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THE ROLE OF DIGITAL TECHNOLOGIES IN THE PREVENTION AND MANAGEMENT OF OBESITY AMONG CHILDREN AND ADOLESCENTS: A SYSTEMATIC REVIEW OF STUDIES FROM 2010–2026

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ABSTRACT

Childhood and adolescent obesity represents a growing global public health challenge associated with numerous metabolic, behavioral, and psychosocial consequences. In recent years, digital health technologies have increasingly been implemented as tools supporting obesity prevention and management among pediatric populations. The aim of this systematic review was to evaluate the role and effectiveness of digital health interventions in the prevention and management of obesity among children and adolescents, with particular attention to intervention type, target population, measured outcomes, and social implications.

A systematic literature search was conducted in PubMed/MEDLINE, Scopus, Web of Science, Cochrane Library, and PsycINFO in accordance with PRISMA 2020 guidelines. Original empirical studies published between 2010 and 2026 involving participants aged 2–18 years were included. A total of 22 original empirical studies published between 2010 and 2026 were included in the qualitative synthesis. The analyzed interventions comprised mobile health applications, telemedicine, internet-based educational programs, text-message interventions, and active video games.

The included studies demonstrated that digital interventions may positively influence obesity-related outcomes, including body mass index (BMI), physical activity, dietary behaviors, self-monitoring, motivation, and adherence to lifestyle modification programs. Telemedicine and mobile health approaches additionally improved accessibility to obesity management services, particularly in underserved populations.

Despite promising findings, considerable heterogeneity in study design, intervention duration, and outcome assessment was identified. Further large-scale longitudinal studies are needed to evaluate the long-term effectiveness and sustainability of digital obesity interventions among children and adolescents.

KEYWORDS

Childhood Obesity; Adolescents; Digital Health; mHealth; Telemedicine; Systematic Review

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Introduction

Childhood and adolescent obesity remains one of the most important global public health concerns, with increasing prevalence observed across many countries and populations (Kouviri et al., 2022; Qiu et al., 2022; Wang et al., 2017). Previous reviews have demonstrated that obesity in pediatric populations is associated with numerous metabolic, cardiovascular, behavioral, and psychosocial complications, creating substantial challenges for healthcare systems and public health strategies (Hammersley et al., 2016; Turner et al., 2015). The growing burden of childhood obesity has stimulated interest in innovative and scalable prevention and treatment approaches, particularly those involving digital health technologies (Community Preventive Services Task Force [CPSTF], 2019).

Rapid technological development has significantly transformed the daily lives of children and adolescents, influencing patterns of physical activity, sedentary behavior, communication, and health-related decision-making (Gaztañaga et al., 2025). While excessive screen exposure and technology-related sedentary behaviors may contribute to obesity risk, digital technologies may also provide opportunities for promoting healthier lifestyles and supporting behavioral change (Foley & Maddison, 2010). Recent reviews have highlighted the increasing role of mobile applications, telemedicine, internet-based educational platforms, wearable activity trackers, text messaging interventions, social media tools, and active video games in pediatric obesity prevention and management (De Luca et al., 2025; Porri et al., 2024; Tully et al., 2020).

Digital health interventions have attracted growing scientific and clinical interest due to their potential accessibility, scalability, and ability to deliver personalized support (Allen et al., 2014). Systematic reviews suggest that digital interventions may improve self-monitoring, motivation, adherence to lifestyle

recommendations, and engagement in physical activity among children and adolescents (Chen & Wilkosz, 2014; Partridge & Redfern, 2018). Furthermore, telemedicine and mobile health (mHealth) strategies may help overcome geographical and organizational barriers limiting access to obesity treatment services (Kaakinen et al., 2018).

Several systematic reviews and meta-analyses have evaluated the effectiveness of digital interventions targeting obesity-related outcomes in pediatric populations (Kouvari et al., 2022; Metzendorf et al., 2024; Qiu et al., 2022). Evidence synthesized in previous reviews indicates that technology-based interventions may positively influence body mass index (BMI), physical activity levels, dietary habits, sedentary behavior, and weight-related health outcomes (Wang et al., 2017). Reviews focusing on exergaming interventions also suggest that active video games may contribute to increased physical activity and improved weight management among children with overweight and obesity (Bochner et al., 2015; Bourke et al., 2023).

Despite these promising findings, previous literature reviews emphasize considerable heterogeneity in intervention design, methodological quality, duration of follow-up, and reported outcomes (Flølo et al., 2025). Existing evidence demonstrates variability in intervention effectiveness depending on participant age, family involvement, adherence, digital literacy, and the specific type of technology used (Turner et al., 2015). Additionally, several umbrella reviews and scoping reviews have highlighted the limited availability of long-term evidence regarding sustainability of behavioral changes and maintenance of weight-related improvements (Kracht et al., 2021; Mathias et al., 2026).

Another important issue concerns the broader social and behavioral dimensions of digital health technologies. Reviews suggest that socioeconomic inequalities, accessibility of digital tools, parental engagement, and behavioral motivation may substantially influence intervention effectiveness (Partridge & Redfern, 2018; Soltero et al., 2022). Moreover, digital communication platforms and social media environments may shape lifestyle behaviors, body image perceptions, and health-related attitudes among adolescents (Gaztañaga et al., 2025). These social implications are particularly relevant in pediatric populations, where family environment and peer interactions strongly affect health behaviors and lifestyle choices (Soltero et al., 2022).

The rapid expansion of telehealth and digital healthcare solutions in recent years has further increased the importance of evaluating technology-based obesity interventions among children and adolescents (Frattolillo et al., 2025). Although previous reviews provide valuable evidence regarding the effectiveness of digital interventions, ongoing technological development and the growing implementation of digital health tools justify the need for updated evidence synthesis focusing specifically on pediatric populations (Chaplais et al., 2015).

Therefore, the aim of this systematic review is to evaluate the role and effectiveness of digital health interventions in the prevention and management of obesity among children and adolescents, with particular attention to intervention type, target population, measured outcomes, and social implications. The review focuses on original empirical studies published between 2010 and 2026 that assess the impact of digital technologies on obesity-related outcomes among individuals aged 2–18 years.

Methods

Study Design

This study was conducted as a systematic review aimed at evaluating the effectiveness of digital health interventions in the prevention and management of obesity among children and adolescents. The review was based on an original methodological framework developed by the authors and informed by previously published systematic reviews and evidence syntheses in the field of pediatric digital health and obesity prevention. The methodology followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. The review protocol was not registered in PROSPERO.

The review focused exclusively on original empirical studies evaluating digital technologies designed to prevent or manage overweight and obesity among individuals aged 2–18 years. Systematic reviews, meta-analyses, umbrella reviews, and narrative reviews were not included in the primary evidence synthesis; however, they were used to provide theoretical background, contextualize findings, and identify additional relevant primary studies.

