Carlén *et al. BMC Digital Health* (2026) 4:3
https://doi.org/10.1186/s44247-026-00238-z

BMC Digital Health

RESEARCH Open Access

# Digital media use—a magnifying glass for mental health in adolescents: a qualitative systematic review

Kristina Carlén[1*], Susanna Nordström[1], Marie Wilhsson[1], Viveca Larsson[1], Rajna Knez[1,2,3], Kristin Haglund[1], Irene Eriksson[4] and Margaretha Larsson[1]

## Abstract

**Background** Adolescents are growing up in a digital age, and it is common for them to have access to the internet. Social media use among adolescents has surged over the past twenty years. At the same time, there has been a rise in mental health issues among this age group. This qualitative systematic review aims to explore how digital media use influences adolescent mental health in a digitalized era.

**Methods** A literature search was undertaken to locate articles published between January 2013 and November 2023 which examine the relationship between adolescents' mental health and digitalization. A total of 384 full text articles were scanned for eligibility, of which 48 had a qualitative research design. 19 articles with a qualitative design were reviewed using thematic analysis.

**Results** The findings of this study highlight the ways in which digital media use influences adolescent mental health. Four specific themes become visible through thematic analysis. Digital media use influences life circumstances by shaping daily activities and acting as a source of information and knowledge; it influences relationships with other individuals where mental health behaviors are simultaneously promoted and challenged in the digital interaction between adolescents; it influences individuals by supporting and challenging individuality and uniqueness while at the same time making individuals susceptible to anonymous and negative online scrutiny, harassment, and bullying; and finally, digital media use influences adolescents to construct strategies for good mental health in both online and offline settings.

**Conclusion** Adolescents use digital media to manage their mood, create identities, and raise awareness on social issues, which can empower them and improve mental health. Digital media also has a negative impact on adolescents; it disrupts sleep and family time and contributes to a fear of missing out, body image issues, social comparison and cyberbullying. This qualitative systematic review highlights a need for future research into adolescent online strategies, how adults mediate digital media use and the role of digital industries in shaping behaviors. Teachers, parents, and health professionals can play an important role in supporting adolescents' use of digital media in ways that promote their mental health.

*Correspondence:
Kristina Carlén
kristina.carlen@his.se

Full list of author information is available at the end of the article

**Keywords** Adolescents, Body image, Connectedness, Digitalization, Mental health, Online bullying, Self-esteem, Digital media, Social media, Youth

## Background

Adolescence is a formative time characterized as a development phase typified by emotional, cognitive, behavioral, and social changes [1]. Adolescents' identity processes are affected by and embedded in the interactions they have within multiple social contexts, and in real-time interactions with important individuals such as friends and family [2]. In order to adapt to multiple challenges in society and act in an including manner toward other people and groups, adolescents need be able to rely on a stable yet flexible identity [3].

Adolescents are individuals between the ages of 10 and 19 years old [4], growing up in a digital world, accessing the internet at a young age. More than 70% of them are 'online', using digital social media and other digital platforms [5]. Digital media use has increased rapidly among adolescents over the last two decades, at the same time adolescent mental ill-health has increased [6, 7]. It is evident that digital media has become integrated into the everyday life of adolescents as they reportedly use social media to relax from demands and school stress [8]. Additionally, adolescent gamers often integrate gaming into their lives and manage to balance gaming with other daily activities and tasks, according to Razum and Huić [9]. Some adolescents with problematic gaming habits have reported being aware of the danger and have managed to recover from their problematic gaming habits. This connects to a review by Dienlin and Johannes [10] which shows that both low and excessive digital use is linked to a decrease in well-being, whereas moderate use is related to a sense of increased well-being.

Health is described as a resource for everyday life and mental health is deemed a basic human right and an integral part of health and well-being [11]. Mental health is defined by Galderisi et al. [12] as *"a dynamic state of internal equilibrium which enables individuals to use their abilities in harmony with universal values of society. Basic cognitive and social skills; ability to recognise, express and modulate one's own emotions, as well as empathise with others; flexibility and ability to cope with adverse life events and function in social roles; and a harmonious relationship between body and mind represent important components of mental health which contribute, to varying degrees, to the state of internal equilibrium"* (p. 231). Carlén [13] describes the balance between adolescent good mental health and mental health issues as a mental health seesaw. A concept analysis of mental health states that mental health consists of mental well-being and mental health issues. Poor mental health consists of mental health problems and mental health disorders [14]. Even though adolescents experience mental well-being, they could experience mental health problems [13]. For example, Carlén [15] purports that adolescents' self-reported self-esteem correlates with their perceived mental well-being.

The finding of studies focusing on existing evidence regarding the longitudinal association between increased social media use and mental health problems among adolescents seem mixed. A scoping review highlights social media as an important arena for promoting mental well-being, and the development of mental health literacy, to better equip adolescents to handle challenges online [7]. Furthermore, a meta-analysis indicates a significant meta-correlation between social media use and internalizing symptoms related to screen time and user engagement [16]. Another meta-analysis shows a small significant positive correlation between social media use and depressive symptoms [17] and an additional study reports that adolescents' fear of missing out and being lonely was related to anxiety and depressive symptoms [18]. A review with a focus on adolescents purports that identity uncertainty and psychosocial problems reciprocally affect each other [2]. In a longitudinal study, Beeres, et al.[19] found that adolescents with higher levels of social media use report more symptoms of mental health problems. Further, they argue that high or increased use of social media could be an indicator of symptoms of mental ill-health [19].

