Girls health enrichment multisite study (GEMS)," *Preventive Medicine*, vol. 38, pp. 60–68, 2004.

[46] J. W. Decker, "Initial development and testing of a questionnaire of parental self-efficacy for enacting healthy lifestyles in their children," *Journal for Specialists in Pediatric Nursing*, vol. 17, no. 2, pp. 147–158, 2012.

[47] N. C. Crespo, J. P. Elder, G. X. Ayala et al., "Results of a multi-level intervention to prevent and control childhood obesity among Latino children: the Aventuras Para Niños study," *Annals of Behavioral Medicine*, vol. 43, no. 1, pp. 84–100, 2012.

[48] B. Deforche, I. De Bourdeaudhuij, E. D'hondt, and G. Cardon, "Objectively measured physical activity, physical activity related personality and body mass index in 6- to 10-yr-old children: a cross-sectional study," *International Journal of Behavioral Nutrition and Physical Activity*, vol. 6, no. 1, pp. 25–29, 2009.

[49] K. L. Downing, T. Hinkley, J. Salmon, J. A. Hnatiuk, and K. D. Hesketh, "Do the correlates of screen time and sedentary time differ in preschool children?," *BMC Public Health*, vol. 17, no. 1, pp. 1–6, 2017.

[50] T. Hinkley, J. Salmon, A. D. Okely, D. Crawford, and K. Hesketh, "The HAPPY study: development and reliability of a parent survey to assess correlates of preschool children's physical activity," *Journal of Science and Medicine in Sport*, vol. 15, no. 5, pp. 407–417, 2012.

[51] W. S. F. Goncalves, R. Byrne, M. T. Viana, and S. G. Trost, "Parental influences on screen time and weight status among preschool children from Brazil: a cross-sectional study," *The International Journal of Behavioral Nutrition and Physical Activity*, vol. 16, no. 1, p. 27, 2019.

[52] K. Campbell, K. Hesketh, D. Crawford, J. Salmon, K. Ball, and Z. McCallum, "The infant feeding activity and nutrition trial (INFANT) an early intervention to prevent childhood obesity: cluster-randomised controlled trial," *BMC Public Health*, vol. 8, 2008.

[53] M. He, L. Piché, C. Beynon, and S. Harris, "Screen-related sedentary behaviors: children's and parents' attitudes, motivations, and practices," *Journal of Nutrition Education and Behavior*, vol. 42, no. 1, pp. 17–25, 2010.

[54] S. Halpin, A. E. Mitchell, S. Baker, and A. Morawska, "Parenting and child behaviour barriers to managing screen time with young children," *Journal of Child and Family Studies*, vol. 30, no. 3, pp. 824–838, 2021.

[55] S. Halpin, A. E. Mitchell, and S. Baker, *Screen Time Self-Efficacy Scale*, Parenting and Family Support Centre, Brisbane, 2018.

[56] A. E. Mitchell and S. Halpin, *Children's Screen Time History Questionnaire*, Parenting and Family Support Centre, Brisbane, 2018.

[57] A. Bandura, "Guide for constructing self-efficacy scales," *Self-Efficacy Beliefs of Adolescents*, vol. 5, no. 1, pp. 307–337, 2006.

[58] A. M. Lampard, J. M. Jurkowski, and K. K. Davison, "Social-cognitive predictors of low-income parents' restriction of screen time among preschool-aged children," *Health Education & Behavior*, vol. 40, no. 5, pp. 526–530, 2013.

[59] E.-Y. Lee, K. D. Hesketh, R. E. Rhodes, C. M. Rinaldi, J. C. Spence, and V. Carson, "Role of parental and environmental characteristics in toddlers' physical activity and screen time: Bayesian analysis of structural equation models," *The International Journal of Behavioral Nutrition and Physical Activity*, vol. 15, no. 1, p. 17, 2018.

[60] A. M. McMinn, E. M. F. van Sluijs, N. C. Harvey et al., "Validation of a maternal questionnaire on correlates of physical activity in preschool children," *International Journal of Behavioral Nutrition and Physical Activity*, vol. 6, no. 1, 2009.

[61] R. C. Colley, D. Garriguet, K. B. Adamo et al., "Physical activity and sedentary behavior during the early years in Canada: a cross-sectional study," *International Journal of Behavioral Nutrition and Physical Activity*, vol. 10, no. 1, p. 54, 2013.

[62] E. Mansor, N. Ahmad, D. Raj, N. A. M. Zulkefli, and Z. M. Shariff, "Predictors of parental barriers to reduce excessive child screen time among parents of under-five children in Selangor, Malaysia: cross-sectional study," *Journal of Medical Internet Research*, vol. 23, no. 4, article e25219, 2021.

[63] J. Y. Bernard, N. Padmapriya, B. Chen et al., "Predictors of screen viewing time in young Singaporean children: the GUSTO cohort," *International Journal of Behavioral Nutrition and Physical Activity*, vol. 14, no. 1, p. 112, 2017.

[64] T. Pathirana, R. Stoneman, A. Lamont, N. Harris, and P. Lee, "Impact evaluation of "have fun – be healthy" program: a community based health promotion intervention to prevent childhood obesity," *Health Promotion Journal of Australia*, vol. 29, no. 1, pp. 100–104, 2018.

[65] C. A. Bennett, A. M. de Silva Sanigorski, M. Nichols, A. C. Bell, and B. A. Swinburn, "Assessing the intake of obesity-related foods and beverages in young children: comparison of a simple population survey with 24 hr-recall," *International Journal of Behavioral Nutrition and Physical Activity*, vol. 6, no. 1, 2009.