Search Strategy

A systematic literature search was conducted to identify relevant studies examining the effectiveness of digital health interventions targeting overweight and obesity prevention or treatment among children and adolescents. The search strategy combined Medical Subject Headings (MeSH) and free-text keywords related to obesity, pediatric populations, and digital health technologies.

The search included combinations of the following terms:

- “childhood obesity”
- “adolescent obesity”
- “digital health”
- “mHealth”
- “eHealth”
- “telemedicine”
- “mobile applications”
- “wearable devices”
- “physical activity”
- “weight management”
- “digital intervention”
- “exergaming”
- “lifestyle intervention”

Boolean operators (“AND”, “OR”) were applied to combine search terms appropriately and improve search sensitivity.

Databases Searched

The literature search was conducted using the following electronic databases:

- PubMed/MEDLINE
- Scopus
- Web of Science
- Cochrane Library
- PsycINFO

Google Scholar was additionally used as a supplementary source for identifying potentially relevant publications and screening reference lists.

A systematic search was conducted to identify original empirical studies published between 2010 and 2026 focusing on digital health interventions aimed at preventing or managing overweight and obesity among children and adolescents.

Eligibility Criteria

Inclusion Criteria

Studies were included if they met the following criteria:

- published between 2010 and 2026,
- written in English,
- involved children and/or adolescents aged 2–18 years,
- represented original empirical research,
- included randomized controlled trials, clinical trials, cohort studies, quasi-experimental studies, cross-sectional studies, mixed-methods studies, or pilot intervention studies,
- evaluated interventions or exposures associated with digital technologies,
- reported outcomes related to obesity, overweight, body mass index (BMI), BMI z-score, physical activity, dietary behaviors, sedentary behavior, lifestyle modification, or prevention of excessive body weight.
- included multicomponent lifestyle interventions only when they incorporated remote, technology-supported, or digitally mediated components relevant to obesity prevention or management.

Exclusion Criteria

Studies were excluded if they:

- included only adult populations,
- lacked full-text availability,
- were editorials, commentaries, conference abstracts, or letters to the editor,
- did not contain empirical data,
- were published outside the 2010–2026 period,

- did not address obesity, overweight, or obesity-related health behaviors,
- were unrelated to digital technologies or socially relevant digital health interventions.

Systematic reviews, meta-analyses, umbrella reviews, and narrative reviews were excluded from the primary synthesis of results and were used only to identify additional primary studies and contextualize the findings.

Study Selection

All records identified through database searching were exported and screened according to the predefined eligibility criteria. Duplicate records were removed prior to screening. Titles and abstracts were independently assessed for relevance, followed by full-text evaluation of potentially eligible articles.

Studies meeting all inclusion criteria were included in the final qualitative synthesis. The study selection process followed the PRISMA 2020 framework, including identification, screening, eligibility assessment, and inclusion stages. The study selection process conducted in accordance with the PRISMA 2020 guidelines is presented in Figure 1.

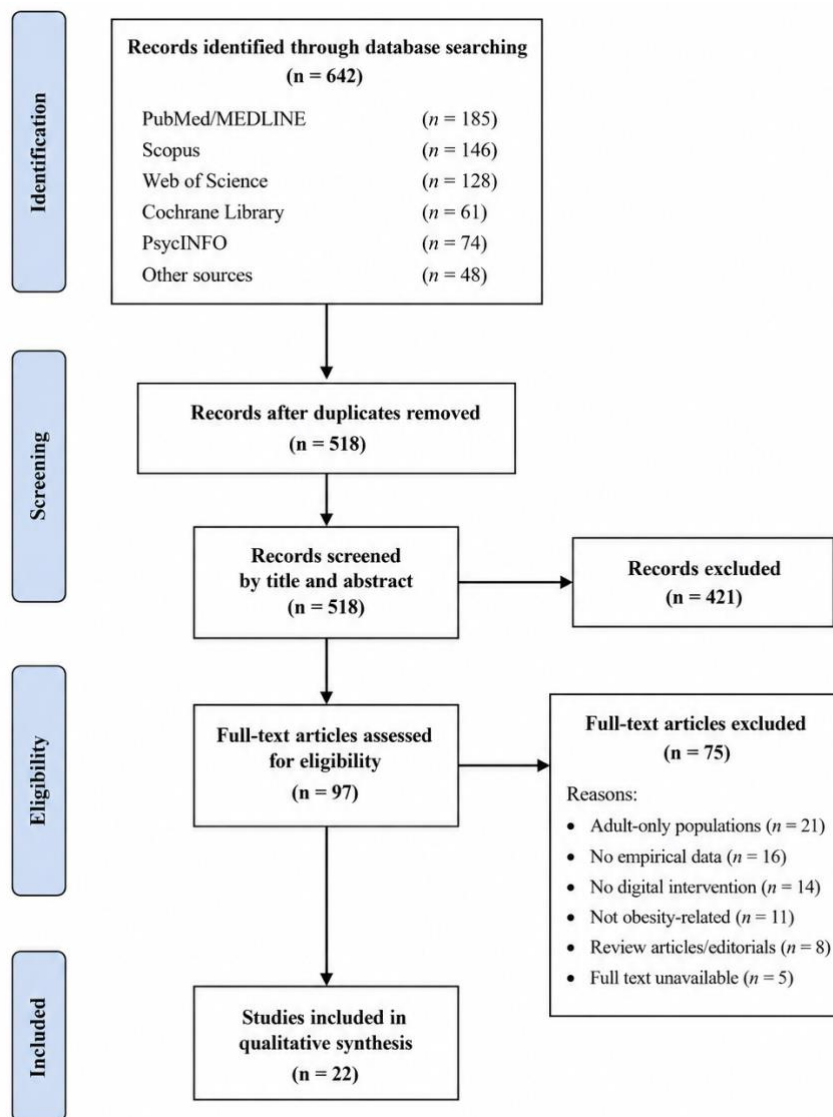


Fig. 1. PRISMA flow diagram of study selection.

Note. PRISMA 2020 flow diagram showing the identification, screening, eligibility assessment, and inclusion of studies in this systematic review.

Data Extraction

Data from included studies were extracted systematically using a predefined extraction framework developed for this review. The following information was collected:

- author and year of publication,
- country of study,
- study design,
- participant characteristics and sample size,
- type of digital intervention,
- duration of intervention,
- comparator or control conditions,
- measured outcomes,
- key findings related to obesity prevention or management.

Extracted data were organized into evidence tables to facilitate comparison across studies.

Quality Assessment

The methodological quality of included studies was evaluated according to study design and overall risk of bias. Particular attention was paid to sample size, participant selection, intervention methodology, duration of follow-up, outcome assessment, and completeness of reported results.