To promote adolescent mental health, Azzopardi et al. [20] highlight that structural determinants (such as marginalization and inequality), and social contexts (such as communities and family) need to be reflected in a reciprocal relationship. Exposure to poverty, abuse, or violence, can make adolescents vulnerable to mental health problems [4]. Larsson et al. [21] describe that adolescents need support from those close to them, such as family and friends, to feel well. Furthermore, professionals such as teachers and school nurses play important supportive roles in adolescents' everyday lives [22]. In a review, Fusar-Poli et al. [23] report that good mental health provides adolescents with the skills and resilience needed to manage stress in life, where core aspects can be exemplified by health literacy, social and cognitive skills, as well as emotional and behavioral skills. WHO [4] purport that by promoting socio-emotional learning and psychological well-being, adolescents can be supported through stages of adversity. In addition, access to mental health care is described as critical for health and well-being during adolescence.

While previous research often focuses on adolescents and social media use, few are focusing on digital media use, which is a broader term. In this study we use the term 'digital media user', referring to persons who use different digital media tools and services, and who have the skills to manage these tools and services [24]. The skill level, in turn, affects which digital media tools and services can be used by the individuals in the digital era, and also how. This definition is grounded in the concept of 'digital competence', which refers to an individual's ability to use digital tools and services, to be media- and information literate, and to use digitization in working life [25] as well as the digital literacy theory as purport the importance of critical thinking in digital contexts and the emerging field of digital wellbeing [26]. The term digital era relates to society, technology and human interactions in multifaced interactions [27]. There is both quantitative and qualitative research with a focus on adolescents' health related to media use, but there seems to be a lack of reviews of qualitative research which highlights subjective experiences. By conducting a review of several articles centered on qualitative research results, comprehensive, nuanced and detailed findings will be illuminated [28] which can develop and strengthen the knowledge in the subject. As a consequence, this qualitative systematic review aims to explore how digital media use influences adolescent mental health in a digitalized era. This qualitative systematic review contributes novel insights not addressed in previous reviews, regarding a broader definition of digital media. "Digital media", in this context, refers to social media platforms and digital message services as well as gaming platforms.

## Methods

A qualitative systematic review was identified as an appropriate method to explore how digital media use influences adolescent mental health in a digitalized era. A total of five databases were used to locate the extended range of literature covering health-related research. Articles that dealt with the relationship between adolescents' mental health and digitalization were searched for, and articles with a qualitative design were chosen for the final analysis. The qualitative systematic review process followed Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) [29]. See supplementary file named "PRISMA Checklist used".

**Table 1** Selection criteria for inclusion and exclusion

| Inclusion | Exclusion |
|---|---|
| Peer-reviewed scientific articles | Editorials, expert opinions, conference papers, dissertations, and grey literature |
| Available in full text | Focused only on technical aspects or included no mental health aspects |
| English language | Written in a language other than English |
| Articles with a focus on adolescents aged 13–19 year | Focused on the views of healthcare professionals or on youth who were not 13- to 19-year-olds. |
| Qualitative design with a focus on mental health related to digital use | Irrelevant methods design, wrong outcome, or not addressing or including mental health |

### Search strategy

A comprehensive and systematic initial search was conducted through a series of electronic searches in CINAHL, PsycInfo, Scopus, PubMed, and Medline Ebsco in March 2023, and a second time with the framework of March 2023 to November 2023. The search string was built by combining key terms related to the aim of the study as follows: TITLE-ABS-KEY (use* N3 (digit* OR comput* OR electronic* OR ehealth* OR "e-health" OR online* OR "smart phone" OR "smart phones" OR smartphone* OR "mobile application" OR "mobile applications" OR informatic* OR Internet* OR WWW OR web* OR tablet* OR ipad* OR "i-pad" OR "i pad" OR "social media" OR Facebook OR Twitter OR game* OR gaming* OR exergam*)) AND (adolescen* OR teen* OR youth* OR young*) AND ((mental* OR psych*) N3 (health* OR well*)). Appropriate standardized vocabulary and truncation were used for each database.

### Process of data collection

There were 9694 total hits in the five databases during the initial search in March 2023, using only the search string with no exclusion criteria. From Scopus, 2000 records could be transferred into Rayyan, a software program used for organizing records [30]. The remaining 1272 records were manually assessed in the database by the first author (KC), and 9 records were then discussed in the research group, by order of title, abstract, and articles. None of these articles were included according to the inclusion and exclusion criteria, presented in Table 1. After the removal of duplicates in the individual assessment carried out by each researcher, 5278 publications from all databases were left. The next step in the process—the assessment of titles and abstracts—was first assessed blindly and individually. The posts were labelled either 'include', 'exclude', or 'maybe'. Disagreements and all posts labelled 'maybe' were discussed by the authors in pairs and, subsequently, among the entire research group.

The review process is described in Fig. 1, with the number of excluded articles in every step. Articles were excluded because they focused only on technical aspects or including no health aspects. The remaining 29 full text articles were quality-checked [31] using the 10-question checklists by the Joanna Briggs Institute [31]. The articles were evaluated on a range from acceptable to good quality. Additionally, the quality process was carried out at three levels of assessment; individual, paired, and finally including all authors, to minimize the risk for