[66] C. S. Priebe, A. E. Latimer-Cheung, T. Berry et al., "'Make room for play': an evaluation of a campaign promoting active play," *Journal of Health Communication*, vol. 24, no. 1, pp. 38–46, 2019.

[67] D. Raj, N. M. Zulkefli, Z. M. Shariff, and N. Ahmad, "Determinants of excessive screen time among children under five years old in Selangor, Malaysia: a cross-sectional study," *International Journal of Environmental Research and Public Health*, vol. 19, no. 6, p. 3560, 2022.

[68] B. J. Smith, A. Grunseit, L. L. Hardy, L. King, L. Wolfenden, and A. Milat, "Parental influences on child physical activity and screen viewing time: a population based study," *BMC Public Health*, vol. 10, no. 1, 2010.

[69] Centre for Epidemiology and Research, *2005-2006 Report on Child Health from the New South Wales Population Health Survey*, NSW Department of Health, Sydney, 2008.

[70] H. Xu, L. M. Wen, and C. Rissel, "Associations of maternal influences with outdoor play and screen time of two-year-olds: findings from the healthy beginnings trial," *Journal of Paediatrics and Child Health*, vol. 50, no. 9, pp. 680–686, 2014.

[71] FAHCSIA, AIFS, and ABS, *Growing up in Australia: The Longitudinal Study of Australian Children. Wave 1 Parent 1 Interview Infant*, Australian Institute of Family Studies, 2012, July 2022, https://aifs.gov.au/research/family-matters/no-91/growing-australia-longitudinal-study-australian-children.

[72] A. Bandura, "The explanatory and predictive scope of self-efficacy theory," *Journal of Social and Clinical Psychology*, vol. 4, no. 3, pp. 359–373, 1986.

[73] A. Bandura, *Self-Efficacy: The Exercise of Control*, Freeman, New York, 1997.

[74] C. Kong and F. Yasmin, "Impact of parenting style on early childhood learning: mediating role of parental self-efficacy," *Frontiers in Psychology*, vol. 13, 2022.

[75] D. C. Sims and A. J. Skarbek, "Parental self-efficacy: a concept analysis related to teen parenting and implications for school nurses," *The Journal of School Nursing*, vol. 35, no. 1, 2019.

[76] V. J. Strecher, B. McEvoy DeVellis, M. H. Becker, and I. M. Rosenstock, "The role of self-efficacy in achieving health behavior change," *Health Education Quarterly*, vol. 13, no. 1, pp. 73–92, 1986.

[77] A. Bandura, "Health promotion by social cognitive means," *Health Education & Behavior*, vol. 31, no. 2, pp. 143–164, 2004.

[78] J. F. Kilanowski, "Breadth of the socio-ecological model," *Journal of Agromedicine*, vol. 22, no. 4, pp. 295–297, 2017.

[79] C. Page Jeffery, "'It's just another nightmare to manage:' Australian parents' perspectives on BYOD and 'ed-tech' at school and at home," *Learning, Media and Technology*, vol. 47, no. 4, pp. 471–484, 2022.

[80] P. K. Coleman and K. H. Karraker, "Self-efficacy and parenting quality: findings and future applications," *Developmental Review*, vol. 18, no. 1, pp. 47–85, 1998.

[81] A. Wittkowski, C. Garrett, R. Calam, and D. Weisberg, "Self-report measures of parental self-efficacy: a systematic review of the current literature," *Journal of Child and Family Studies*, vol. 26, no. 11, pp. 2960–2978, 2017.

[82] C. Demetriou, B. U. Ozer, and C. A. Essau, "Self-report questionnaires," *The Encyclopedia of Clinical Psychology*, vol. 1, pp. 1–6, 2015.

[83] S. Bauhoff, "Systematic self-report bias in health data: impact on estimating cross-sectional and treatment effects," *Health Services and Outcomes Research Methodology*, vol. 11, no. 1-2, pp. 44–53, 2011.

[84] S. Bauhoff, "Self-report bias in estimating cross-sectional and treatment effects," in *Encyclopaedia of Quality of Life and Well-Being Research*, C. Alex, Ed., Springer Netherlands, Michalos Dordrecht, 2014.

[85] V. Rideout, A. Peebles, S. Mann, and M. B. Robb, *Common Sense Census: Media Use by Tweens and Teens, 2021*, Common Sense, San Francisco, CA, USA, 2022.

[86] A. Blum-Ross and S. Livingstone, "The trouble with 'screen time rules'," in *Digital Parenting: The Challenges for Families in the Digital Age*, pp. 179–187, Nordicom, University of Gothenburg, Göteborg, 2018.

[87] K. L. Downing, J. Salmon, T. Hinkley, J. A. Hnatiuk, and K. D. Hesketh, "Feasibility and efficacy of a parent-focused, text message-delivered intervention to reduce sedentary behavior in 2- to 4-year-old children (mini movers): pilot randomized controlled trial," *JMIR mHealth and uHealth*, vol. 6, no. 2, p. e39, 2018.

[88] S. M. Coyne, A. Rogers, H. G. Holmgren et al., "Masters of media: a longitudinal study of parental media efficacy, media monitoring, and child problematic media use across early childhood in the United States," *Journal of Children and Media*, vol. 17, no. 3, pp. 318–335, 2023.