Randomized controlled trials were assessed with regard to randomization procedures, comparability of intervention groups, and reporting transparency. Observational and quasi-experimental studies were evaluated based on methodological rigor and potential sources of bias.

Data Synthesis

Due to substantial heterogeneity across included studies regarding intervention type, study design, participant characteristics, and outcome measures, a narrative synthesis approach was applied.

The findings were categorized according to the type of digital intervention, including mobile health applications, telemedicine interventions, web-based educational programs, text messaging systems, active video games and exergaming, and multicomponent technology-supported lifestyle interventions.

Particular attention was given to obesity-related outcomes such as body mass index (BMI), BMI z-score, physical activity, dietary behaviors, sedentary behavior, adherence to interventions, and quality of life. Social and behavioral implications of digital technologies in pediatric obesity prevention and management were also considered during interpretation of the findings.

Results**Characteristics of Included Studies**

A total of 22 original studies met the inclusion criteria and were included in the qualitative synthesis. The included studies investigated a wide range of digital health interventions designed to prevent or manage overweight and obesity among children and adolescents aged 2–18 years. The analyzed interventions included mobile health applications, internet-based educational programs, telemedicine, text-message interventions, multicomponent technology-supported lifestyle interventions, and active video games (exergaming). Most studies applied randomized controlled trial designs, pilot interventions, feasibility studies, cluster randomized clinical trials, or mixed-methods approaches.

The primary outcomes evaluated across the included studies involved body mass index (BMI), BMI z-score, body composition, physical activity, dietary behaviors, sedentary behavior, adherence to intervention programs, motivation for behavioral change, and quality of life. Several studies additionally explored psychosocial outcomes, participant engagement, parental involvement, and accessibility of healthcare interventions. The characteristics of the included studies, including study design, participant populations, types of digital interventions, measured outcomes, and key findings, are summarized in Table 1.

Table 1. Characteristics of included studies evaluating digital health interventions for obesity prevention and management among children and adolescents

Author/ year	Country	Study design	Participants	Digital intervention	Duration	Main outcomes	Key findings
Bahreynian et al. (2020)	Iran	Intervention study	Children with overweight/ obesity	SMS-based intervention	Several months	Health behaviors, BMI	Improved adherence to healthy lifestyle behaviors
Baranowski et al. (2011)	USA	Experimental study	Children	Video game intervention	Not clearly specified	Physical activity, diet	Interactive gaming promoted healthy behaviors
Browne et al. (2020)	Australia	Feasibility study	Children and families	mHealth application	Pilot duration	Engagement, acceptability	High feasibility and participant engagement
Chen et al. (2011)	USA	Web-based intervention study	Chinese American adolescents	Web ABC online program	Several weeks	Nutrition, physical activity	Improved obesity- related knowledge and behaviors
Chew et al. (2021)	Singapore	Single-cohort study	Adolescents with obesity	Mobile lifestyle application	6 months	Lifestyle behaviors, self- management	Positive participant engagement and feasibility
Curtis et al. (2015)	Australia	Development/ intervention study	Parents of overweight children	Healthy eating application	Not clearly specified	Dietary behaviors	Family-centered app supported healthy eating
Davis et al. (2016)	USA	Cluster randomized controlled trial	Rural pediatric populations	Telemedicine intervention	8 months	BMI, behavioral outcomes	Improved accessibility to obesity treatment
Delamater et al. (2013)	USA	Pilot study	Overweight children and families	Web-based family intervention	Pilot duration	Lifestyle behaviors	Positive trends in behavioral modification
Direito et al. (2015)	New Zealand	Pragmatic randomized controlled trial	Young people	Mobile app- based physical activity intervention — AIMFIT	8 weeks	Physical activity, fitness, app engagement	Mobile applications showed potential to support physical activity behavior change, although effects depended on engagement.
Ezendam et al. (2012)	Netherlands	School cluster randomized trial	Adolescents	Web-based computer- tailored FATaintPHAT intervention	4 months	Dietary behaviors, physical activity, sedentary behavior, BMI- related behaviors	The intervention promoted energy balance-related behaviors through personalized online feedback and education.
Maddison et al. (2011)	New Zealand	Randomized controlled trial	Children with overweight	Active video games	24 weeks	Body composition, activity	Increased physical activity and improved outcomes
Martin et al. (2020)	Multiple European countries	Feasibility study	Adolescents	Mobile phone intervention	Several months	Health behaviors	High acceptability across populations
Nguyen et al. (2012)	Australia	Randomized controlled trial	Overweight and obese adolescents	Multicomponent lifestyle intervention	12 months	BMI z-score, weight-related behaviors,	The intervention showed improvements in

Author/ year	Country	Study design	Participants	Digital intervention	Duration	Main outcomes	Key findings
				with remote support components — Loozit		physical activity, dietary behaviors	lifestyle behaviors and weight-related outcomes among adolescents with overweight or obesity.
Patrick et al. (2013)	USA	Randomized controlled trial	Adolescents at risk for type 2 diabetes	Technology-based weight loss intervention	12 months	Body weight, BMI, physical activity, dietary behaviors, self-monitoring	The intervention supported weight-related behavior change and digital self-monitoring among adolescents at metabolic risk.
Pbert et al. (2024)	USA	Cluster randomized clinical trial	Children in primary care	Digital behavioral intervention	12 months	Behavioral outcomes, BMI	Improved family engagement and intervention adherence
Staiano et al. (2018)	USA	Home-based intervention study	Children with overweight/obesity	Exergaming intervention	6 months	Physical activity, BMI	Increased activity participation
Smith et al. (2014)	Australia	Randomized controlled trial	Adolescent boys from low-income communities	Smartphone-supported obesity prevention intervention — ATLAS	20 weeks	BMI, waist circumference, physical activity, screen time, fitness	The smartphone-supported intervention improved obesity-related behaviors and showed benefits for physical activity and fitness.
Taveras et al. (2015)	USA	Comparative effectiveness study	Children in primary care	Digitally supported intervention	1 year	BMI, lifestyle behaviors	Positive obesity-related outcomes
Whittemore et al. (2013)	USA	Internet intervention study	Adolescents	Internet obesity prevention program	Several months	Lifestyle behaviors	Improved healthy lifestyle engagement
Woolford et al. (2011)	USA	Qualitative study	Adolescents	SMS intervention perspectives	Not applicable	Acceptability, message content preferences, engagement	Adolescents preferred supportive, personalized, and non-judgmental message content
Woolford et al. (2010)	USA	Intervention study	Adolescents with obesity	Tailored text messaging	90 days	Treatment adherence	Positive perceptions of motivational messaging
Wright et al. (2013)	USA	Randomized intervention study	Underserved families	Automated conversational program	Several months	Lifestyle modification	Improved access to behavioral support

Abbreviations: BMI — body mass index; mHealth — mobile health; RCT — randomized controlled trial.