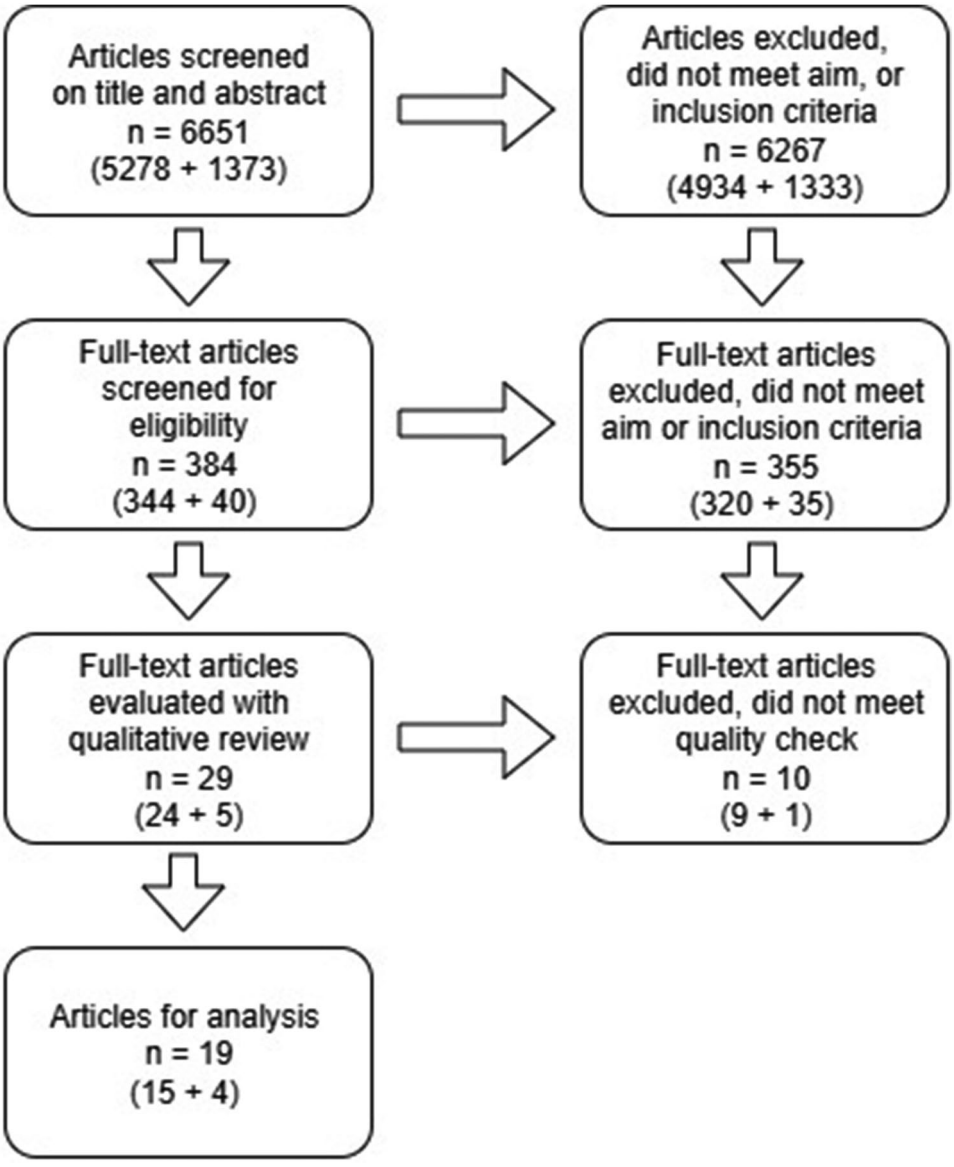


**Fig. 1** Overview of study selection, n = total hits and (1st + 2nd) search in the databases

a quality rating based on individual interpretation. At the end of November 2023, an updated search was carried out in the five databases, showing 1373 new publications. These records were individually assessed by the first author (KC), who found 40 records deemed suitable for collective assessment, using the same procedure as described above. This procedure resulted in four new articles being included in the analysis. The search process amounted to a total of 19 articles included for analysis. Of the included articles 8 were rated as good quality and 11 as acceptable quality. The 10 articles that did not meet the quality check had more than 2 points missing from the checklist statement, mostly regarding the congruity between the stated philosophical perspective and the research methodology and missing ethical issues. To ensure good quality, a statement is included, locating the researcher culturally or theoretically and the influence of the researcher on the research. Furthermore, the conclusion is drawn from the analysis or interpretation of the data [32]. For an overview of the study selection, see Fig. 1. The included articles from the selection phase are visible as a supplementary file named "Supplementary Table: Included articles in the qualitative systematic review".

### Analysis

Thematic analysis as described by Braun and Clarke [33] was used for identifying, analyzing, and reporting patterns (themes) within the data, to be descriptive and open to the context of the respective studies, and administratively possible for a large group of researchers to

collaborate on. The process of analysis was initiated by identifying patterns of meaning relevant to the study's aim. In the first phase of the analysis—researchers (two and two) read and re-read the included studies, and notes were taken regarding initial ideas about patterns of meaning. In the second phase—initial codes were identified by discussing the content of the different text-parts. Different areas of codes were identified as a feature of the data and referred to elements of the phenomenon under study. Discrepancies between codes were resolved by discussions in the research group. In the third phase of analysis—codes were grouped into potential themes. In the fourth phase—themes were checked in relation to the entire data. Based on the coded extracts, a thematic map of the analysis was generated. The four themes were reviewed and refined by means of reflections and discussions throughout the research process. During the analysis process, in both development of codes and themes, we engaged in multiple discussion among ourselves, questioning our preunderstanding that might arise from our various professional backgrounds and cultural differences. Subsequently, to identify the specifics of each theme, an analysis was carried out to gain an overall understanding. This process resulted in creating definitions and names for each theme, hence concluding the fifth phase of the analysis. Finally, the sixth phase of analysis included writing the manuscript and conducting an analysis that 'went back and forth' between writing and checking themes in the data. All of the authors worked individually, in pairs, and later with the entire research group at different levels of analysis. All the researchers agreed on and contributed with their different expertise during the final phase of analysis.

The authors are researchers focused on child and families and all are members of research group Family-Centered Health at the School of health sciences, University of Skövde. The authors have diverse professional backgrounds in nursing, medicine, psychiatry, public health, social work, and education, as well as, to some extent, culture difference. Such diversity can contribute to a more nuanced interpretation of data. However, the analysis could also be influenced by differences in their backgrounds. This meant that their pre-understanding could influence the interpretation of data and the development of themes. To minimize this influence and to mitigate bias, the research team engaged in reflexive practices through regular discussions, comparison of individual interpretations, and joint review of the analysis. In this way, they aimed to ensure that the conclusions were based on the data rather than on preconceived notions.