Mobile Health Applications and Text-Message Interventions

Multiple studies examined the effectiveness of mobile applications and text-message-based interventions in promoting healthy behaviors and supporting obesity management among pediatric populations.

Bahreynian et al. (2020) evaluated a text-message intervention designed for overweight and obese children. The intervention focused on delivering educational and motivational content related to healthy eating, physical activity, and lifestyle modification. The study demonstrated improvements in health-promoting behaviors and suggested that SMS-based interventions may enhance adherence to behavioral recommendations (Bahreynian et al., 2020).

Chew et al. (2021) investigated a mobile lifestyle intervention application for adolescents with obesity. The application incorporated behavioral monitoring, educational materials, and self-management strategies. Participants demonstrated increased engagement with healthy lifestyle behaviors, while the intervention was considered feasible and acceptable among adolescents (Chew et al., 2021).

Browne et al. (2020) assessed a multicomponent pediatric obesity intervention delivered through a mobile health application. The feasibility study demonstrated favorable engagement and high acceptability among participating families. The intervention supported behavioral monitoring and communication between healthcare professionals and participants (Browne et al., 2020).

Curtis et al. (2015) developed a healthy eating application aimed at supporting parents involved in childhood weight management. The intervention emphasized user-centered design and parental participation. The findings suggested that digital tools designed for caregivers may support family-based obesity prevention strategies (Curtis et al., 2015).

Direito et al. assessed a mobile app-based intervention aimed at improving physical activity among young people. The study demonstrated the potential of mobile applications to support activity-related behavior change, although effects varied according to engagement and intervention use (Direito et al., 2015).

Martin et al. (2020) evaluated a mobile phone intervention targeting obesity-related health behaviors among adolescents from multiple European countries. The intervention included personalized feedback, behavioral monitoring, and digital communication strategies. The study demonstrated high feasibility and participant acceptability, highlighting the adaptability of mobile interventions across different cultural settings (Martin et al., 2020).

Patrick et al. (2013) investigated a technology-based intervention designed to promote weight loss and reduce obesity-related metabolic risk among adolescents at risk for type 2 diabetes. The intervention used digital self-monitoring and behavioral support to encourage dietary change, physical activity, and weight management. The study suggested that technology-supported interventions may facilitate obesity-related behavior change among adolescents with elevated metabolic risk (Patrick et al., 2013).

Smith et al. evaluated a smartphone-supported obesity prevention intervention targeting adolescent boys. The intervention incorporated digital behavioral support and physical activity promotion, demonstrating improvements in obesity-related health behaviors and engagement with lifestyle modification strategies (Smith et al., 2014).

Woolford et al. (2010) investigated tailored mobile phone text messages used as an adjunct to obesity treatment among adolescents. Participants reported favorable perceptions regarding message relevance and motivational support, suggesting that personalized communication may increase adherence to lifestyle interventions (Woolford et al., 2010).

Web-Based and Internet Interventions

Several studies evaluated internet-based obesity prevention and management programs targeting children, adolescents, and their families.

Chen et al. (2011) conducted the Web ABC Study, a culturally tailored web-based obesity prevention intervention designed for Chinese American adolescents. The program focused on nutrition education, physical activity promotion, and behavioral self-management. The intervention demonstrated improvements in obesity-related knowledge and healthy lifestyle behaviors (Chen et al., 2011).

Delamater et al. (2013) assessed a web-based family intervention targeting overweight children. The pilot study incorporated online educational content and family-centered behavioral strategies. Positive trends in lifestyle modification and participant engagement were observed during the intervention period (Delamater et al., 2013).

Ezendam et al. evaluated a web-based computer-tailored intervention designed to promote energy balance-related behaviors among adolescents. The intervention provided personalized feedback and educational content targeting diet, physical activity, and sedentary behavior (Ezendam et al., 2012).

Whittemore et al. (2013) evaluated an internet obesity prevention program for adolescents. The intervention promoted healthy eating, physical activity, and behavioral self-regulation through an online platform. Improvements in health-related behaviors and participant engagement were reported (Whittemore et al., 2013).

Wright et al. (2013) investigated a family-based automated conversational obesity treatment program designed for underserved populations. The intervention utilized automated digital communication systems to support healthy lifestyle changes and weight management behaviors. The study demonstrated the feasibility of conversational digital interventions and suggested their usefulness in increasing healthcare accessibility (Wright et al., 2013).

Telemedicine and Remote Healthcare Interventions

Telemedicine and remote healthcare delivery were frequently used to improve accessibility and continuity of obesity management programs.

Davis et al. (2016) conducted a cluster randomized controlled trial comparing telemedicine and telephone-based obesity interventions among rural pediatric populations. Both intervention models demonstrated positive behavioral outcomes, while telemedicine additionally improved accessibility to specialized obesity treatment services for geographically underserved participants (Davis et al., 2016).

Pbert et al. (2024) conducted a cluster randomized clinical trial evaluating a pediatric primary care obesity intervention supported by digital communication and family-centered behavioral strategies. Improvements in behavioral outcomes and participant engagement were observed, supporting the integration of obesity management into primary healthcare settings (Pbert et al., 2024).

Taveras et al. (2015) examined the comparative effectiveness of childhood obesity interventions implemented within pediatric primary care. The study demonstrated that digitally supported behavioral interventions may contribute to improvements in obesity-related outcomes and family participation (Taveras et al., 2015).

Multicomponent Technology-Supported Lifestyle Interventions

Nguyen et al. (2012) evaluated a multicomponent lifestyle intervention for overweight and obese adolescents that included remote or technology-supported behavioral support. The study reported improvements in lifestyle behaviors and weight-related outcomes, supporting the usefulness of multicomponent interventions in adolescent obesity management. Although the intervention was not exclusively digital, its remote-support components are relevant to the broader use of technology-supported obesity management strategies (Nguyen et al., 2012).

Active Video Games and Exergaming Interventions

Several studies investigated the role of active video games and exergaming technologies in increasing physical activity and reducing sedentary behavior among children and adolescents.

Baranowski et al. (2011) examined the effects of video game play on dietary and physical activity behaviors among children. The intervention demonstrated the potential of interactive gaming environments to influence health-related behaviors and increase engagement in physical activity (Baranowski et al., 2011).

Maddison et al. (2011) conducted a randomized controlled trial evaluating the effects of active video games on body composition among children. The intervention was associated with increased physical activity levels and favorable changes in obesity-related outcomes (Maddison et al., 2011).

Staiano et al. (2018) assessed home-based exergaming among children with overweight and obesity. The intervention promoted physical activity through movement-based gaming systems and demonstrated improvements in activity participation and lifestyle behaviors (Staiano et al., 2018).

Acceptability and User Engagement in Digital Obesity Interventions

In addition to studies evaluating behavioral and clinical outcomes, qualitative research has contributed important insights regarding the acceptability and perceived value of digital obesity interventions among

adolescents. Woolford et al. (2011) conducted a qualitative study exploring adolescent perspectives on the content of text-message interventions designed to support weight management. Participants emphasized the importance of supportive, personalized, and non-judgmental communication, and expressed preferences for message tone, language, and frequency that respected their autonomy and developmental stage. The findings indicated that intervention relevance, emotional sensitivity, and adolescent-centered communication strategies may significantly influence engagement and adherence to digital obesity interventions (Woolford et al., 2011).

These observations complement the quantitative evidence by highlighting that the effectiveness of digital health interventions depends not only on the technology itself, but also on how the content is designed, framed, and communicated to young users. User-centered design, participant involvement in intervention development, and consideration of psychosocial sensitivities appear to be essential components of successful digital health strategies in pediatric populations.

Overall, the included original studies demonstrated that digital health interventions may contribute to improvements in obesity-related behaviors, physical activity, dietary habits, self-monitoring, and healthcare accessibility among children and adolescents. The findings also emphasized the importance of family participation, personalization, behavioral support, and social context in determining the effectiveness of digital obesity interventions.

Discussion

The findings of this systematic review indicate that digital health interventions may play an important role in the prevention and management of obesity among children and adolescents. The analyzed original studies demonstrated that interventions based on mobile applications, telemedicine, internet platforms, text messaging systems, multicomponent technology-supported lifestyle programs, and active video games may positively influence obesity-related behaviors, including physical activity, dietary habits, self-monitoring, motivation, and adherence to lifestyle modifications. These findings are generally consistent with previous systematic reviews and meta-analyses examining digital interventions in pediatric obesity management (Allen et al., 2014; Hammersley et al., 2016; Kouvari et al., 2022; Qiu et al., 2022).

One of the most important observations emerging from the analyzed studies is the growing diversity of digital intervention models used in pediatric populations. Previous reviews have emphasized that digital health technologies have evolved substantially over the past decade, moving from simple educational websites and text-message systems toward more complex multicomponent interventions integrating behavioral monitoring, personalized feedback, telemedicine, mobile applications, and remote communication tools (De Luca et al., 2025; Porri et al., 2024). This technological evolution reflects broader changes in healthcare delivery and increasing integration of digital communication into everyday life among children and adolescents (Frattolillo et al., 2025).

The findings of this review suggest that digital interventions may improve behavioral engagement and accessibility of obesity prevention programs. Similar conclusions were reported by Allen et al. (2014), who emphasized the potential of technology-assisted interventions to expand access to behavioral weight management programs (Allen et al., 2014). Likewise, Turner et al. (2015) and Wang et al. (2017) reported that mobile and wireless technologies may facilitate self-monitoring, promote behavioral change, and improve communication between healthcare providers and participants (Turner et al., 2015; Wang et al., 2017). The accessibility and scalability of digital interventions may be particularly important for geographically underserved populations or families with limited access to specialized obesity treatment services (CPSTF, 2019).

The analyzed studies also demonstrated that family involvement represents a significant component of successful pediatric obesity interventions. Previous literature reviews have repeatedly highlighted the importance of parental engagement and family-centered behavioral strategies in improving intervention effectiveness (Hammersley et al., 2016; Kaakinen et al., 2018). Family participation may support adherence to dietary recommendations, physical activity promotion, and long-term behavioral modification, particularly among younger children. Digital interventions designed specifically for caregivers may therefore represent an important direction for future obesity prevention strategies.

Several included studies focused on active video games and exergaming interventions, which represent a unique category of digital obesity interventions aimed at reducing sedentary behavior while increasing physical activity. Reviews by Foley and Maddison (2010), Bochner et al. (2015), and Bourke et al. (2023) suggested that active video games may contribute to increased energy expenditure and improved physical activity participation among children and adolescents (Bochner et al., 2015; Bourke et al., 2023; Foley &

Maddison, 2010). However, the reported effects on long-term weight reduction and body composition remain inconsistent, indicating that exergaming interventions may be most effective when integrated into broader multicomponent behavioral programs.

The present review also highlights the increasing importance of telemedicine and remote healthcare delivery in pediatric obesity management. Previous reviews demonstrated that telehealth interventions may improve continuity of care, accessibility, and communication between healthcare providers and families (Allen et al., 2014; Kaakinen et al., 2018). The rapid expansion of telemedicine in recent years has further accelerated the implementation of remote behavioral interventions and digital monitoring systems (Frattolillo et al., 2025; Porri et al., 2024). Such approaches may be particularly valuable for populations affected by geographical barriers, healthcare inequalities, or limited availability of pediatric obesity specialists.

Another important finding concerns the role of behavioral motivation and participant engagement in determining intervention effectiveness. Partridge and Redfern (2018) emphasized that adolescents are more likely to engage with digital interventions that are interactive, personalized, supportive, and socially relevant (Partridge & Redfern, 2018). Similarly, Tully et al. (2020) reported that user engagement and intervention adherence remain critical determinants of digital intervention success (Tully et al., 2020). The analyzed studies suggest that personalization of digital communication and incorporation of motivational strategies may substantially influence participant satisfaction and long-term adherence. Qualitative evidence further suggests that adolescents value supportive, personalized, and non-judgmental communication, indicating that message tone and content design may be as important as the technology itself in determining intervention acceptability (Woolford et al., 2011).

The social implications of digital health technologies also represent an important aspect of pediatric obesity prevention and management. Previous reviews have suggested that digital interventions may reduce barriers related to healthcare access and increase opportunities for behavioral support (CPSTF, 2019; Porri et al., 2024). However, concerns regarding digital inequalities, socioeconomic disparities, and differences in digital literacy remain highly relevant. Gaztañaga et al. (2025) highlighted that children and adolescents experience digital technologies within broader educational and social contexts, which may influence both health behaviors and intervention effectiveness (Gaztañaga et al., 2025). Therefore, future interventions should consider not only clinical outcomes but also broader psychosocial and social determinants of health.

Despite promising findings, the analyzed evidence demonstrates substantial methodological heterogeneity across studies. Previous umbrella reviews and meta-analyses identified significant variability in intervention duration, study design, outcome assessment, participant age, and intervention intensity (Flølo et al., 2025; Kouvari et al., 2022; Mathias et al., 2026). Such heterogeneity limits direct comparison across studies and complicates interpretation of overall effectiveness. Furthermore, several reviews noted that many studies were characterized by relatively short follow-up periods and limited long-term outcome assessment (Metzendorf et al., 2024; Qiu et al., 2022). Consequently, the sustainability of behavioral changes and long-term effectiveness of digital obesity interventions remain insufficiently understood.