**Table 2** Themes and sub-themed from the analysis

| Themes | Sub-themes |
|---|---|
| Influencing life circumstances | Shaping daily activities |
| | A source of information and knowledge |
| Influencing relationships with others | Enabling mental health in relation to others |
| | Challenging mental health in relation to others |
| Influencing the individual person | Supporting individuality |
| | Challenging individuality |
| Managing strategies | Using digital media as a strategy to achieve goals |
| | Strategies for using digital media well |

## Results

### Characteristics of included studies

The characteristics of the included studies are presented in Supplementary Material 1. The included studies have a qualitative study design; thematic analysis, [34–44] phenomenological analysis, [45, 46] template analysis, [47] grounded theory, [48] qualitative content analysis, [49–51] framework analysis [52]. Five were conducted in the United Kingdom, [36, 44, 45, 47, 52] others in the United States, [37, 42, 48] Australia, [34, 41, 43] Sweden, [39, 50] Turkey, [46] Germany, [49] Spain, [40] Tunisia, [39] Iran, [51] and Norway [35]. These studies explore a total of 864 adolescents' experiences, 528 female adolescents and 311 male adolescents as well as 25 participants with no gender described [45]. Data were collected through individual interviews with 269 adolescents, 411 in group interviews and 225 by means of written narratives. The adolescents were between 13- to 18-year-old, and most of them were between 14 and 16.

In this qualitative systematic review, the thematic analysis resulted in four themes, with two subthemes each (See Table 2).

#### *Influencing life circumstances*

Using digital media is an integral part of many adolescents' daily lives. It shapes their experiences and can influence both emotions and lifestyle in positive and negative ways. Digital media also plays a role in structuring daily activities and serves as a valuable source of information and learning.

#### Shaping daily activities

Being a digital media user means that adolescents' daily activities are often shaped. For example, their digital media use can be both a distraction and an addiction, [35, 45] a source of entertainment, [35, 39, 46] and a reason for getting up every morning and to be productive [37]. It can, simultaneously, lead to disturbed circadian rhythms and decreased sleep quality, which affects what adolescents prioritize during their waking hours and the importance they place on sleep [35, 46, 50].

For adolescents, being a digital media user gives rise to both positive and negative emotions. Positive emotions can be exemplified by happiness, joy, willingness, peace/comfort, and excitement/energy. [45, 46] Negative emotions can be exemplified by sadness, guilt, and anger, [46] as well as mood changes like aggression, depression, and isolation [51]. Adolescents' problematic digital media use may be linked to a variety of feelings, such as frustration, when things do not go as planned [40]. Not being able to use digital media has been associated with words such as emptiness, garbage, meaninglessness, desert, apocalypse, grave, boring, and stone-age by adolescents [46]. Limited access to the internet can lead to anxiety and negative emotions, [48] and it may even result in aggressive behavior if access is denied [46].

One essential negative mental health effect grounded in adolescents' digital media use is disturbed sleep, which can frame their daily activities. Their digital media use can result in late bedtimes and difficulties falling asleep, due to a need for being available for communication with friends, [50] and to updates from social media [51]. The disrupted sleep cycle can affect an individual's routines for days and lead to feelings of tiredness, exhaustion, and being mentally drained [43, 50, 51]. In addition, it can cause the adolescent to perform worse in school, [43, 50] fall asleep during school lessons as well as a need for taking a break in the middle of the day [51]. Accordingly, schoolwork can be affected [46, 50].

Another negative mental health aspect grounded in adolescents' digital media use is addiction, which means spending an excessive amount of time on digital media and not being productive during the day [43, 45, 50]. This can lead to a sedentary lifestyle with headaches, back pain, and other problems, [40] as well as weight gain [46]. Digital media use addiction may harm adolescents' learning, education, sleep, and productivity during the day, and may result in feelings of unhappiness [43, 45, 50].

#### A source of information and knowledge

Adolescents experience that they can retrieve information and learn about different topics; for example, mental health, through social media [47]. Social media may also improve adolescents' mental health by enabling them to retrieve information, do homework, improve personal skills, learn languages, understand different cultures, and appreciate diversity. Moreover, they can interact socially on various topics, read and gain knowledge, [35, 39, 46] and search for help [49]. Social media helps raise adolescents' awareness by showing what is happening around the world [45, 52]. They can talk about sensitive issues online, [52] and it is easy to get information from others [42]. Adolescents with experience of self-injury behavior also express that they can post pictures of self-injury recovery to help others and to raise awareness of their reasons for self-injury and social signalling [49]. Transgender adolescents express the importance of gaining knowledge about safely accessing hormones before medical transition as well as receiving information about gender-affirming therapy [42].

By comparing themselves with someone who has achieved what they desire to achieve, adolescents described as motivated to achieve their own goals and improve themselves [45]. Social media use can provide an opportunity to be anonymous, which makes people more open to talking about their own experiences; for example, being transgender, and this can contribute to an increased understanding of different experiences [42].

The digital opportunity to receive news and other information as well as the possibility to see that others experience in similar situations [45] described being particularly important for adolescents during the COVID-19 pandemic. During this period of restricted in-person socializing, social media use allowed adolescents to destress by adapting to an abnormal situation, finding solace in others, and alleviating their emotions of loneliness [39, 44, 45].

#### *Influencing relationships with others*

The social aspect of health is one area that is accentuated in adolescents' digital media use, whether it results in support or in challenges. Relationships with others concern socialization, evaluation among peers, and social networking, but also comparisons and competing interests. Adolescents' health can be facilitated and challenged in relation to others through digital media use.