Another limitation involves variability in outcome measures used across studies. While many interventions assessed BMI and physical activity, fewer studies evaluated psychosocial outcomes, quality of life, adherence, or social functioning (Kracht et al., 2021). Given the multidimensional nature of childhood obesity, future research should incorporate broader outcome measures that capture both physical and psychosocial aspects of health.

The rapid development of digital technologies additionally creates methodological challenges for obesity research. As noted by Frattolillo et al. (2025) and Porri et al. (2024), digital health technologies evolve faster than traditional clinical research frameworks, potentially limiting the long-term relevance of specific intervention models (Frattolillo et al., 2025; Porri et al., 2024). Technologies such as artificial intelligence, wearable biosensors, gamification systems, and adaptive behavioral platforms are increasingly being incorporated into pediatric healthcare, suggesting that future obesity interventions may become more personalized and data-driven.

Future research should therefore focus on large-scale longitudinal studies evaluating the long-term effectiveness and sustainability of digital obesity interventions among diverse pediatric populations. Greater methodological standardization, longer follow-up periods, and improved reporting transparency are necessary to strengthen the evidence base (Mathias et al., 2026; Metzendorf et al., 2024). Additionally, future interventions should explore strategies aimed at improving family engagement, reducing digital inequalities, and integrating behavioral, educational, and psychosocial components into multicomponent digital health programs.

Limitations of This Review

Several limitations of the present systematic review should be acknowledged. First, the literature search was restricted to studies published in English, which may have led to the exclusion of potentially relevant research published in other languages and may limit the generalizability of the findings to non-English-speaking populations and healthcare systems. Second, considerable heterogeneity was observed across the included studies in terms of intervention type, duration, study design, participant characteristics, and outcome measures. This methodological diversity prevented the possibility of conducting a quantitative meta-analysis, and consequently the findings were synthesized through a narrative approach, which may be more susceptible to interpretive bias than statistical pooling of results. Third, a formal assessment of the risk of bias using standardized instruments, such as the Cochrane Risk of Bias 2 (RoB 2) tool for randomized controlled trials or ROBINS-I for non-randomized studies, was not performed. Although the methodological quality of the included studies was considered descriptively, the absence of a structured risk-of-bias evaluation limits the strength of conclusions regarding the overall quality of evidence. Fourth, the review protocol was not registered in PROSPERO or any other prospective systematic review registry prior to conducting the search, which may reduce methodological transparency and increase the risk of selective reporting. Finally, given the rapid evolution of digital health technologies, some of the included studies may already reflect outdated technological solutions, which should be considered when interpreting the applicability of the findings to current clinical and public health practice.

Future systematic reviews in this area should consider prospective protocol registration, inclusion of non-English literature, formal risk-of-bias assessment, and — where methodologically feasible — quantitative synthesis through meta-analytic techniques.

Overall, the findings of this review suggest that digital health interventions may represent valuable tools in the prevention and management of obesity among children and adolescents. The analyzed evidence indicates that digital technologies may improve accessibility, behavioral engagement, self-monitoring, and support for healthy lifestyle modification. At the same time, intervention effectiveness appears to depend on personalization, family involvement, participant motivation, and broader social determinants influencing health behaviors among pediatric populations.

Conclusions

Digital health interventions represent promising tools for the prevention and management of obesity among children and adolescents. The findings of this systematic review indicate that technologies such as mobile applications, telemedicine, internet-based programs, text-message interventions, multicomponent technology-supported lifestyle programs, and active video games may positively influence obesity-related outcomes, including physical activity, dietary behaviors, self-monitoring, motivation, and adherence to lifestyle modifications.

The analyzed studies suggest that the effectiveness of digital interventions depends not only on the type of technology used, but also on participant engagement, personalization of interventions, family involvement, and broader social and behavioral factors. Interventions incorporating motivational support, interactive communication, and family-centered approaches appeared particularly beneficial in promoting sustainable lifestyle changes among pediatric populations.

Digital technologies may additionally improve accessibility to obesity prevention and treatment services, particularly for geographically underserved or socially vulnerable populations. However, substantial heterogeneity among studies, limited long-term follow-up, and variability in outcome measures remain important limitations within the current evidence base.

Future research should focus on large-scale longitudinal studies evaluating the long-term effectiveness, sustainability, and social impact of digital obesity interventions among children and adolescents. Greater methodological standardization and integration of psychosocial, behavioral, and family-related factors may further improve the development and implementation of effective digital health strategies in pediatric obesity prevention and management.

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REFERENCES

1. Allen, J. K., Stephens, J., & Patel, A. (2014). Technology-assisted weight management interventions: Systematic review of clinical trials. *Telemedicine and e-Health*, 20(12), 1103–1120. <https://doi.org/10.1089/tmj.2014.0030>
2. Bahreynian, M., Salehi, M., Khoshhali, M., & Kelishadi, R. (2020). Impact of text message-based intervention for weight control and health-promoting lifestyle behaviors of overweight and obese children. *Journal of Education and Health Promotion*, 9, 108. https://doi.org/10.4103/jehp.jehp_707_19
3. Baranowski, T., Baranowski, J., Thompson, D., Buday, R., Jago, R., Griffith, M. J., Islam, N., Nguyen, N., & Watson, K. B. (2011). Video game play, child diet, and physical activity behavior change. *American Journal of Preventive Medicine*, 40(1), 33–38. <https://doi.org/10.1016/j.amepre.2010.09.029>
4. Bochner, R. E., Sorensen, K. M., & Belamarich, P. F. (2015). The impact of active video gaming on weight in youth: A meta-analysis. *Clinical Pediatrics*, 54(7), 620–628. <https://doi.org/10.1177/0009922814545165>
5. Bourke, M., Patterson, L., Di Nardo, F., Whittaker, P., & Verma, A. (2023). Active video games and weight management in overweight children and adolescents—Systematic review and meta-analysis. *Journal of Public Health*, 45(4), 935–946. <https://doi.org/10.1093/pubmed/fdad115>
6. Browne, S., Kechadi, M.-T., O'Donnell, S., Dow, M., Tully, L., Doyle, G., & O'Malley, G. (2020). Mobile health apps in pediatric obesity treatment: Process outcomes from a feasibility study of a multicomponent intervention. *JMIR mHealth and uHealth*, 8(7), e16925. <https://doi.org/10.2196/16925>
7. Chaplais, E., Naughton, G., Thivel, D., Courteix, D., & Greene, D. (2015). Smartphone interventions for weight treatment and behavioral change in pediatric obesity: A systematic review. *Telemedicine and e-Health*, 21(10), 822–830. <https://doi.org/10.1089/tmj.2014.0197>
8. Chen, J.-L., Weiss, S., Heyman, M. B., Cooper, B., & Lustig, R. H. (2011). The efficacy of the web-based childhood obesity prevention program in Chinese American adolescents (Web ABC study). *Journal of Adolescent Health*, 49(2), 148–154. <https://doi.org/10.1016/j.jadohealth.2010.11.243>
9. Chen, J.-L., & Wilkosz, M. E. (2014). Efficacy of technology-based interventions for obesity prevention in adolescents: A systematic review. *Adolescent Health, Medicine and Therapeutics*, 5, 159–170. <https://doi.org/10.2147/AHMT.S39969>
10. Chew, C. S. E., Davis, C., Lim, J. K. E., Lim, C. M. M., Tan, Y. Z. H., Oh, J. Y., Rajasegaran, K., Chia, Y. H. M., & Finkelstein, E. A. (2021). Use of a mobile lifestyle intervention app as an early intervention for adolescents with obesity: Single-cohort study. *Journal of Medical Internet Research*, 23(9), e20520. <https://doi.org/10.2196/20520>
11. Community Preventive Services Task Force. (2019, July 1). *Obesity prevention and control: Digital health interventions for adolescents with overweight or obesity*. <https://doi.org/10.15620/cdc/164250>
12. Curtis, K. E., Lahiri, S., & Brown, K. E. (2015). Targeting parents for childhood weight management: Development of a theory-driven and user-centered healthy eating app. *JMIR mHealth and uHealth*, 3(2), e3857. <https://doi.org/10.2196/mhealth.3857>
13. Davis, A. M., Sampilo, M., Gallagher, K. S., Dean, K., Saroja, M. B., Yu, Q., He, J., Sporn, N., & Befort, C. A. (2016). Treating rural pediatric obesity through telemedicine vs. telephone: Outcomes from a cluster randomized controlled trial. *Journal of Telemedicine and Telecare*, 22(2), 86–95. <https://doi.org/10.1177/1357633X15586642>
14. De Luca, V., Virgolesi, M., Vetrani, C., Aprano, S., Cantelli, F., Di Martino, A., Mercurio, L., Iaccarino, G., Isgrò, F., Arpaia, P., Colao, A., & Illario, M. (2025). Digital interventions for weight control to prevent obesity in adolescents: A systematic review. *Frontiers in Public Health*, 13, 1584595. <https://doi.org/10.3389/fpubh.2025.1584595>
15. Delamater, A. M., Pulgaron, E. R., Rarback, S., Hernandez, J., Carrillo, A., Christiansen, S., & Severson, H. H. (2013). Web-based family intervention for overweight children: A pilot study. *Childhood Obesity*, 9(1), 57–63. <https://doi.org/10.1089/chi.2011.0126>
16. Direito, A., Jiang, Y., Whittaker, R., & Maddison, R. (2015). Apps for improving fitness and increasing physical activity among young people: The AIMFIT pragmatic randomized controlled trial. *Journal of Medical Internet Research*, 17(8), e210. <https://doi.org/10.2196/jmir.4568>
17. Ezendam, N. P. M., Brug, J., & Oenema, A. (2012). Evaluation of the web-based computer-tailored FATaintPHAT intervention to promote energy balance among adolescents: Results from a school cluster randomized trial. *Archives of Pediatrics & Adolescent Medicine*, 166(3), 248–255. <https://doi.org/10.1001/archpediatrics.2011.204>
18. Flølo, T., Tørris, C., Riiser, K., Almendingen, K., Shi, H., Chew, J., Fosså, A., Albertini Fröh, E., Hennessy, E., Misvaer, N., Pavel, N., Turid, Sundar, T. K. B., Toril, Saeterstrand, M., Torbjørnsen, A., Løyland, B., & Holmen, H. (2025). Digital health interventions to treat overweight and obesity in children and adolescents: An umbrella review. *Obesity Reviews*, 26, e13905. <https://doi.org/10.1111/obr.13905>
19. Foley, L., & Maddison, R. (2010). Use of active video games to increase physical activity in children: A (virtual) reality? *Pediatric Exercise Science*, 22(1), 7–20. <https://doi.org/10.1123/pes.22.1.7>
20. Frattolillo, V., Massa, A., Capone, D., Monaco, N., Forcina, G., Di Filippo, P., Marzuillo, P., Miraglia del Giudice, E., & Di Sessa, A. (2025). Integrating digital health into pediatric obesity management: Current practices and future perspectives. *Obesity Pillars*, 16, 100189. <https://doi.org/10.1016/j.obpill.2025.100189>