#### Enabling mental health in relation to others

A number of studies indicate that adolescents' digital media use is a way to connect and socialize with others, which contributes to improved mental health. [34, 35, 37, 39, 40, 42–49, 52] Adolescents' digital media use brings opportunities to effortlessly and continuously communicate with friends, [35] publish experiences and personal expressions, and meet other people [40]. They visualize the internet as a friend and a source of entertainment [46]. Adolescents' digital media use can enhance interpersonal capacities and helps them build social capital [43]. Simultaneously, however, it distinguishes between boys and girls. Influencers are often described as 'girls' in social networks and as 'boys' in games, a norm that proves difficult for adolescents to question [40]. For adolescents identifying as gender expansive or nonbinary, moreover, this can be invalidating [42].

Adolescents' digital media use facilitates communication between adolescents and is brought to the fore as the main reason for using social media [45]. Online communication is described as easy, informal, and less intrusive, as the threshold for making contact may be lower than in

real life [35]. Moreover, it can ensures sociability, allowing social skills to improve and develop [47]. When adolescents use the internet, they describes being more in harmony with other people but are prone to procrastinating in relation to their responsibilities and basic needs [46]. Connection and communication with family, friends, and new people may have a positive influence on adolescents' moods and keep them from becoming too worried and from overthinking things. This was especially the case during the COVID-19 pandemic when face-to-face communication was not allowed or heavily discouraged [45].

Digital media use can allow adolescents to keep in touch with friends and family who live far away, [35] reconnect with old friends, [47] connect like-minded adolescents across geographic distances, [39, 44] and help them share similarities, boosting confidence in themselves [43]. Social networks are described as creating feelings of connectedness [52] and feelings of belonging [44]. Through digital media use, adolescents can feel safe engaging in open dialogue and self-disclosure, and can gain deeper connections with others [43]. On social media, for example, transgender adolescents can find other transgender people to interact with, decreasing feelings of loneliness and isolation and giving them hope for the future [42]. When being included in someone's personal social media story, it makes them feel good [35] and creates a social sphere that strengthens their mental health [47].

Selkie and Adkins [42] describe adolescents' experiences of digital social networking and social media as impersonal yet personal at the same time. In digital networks, adolescents can transcend themselves and their identities [44, 48, 52]. The anonymity of the internet can afford an opportunity to talk about sensitive topics; for example, non-suicidal self-injury [49]. It can prove easier to talk about difficult topics through social media because of a more distanced and less personal approach. They can also take the time to think about what they want to reply [35]. Under circumstances of reduced offline socialization possibilities, digital media use offers opportunities for social connectedness [44, 45] By facilitating connections with peers and communities, social media can significantly contribute to adolescents' overall well-being, fostering a sense of belonging and support that is essential for mental health [44].

### Challenging mental health in relation to others

Adolescents' digital media use and their need to feel perpetually connected to their peers can result in social pressure to be online, [40] and simultaneous feelings of responsibility to be available offline for family [50]. Digital media use can entail feeling overwhelmed by messages. Feelings of guilt arise when expectations are not met, and relationships can prove to be a burden [44]. Adolescents also report feeling pressure and expectations around providing feedback on friends' social media posts and being constantly available for communication. Social media describes create a normative environment of 'over-stimulation', which fosters feelings of stress [44]. The constant stream of notifications can be experienced as annoying, while a lack of comments or likes can trigger negative thoughts about how others perceive them [35].

Adolescents' level of digital media use may relate to problems in the family, and levels of social media use are increased when there are problems in the family [46]. Moreover, social media use can increase when adolescents are having a good day, are more active on social media, and when having bad days, as they feel more vulnerable [35]. Adolescent digital media use can create an addiction to content in social media or video games, which, in turn, could cause obsessive and compulsive use and result in deficient time management [40]. Social media networks can be places of victimization and personal harassment, [42] and can expose adolescents to inappropriate content, such as accounts that publish videos depicting murder and dismemberment [39].

A common challenge adolescents describe in digital media use is the potential for posts and comments to be misinterpreted [43]. Facial expressions, body language, and tone of voice are missing in online communications [35]. Incompetence when navigating social media can result in dire consequences for inter-personal relationships, [43] and cause worry about adding someone to a private social media story or unintentionally hurting somebody [35].

Adolescents report being stressed by the non-existent line between social media life and real life. If they miss out on social media happenings, they miss vital parts of online conversation [35]. Not being in digital contact with peers can be related to the fear of being disliked and left out [45]. Watching posts on social media of friends having fun without them can make adolescents feel unwanted or excluded. A lack of comments or likes triggers negative thoughts on how others perceive them [35]. As such, losing social media connections may contributes to decreased mental health [48].

#### *Influencing the individual person*

Communication on social media in general, influences the individual in different ways. For instance, self-esteem can be enhanced but is also affected by social interaction. In particular, body appearance has proven to be one of the most important topics on social media where fat-talk i.e. body-shaming talk, unwanted sexualization, as well as posts regarding self-harm injuries, are examples of aspects that can both enable and challenge personality development and individuality.

### Support individuality

Digital media use can make adolescents feel independent, competent, and can also support the development of an identity [52]. Social media use describes promote adolescents' interests and passions, as well as character strengths and capabilities [43]. Comparing themselves with someone who has achieved what they desire to achieve can motivate them to strive for their goals and self-improvement [45]. Social media can open adolescents' minds [51]. Furthermore, it may play a social function by placing them in a social hierarchy [40].

Adolescents can feel validated by social media communication [42, 48]. Their self-esteem can be improved by high metrics in social media, [39, 48] and by initiating and maintaining friendships [39]. Besides positive images of self, feelings of confidence can develop through comparison with others based on ethnicity, appearance, [45] or gender identification [42]. Adolescents describe finding it important to feel validated by like-minded people in social media, particularly when the person posting the content is a public figure [42]. Through self-presentation, adolescents can decide how they want others to perceive them [35].

Adolescents describe body ideals as subjective and changing in social media, and their need to belong is a motivator to conform to these ideals [36]. Expectations to look in a particular way relate to the number of likes and positive comments, which affect their mental health [41]. On the other hand, adolescents' use of social media can promote a body image with a focus on physical strength instead of appearance, and diversities in physical bodies instead of idolization and restrictive norms. Support programs can help girls 'counteract' the influence of social media and the negative body image [41]. Moreover, pictures online can motivate adolescents to end self-injury [49].

### Challenging individuality

Adolescents' use of social media can challenge their self-efficacy, [43] their self-esteem, [39, 40] and their body image, [41] all of which affect their mental health and well-being. Comparing themselves to people on social media can trigger negative thoughts and feelings [35].

Negative effects on adolescents' mental health and self-esteem can be related to online experiences such as bullying and negative messages, [39] negative talk about their bodies with female friends, [36] eating disorders, negative body images, and actions to change their bodies [41]. Moreover, mental health can be affected by following influencers and their beauty ideals, encouragement of eating disorders, and self-harm or even suicide [40]. Comments on images on social media can also influence adolescents' self-evaluation. Depreciation affects their sense of self, but also impacts interpersonal relationships and body confidence [36].

Being digital adolescent media users implies that they have need for looking at photos and comparing themselves to others. Photos can represent 'fake' lifestyles and beauty standards, or give the impression that people are richer or happier than they are [39]. Adolescents can react to images online and develop a desire to change their body appearances, [36] which can result in stress [37]. Edited and filtered photos may trigger concerns about body images (shapes, sizes, self-evaluation, or being out of fashion) in girls [45]. It impacts adolescents by creating unrealistic expectations among boys about what girls should look like, which in turn may make girls feel insecure about their looks [35]. Girls can assess themselves in relation to an expectation of a 'sexy' appearance, related to masculine ideals and the male gaze [41]. Photos shared in confidence with another person, may later on be distributed to others without the adolescents' consent [35]. Social comparisons based on physical appearance can contribute to adolescents feeling distressed, [45] and may reduce adolescents' self-esteem [39]. Adolescents can hold back from posting images of themselves to avoid being the target of 'fat-talk'. Some adolescents, however, state that it is better to receive some negative comments on photos of their body posted on social media than to get no comments at all [35]. Adolescents' moods can affect their reaction to images [36]. Girls describe being concerned about what others say about them on social networks and how they want to be in control, [40] but the inability to control other people's behavior on social media can threaten their sense of competence [43].

Low metrics in social media can result in negative emotions [48] together with feelings of distress, sadness, and difficulties coping with the impact of cyberbullying [45]. If the number of 'likes' does not correspond to views, the user can become despondent, [48] and this is described as tiresome to think about [35]. Digital networks are made visible via quantifiable measures such as posts on social media, [48] and adolescents want to check how many followers they have [50]. Measuring social relationships online can be described as affected by a 'poor-get-poorer effect' and a 'rich-get-richer effect', meaning that adolescents with few friends in real life get few likes on social media and adolescents with many friends in real life get many likes on social media [44].

Adolescents' mental health can be negatively influenced by bad experiences; for example, perceived low social acceptance or humiliation in public [40]. Adolescent digital media communication describes characterize by avoiding conflicts with peers [44]. This, however, is not always possible, as some aspects of digital communication are difficult to avoid or to control. For example, receiving sexualized content makes adolescents

uncomfortable [35]. Unwanted sexting i.e. sending intimate texts or photos describes as an invasion of their digital life, and may causes pressure related to being the object of someone's sexual desire [38]. The individual's sense of security can be directly challenged by not knowing who is behind the screen, leading them to fear situations that may result in cyberbullying and identity theft [40]. Receiving sexts (sexually explicit images or messages) on one's phone can result in physical or emotional reactions in the individual; of which sweating, crying, feeling disgust, or panicking are examples. Therefore, refusing to send images can be related to threats of rumor-spreading or dissemination of formerly sent revealing photos [38]. Posting pictures of self-harm and injuries on social media may result in negative emotions in adolescents such as jealousy, depressed moods, or thoughts of self-harm [48]. Adding to these problems, fake profiles may harm adolescents' digital media use, especially that of girls, where it hinders them from reporting or discussing crimes of which they are a victim. This, in turn, has a negative impact on mental health [39].

#### *Managing strategies*

Adolescents are increasingly developing strategies both to achieve personal goals and to regulate their social media use. They utilize social media to manage their emotions, seek positive experiences, cope with stress, and improve mental health. At the same time, they implement strategies to limit their digital engagement, handle negative interactions, and establish limits to avoid excessive use. These strategies not only help them maintain an emotional balance but also promote healthy digital media habits, offering a sense of autonomy and control over their online lives.

##### Using digital media as a strategy to achieve goals

Adolescents describe a variety of ways in which their digital media use help them to manage their emotions and emotional states [34]. They learn to construct strategies for their digital media use [43]. In order to alter or maintain a certain feeling, for example, they search for online experiences that may generate positive emotions [34]. They can use social media to escape from difficult situations or emotions, or to actively find information and techniques that teach them how to manage stress. By using social media, they create strategies for coping with stress [52] and thereby develop their resilience to stress [45]. This promotes relaxation and positive mental health which contributes to a certain sense of autonomy in their decision-making [47]. To avoid feeling uncomfortable or nervous in new environments, one strategy is to instigate initial contact through social media before an individual has to meet someone face-to-face [43]. By participating in support groups, the adolescents can provide help to each other and offer each other advice [39]. Adolescents' digital media use can be a strategy for managing boredom,[35,51] and escaping from reality when certain issues are overwhelming [37, 39, 47]. Social media can be used to preserve positive emotions or diminish perceived negative ones [34]. Digital media use allows escape from reality which can help adolescents reduce tension [43]. However, social media can be used as an emotional distraction to fill an emotional emptiness as well as to keep calm, e.g. through meditation [48].