21. Gaztañaga, M., Idoiaga-Mondragon, N., Legorburu Fernandez, I., & Eiguren Munitis, A. (2025). Smartphones through children's eyes: Perceived benefits and educational considerations. *Frontiers in Psychology*, 16, 1596595. <https://doi.org/10.3389/fpsyg.2025.1596595>
22. Hammersley, M. L., Jones, R. A., & Okely, A. D. (2016). Parent-focused childhood and adolescent overweight and obesity eHealth interventions: A systematic review and meta-analysis. *Journal of Medical Internet Research*, 18(7), e203. <https://doi.org/10.2196/jmir.5893>
23. Kaakinen, P., Kyngäs, H., & Kääriäinen, M. (2018). Technology-based counseling in the management of weight and lifestyles of obese or overweight children and adolescents: A descriptive systematic literature review. *Informatics for Health and Social Care*, 43(2), 126–141. <https://doi.org/10.1080/17538157.2017.1353997>
24. Kouvari, M., Karipidou, M., Tsiampalis, T., Mamalaki, E., Poulimeneas, D., Bathrellou, E., Panagiotakos, D., & Yannakoulia, M. (2022). Digital health interventions for weight management in children and adolescents: Systematic review and meta-analysis. *Journal of Medical Internet Research*, 24(2), e30675. <https://doi.org/10.2196/30675>
25. Kracht, C. L., Hutchesson, M., Ahmed, M., Müller, A. M., Ashton, L. M., Brown, H. M., DeSmet, A., Maher, C. A., Mauch, C. E., Vandelanotte, C., Yin, Z., Whatnall, M., Short, C. E., & Staiano, A. E. (2021). E- & mHealth interventions targeting nutrition, physical activity, sedentary behavior and/or obesity amongst children: A scoping review of systematic reviews and meta-analyses. *Obesity Reviews*, 22(12), e13331. <https://doi.org/10.1111/obr.13331>
26. Maddison, R., Foley, L., Ni Mhurchu, C., Jiang, Y., Jull, A., Prapavessis, H., Hohepa, M., & Rodgers, A. (2011). Effects of active video games on body composition: A randomized controlled trial. *The American Journal of Clinical Nutrition*, 94(1), 156–163. <https://doi.org/10.3945/ajcn.110.009142>
27. Martin, A., Caon, M., Adorni, F., Andreoni, G., Ascolese, A., Atkinson, S., Bul, K., Carrion, C., Castell, C., Ciociola, V., Condon, L., Espallargues, M., Hanley, J., Jesuthasan, N., Lafortuna, C. L., Lang, A., Prinelli, F., Puidomenech Puig, E., Tabozzi, S. A., & McKinstry, B. (2020). A mobile phone intervention to improve obesity-related health behaviors of adolescents across Europe: Iterative co-design and feasibility study. *JMIR mHealth and uHealth*, 8(3), e14118. <https://doi.org/10.2196/14118>
28. Mathias, E. G., N, S., S, E. A., Naik, V., & Nayak, B. S. (2026). Digital health interventions for childhood obesity: An umbrella review. *Digital Health*, 12, 20552076261415914. <https://doi.org/10.1177/20552076261415914>
29. Metzendorf, M.-I., Wieland, L. S., & Richter, B. (2024). Mobile health (m-health) smartphone interventions for adolescents and adults with overweight or obesity. *Cochrane Database of Systematic Reviews*, 2024(2), CD013591. <https://doi.org/10.1002/14651858.CD013591.pub2>
30. Nguyen, B., Shrewsbury, V. A., O'Connor, J., Steinbeck, K. S., Lee, A., Hill, A. J., Shah, S., Kohn, M. R., Torvaldsen, S., & Baur, L. A. (2012). Twelve-month outcomes of the Loozit randomized controlled trial: A community-based healthy lifestyle program for overweight and obese adolescents. *Archives of Pediatrics & Adolescent Medicine*, 166(2), 170–177. <https://doi.org/10.1001/archpediatrics.2011.841>
31. Partridge, S. R., & Redfern, J. (2018). Strategies to engage adolescents in digital health interventions for obesity prevention and management. *Healthcare*, 6(3), 70. <https://doi.org/10.3390/healthcare6030070>
32. Patrick, K., Norman, G. J., Davila, E. P., Calfas, K. J., Raab, F., Gottschalk, M., Sallis, J. F., Godbole, S., & Covin, J. R. (2013). Outcomes of a 12-month technology-based intervention to promote weight loss in adolescents at risk for type 2 diabetes. *Journal of Diabetes Science and Technology*, 7(3), 759–772. <https://doi.org/10.1177/193229681300700322>
33. Pbert, L., Druker, S., Crawford, S., Frisard, C., Bram, J., Olendzki, B., Andersen, V., Hazelton, J., Simone, D., Trivedi, M., Ryan, G., Schneider, K., & Geller, A. C. (2024). A pediatric primary care practice-based obesity intervention to support families: A cluster randomized clinical trial. *Obesity*, 32(9), 1721–1733. <https://doi.org/10.1002/oby.24100>
34. Porri, D., Morabito, L. A., Cavallaro, P., La Rosa, E., Li Pomi, A., Pepe, G., & Wasniewska, M. (2024). Time to act on childhood obesity: The use of technology. *Frontiers in Pediatrics*, 12, 1359484. <https://doi.org/10.3389/fped.2024.1359484>
35. Qiu, L.-T., Sun, G.-X., Li, L., Zhang, J.-D., Wang, D., & Fan, B.-Y. (2022). Effectiveness of multiple eHealth-delivered lifestyle strategies for preventing or intervening overweight/obesity among children and adolescents: A systematic review and meta-analysis. *Frontiers in Endocrinology*, 13, 999702. <https://doi.org/10.3389/fendo.2022.999702>
36. Smith, J. J., Morgan, P. J., Plotnikoff, R. C., Dally, K. A., Salmon, J., Okely, A. D., Finn, T. L., & Lubans, D. R. (2014). Smart-phone obesity prevention trial for adolescent boys in low-income communities: The ATLAS RCT. *Pediatrics*, 134(3), e723–e731. <https://doi.org/10.1542/peds.2014-1012>
37. Soltero, E. G., Lopez, C., Hernandez, E., O'Connor, T. M., & Thompson, D. (2022). Technology-based obesity prevention interventions among Hispanic adolescents in the United States: Scoping review. *JMIR Pediatrics and Parenting*, 5(4), e39261. <https://doi.org/10.2196/39261>
38. Staiano, A. E., Beyl, R. A., Guan, W., Hendrick, C. A., Hsia, D. S., & Newton, R. L. (2018). Home-based exergaming among children with overweight and obesity. *Pediatric Obesity*, 13(11), 724–733. <https://doi.org/10.1111/ijpo.12438>

39. Taveras, E. M., Marshall, R., Kleinman, K. P., Gillman, M. W., Hacker, K., Horan, C. M., Smith, R. L., Price, S., Sharifi, M., Rifas-Shiman, S. L., & Simon, S. R. (2015). Comparative effectiveness of childhood obesity interventions in pediatric primary care: A cluster-randomized clinical trial. *JAMA Pediatrics*, 169(6), 535–542. <https://doi.org/10.1001/jamapediatrics.2015.0182>
40. Tully, L., Burls, A., Sorensen, J., El-Moslemany, R., & O'Malley, G. (2020). Mobile health for pediatric weight management: Systematic scoping review. *JMIR mHealth and uHealth*, 8(6), e16214. <https://doi.org/10.2196/16214>
41. Turner, T., Spruijt-Metz, D., Wen, C. K. F., & Hingle, M. D. (2015). Prevention and treatment of pediatric obesity using mobile and wireless technologies: A systematic review. *Pediatric Obesity*, 10(6), 403–409. <https://doi.org/10.1111/ijpo.12002>
42. Wang, Y., Xue, H., Huang, Y., Huang, L., & Zhang, D. (2017). A systematic review of application and effectiveness of mHealth interventions for obesity and diabetes treatment and self-management. *Advances in Nutrition*, 8(3), 449–462. <https://doi.org/10.3945/an.116.014100>
43. Whittemore, R., Jeon, S., & Grey, M. (2013). An Internet obesity prevention program for adolescents. *Journal of Adolescent Health*, 52(4), 439–447. <https://doi.org/10.1016/j.jadohealth.2012.07.014>
44. Woolford, S. J., Barr, K. L. C., Derry, H. A., Jepson, C. M., Clark, S. J., Strecher, V. J., & Resnicow, K. (2011). OMG do not say LOL: Obese adolescents' perspectives on the content of text messages to enhance weight loss efforts. *Obesity*, 19(12), 2382–2387. <https://doi.org/10.1038/oby.2011.266>
45. Woolford, S. J., Clark, S. J., Strecher, V. J., & Resnicow, K. (2010). Tailored mobile phone text messages as an adjunct to obesity treatment for adolescents. *Journal of Telemedicine and Telecare*, 16(8), 458–461. <https://doi.org/10.1258/jtt.2010.100207>
46. Wright, J. A., Phillips, B. D., Watson, B. L., Newby, P. K., Norman, G. J., & Adams, W. G. (2013). Randomized trial of a family-based, automated, conversational obesity treatment program for underserved populations. *Obesity*, 21(9), E369–E378. <https://doi.org/10.1002/oby.20388>