##### Strategies for using digital media well

Adolescents use strategies that can limit their digital media use, for example by turning off their phones, leaving it outside the bedroom, turning off the internet connection at a certain time in the evening, [50] or muting their phone and disabling notifications [35]. Adolescents can build strategies to respond to unwanted comments online and sexting by blocking sexual comments regularly without much effort. In addition, they can take control of their situation by confronting or opposing aggressors by discussing consent and the integrity of their bodies, or sometimes even lying to escape the pressure, if needed [38]. Adolescents can manage negative behavior by framing or seeing the person behind the negative behavior as uneducated or ignorant; for example, regarding the topic of being transgender [42].

Adolescents need rules for social media use due to an inability to stop using it once they have started, [35] and because sometimes their digital media use encourages procrastination [43]. They wish that their parents were more engaged in their use of digital media, for example, in gaming [35]. To cope with addictive behavior, adolescents wish that their parents or other adults would introduce more rules about digital media use so that they do not need to make those decisions on their own [50].

## Discussion

To get a grip on the ways in which digital media use affect adolescent mental health, attention must be paid to the intricacies and nuances of the findings of this qualitative systematic review. While previous research highlights the need to view adolescent mental health by way of the interplay and balance between structural determinants and social context,[23] the aggregated results of this qualitative systematic review highlight the balancing acts that face adolescents while navigating digital media use; how analogue and digital worlds are inextricably intertwined for adolescents; how adolescents are, to some extent, left to their own devices in their digital mental health project; and how digital media is actively—and with agency—used by adolescents to regulate mental health; and lastly, how digital media use can serve as a magnifying glass when it comes to adolescent mental health.

### Balancing acts

The balancing acts that are brought to the fore underline two directions towards which the seesaw tips; between digital and analogue settings on the one hand, and between adolescents and others within the digital settings on the other. The balancing acts can be exemplified by adolescents' basal human needs (e.g., motivation to sleep and keeping up with hygiene), [53] as a counterpoint to an online presence or the fear of missing out that comes with voluntary or involuntary abstinence from digital media use. Learning what to share and how to not overshare is another balancing act, [49] and a learning process critical to becoming an adult [54]. Digital literacy describes as a crucial skill in the digital era, important for learning, but also teaching about cybersecurity, online safety, and responsible communication [26]. These balancing acts range from regulating needs and wants (physical, mental, and emotional) in an analogue world as opposed to a digital world, but they also bear witness to the intricacies of interaction within the digital media setting. Ziegel et al. [55] highlight the importance of strong social network and facilitated access to mental health support.

### The analogue and digital worlds are inexplicably entwined

While the accumulated results from the articles studied suggest that there is a palpable divide between analogue and digital settings, adolescents use digital media as an integrated part of their day-to-day lives, as previous research has also stated [8]. In effect, therefore, the divide is there, but there are no sharp lines defining it clearly. By abstaining from digital media use, for example, adolescents risk not being able to keep up with events and the social life of their peers [35] both of which comprise an integral part of their identity construction and project. The effects on negative mental health caused by the fear of missing out described in previous research also point to the negative effect of not being online, which in turn could lead to adolescents developing more poorly, socially speaking. What is described as most pernicious in terms of adolescent digital media use as regards one topic of the articles reviewed is the adolescent tendency to neglect basic needs, for instance, the need for sleep or to abstain from family social life, [50] all of which point to the divide between digital and analogue settings. Another strand of the reviewed articles, however, tend to focus on social comparisons, [45] appearance and body ideals, [36] as well as processes of sexualization and objectification, [41] all of which have been shown to exert direct effects on mental health. These studies further underscore the tension between individual experiences and broader social contexts in digital environments.

### Left to their own devices

The dynamics within the digital landscape are largely left unproblematized in relation to parental control and motivation in the articles studied. Neither parents nor professionals appear to offer suggestions as to how digital media use can be navigated to support mental health, other than not using it. This proposes an intricate problem for adolescents; based on the many aspects of social comparison, [45] quantifiable popularity, [48] cyberbullying, [45] and so on, they seem to navigate a system, ethically and socially, where they must balance different physical and psychological aspects on their own or with the help of peers. Adolescents give voice to their need for rules and their parents' involvement in regard to their online activities, although primarily when it comes to gaming [35, 50]. This is a clear indication that adolescents are in need of support that encompasses more aspects than mere screen time and basic needs, and yet this topic is not explored in the articles in question. While there is no empirical evidence in prior research to suggest that digital technology has an effect on well-being or health in general, [10] social media, however, seems to have some effect on the prevalence of mental health problems [19]. Social media also appears to be an aspect of digital media use where parental or professional involvement is absent. Concrete adult digital support systems, where parents or health care professionals play a more active role in identifying, discussing and /or treating mental health aspects online and where the adolescents are active, is not proposed in the research reviewed. This indicates that the project of understanding and maintaining good mental health through social media is, in reality and to a considerable extent, the assumed responsibility of the adolescent.

### Actively and with agency

One recurring theme in several articles is how adolescents themselves use their agency and practices to regulate or strengthen aspects of mental health in connection to their social media use, [38] which may indicate that they have, to some extent, developed mental health literacy [7]. Identity-creating practices, the regulation of emotion and mood, distraction, empowerment, and raising awareness of problematic topics are only a few of the aspects brought to the fore.

Digital media use enables identity creation and management on different levels for adolescents. For one, they build and transgress identities by sharing life worlds online; for example, through finding or comparing themselves to peers of the same or other ethnicities, sexuality, or gender identification, to name a few [45]. Second, they are afforded the opportunity to play different roles or self-realizing roles in digital interaction [43]. All these practices come with the downside of having to risk facing

anonymous threats and comments while inadvertently also creating a potential arena for self-realization or feelings of likeness or togetherness, harnessing good mental health.

Digital media is used to elevate moods or emotions by adolescents. Making time fly or avoiding boredom [51] serves as one example of the aforementioned balance between the digital world and the analogue world. In a related, though not identical, instance, attention can be drawn to the tendency to use digital media as a means of distraction from thoughts or external events [35]. Distraction is not necessarily used in relation to a common feeling of boredom but rather in relation to specific topics as commonly described in the articles reviewed, i.e., pandemic issues, suicidal thoughts, or an escape from a problematic home situation. Distraction could be framed as a coping mechanism, where previous research states, for example, that an increase in social media use could indicate symptoms of mental ill-health [19]. In light of the articles reviewed, however, it could also be understood in terms of longing for something different rather than running away from something problematic. For example, finding peers and like-minded people online does not necessarily point to difference-making and ostracism in other realms of the adolescents' lives. Moreover, adolescents also use digital media to raise their mood [34]. Having to navigate the vast amounts of information delivered by digital media and, at points, avoid specific items, however, can prove to be a challenging task for adolescents.

#### Digital media use—a magnifying glass for mental health

In several ways, digital media use serves as a magnifying glass for some established aspects of the analogue world; e.g., hierarchization in terms of class and gender, body issues, and social comparison. Social effects on adolescent mental health can be elevated, sometimes without an audience acknowledging it and seeing the needs of the adolescent Examples of this are cyberbullying, [39] sexting, [38] and a tendency towards impression management and idealized images [35]. Thus, many of the social issues affecting adolescent mental health are issues that exist in the analogue world but which will be perceived differently in the digital landscape. Unsurmountable body and life ideals can be made more visible when the plethora of alternative images and life stories described in the physical presence of others are absent. The fast spread of digital information, disinformation, and rumors reach inside physical rooms that in an analogue context could work as safe zones or social shelters. Good mental health seems to provide adolescents with skills and resilience to manage stress in life and serves as a protective shield against problematic contexts in these arenas in general. Presuppositions in the physical setting could also affect the way adolescents identify, cope with, and find social support regarding problematic issues in digital arenas and vice versa. An example brought to the fore in the qualitative systematic review is that problematic relationships at home will increase the effects of digital media use [46].

Another magnifying aspect of digital media use is the means by which adolescents estimate their own and others' worth by several distilled and specific practices. Self-worth and social comparison are tied to quantifiable resources—e.g., the likes and numbers of views on social media—and the number of friends or followers of an account [35, 39, 41, 44, 48]. While these practices say little about the character of the adolescent, they can help magnify a social hierarchization that can exist in physical rooms; in school, for example. Such practices will rest on the idea of being worthy of attention or not, an idea that could be detrimental to adolescent mental health in cases where there is a lack of other credible sources of self-evaluation. In addition, the need for positive impression management that renders likes and views is stressful for adolescents [35]. One conclusion to this is that the social support of people within and outside the digital media setting is paramount for adolescents to gain perspective on themselves and their life situations and, therefore, to foster adolescent mental health. The discussion therefore carries implications for policy and practice. Educators should integrate digital literacy and mental health promotion into school curricula while mental health providers could incorporate digital contexts into therapeutic work to enhance adolescents' stress management and boundary setting skills. Mental health services should also offer courses that guide parents in mediating adolescents' social media use. Lastly, digital media platforms should be strongly encouraged to engage adolescents in the co-design of tools and interventions that promote mental health.

#### Strengths and limitation

A limitation of this study is the exclusive focus on qualitative study designs while a strength is the detailed systematic review of the qualitative results. Another limitation can be that articles with a mixed method approach are not included and that a preregistered study protocol is absent. Nevertheless, the work performed align with PRISMA guidelines. A strength is also that the result explores a total of 864 adolescents' experiences. Another strength is the systematic search conducted across multiple electronic databases using broad search terms for identifying relevant scientific articles in order to determine the most suitable keywords. Despite this thorough approach and well-defined selection criteria, some relevant studies may have been missed. Even though the key term was adolescents, the main articles included 14- to 16-year-old adolescents, providing a lesser focus on

younger and older adolescents. Furthermore, girls were more heavily represented, which make the results more focused on mid-adolescents girls.

All included articles underwent quality appraisal by all authors, following established assessment protocols. To minimize misinterpretation and enhance credibility, data collection, analysis, and interpretation were conducted collaboratively. The search process and procedures were carefully documented to ensure dependability and confirmability through traceable documentation of decisions [56]. Credibility was further strengthened through consensus-based discussions of text units, verified against the original text for accuracy. Technical issues in this study occurred when transferring articles from databases to Rayyan, as not all records were visible. To address this, we took advantage of the transition from Scopus to access all documents. The homogeneity in the included studies could also be seen as a limitation regarding transferability, since they primarily came from the Western world.

## Conclusions

Adolescents actively use digital media to regulate their mental health, such as to manage moods, create identities, find togetherness, likeness and to seek emotional support. In addition, it is used politically to raise awareness of aspects of inclusion and exclusion pertaining to, for example, ethnicity and sexuality. This approach can help to develop mental health literacy and offer empowerment to the adolescents and thus facilitate good mental health. On the other hand, digital media use can influence the mental health of adolescents negatively through the neglect of basic needs, such as sleep or family time, which may contribute to negative mental health. Social comparisons facilitated by social media, including concerns over appearance and popularity, can elevate stress and body image issues, as can cyberbullying, sexting and social exclusion. Adolescents can construct strategies for mental health in online and offline settings, for example to manage emotions, cope with stress and discuss and act on limiting how digital media is used and for what purpose. These strategies serve as a mediator between analogue and digital settings and the constraints that are present in them. There is a need to raise awareness among adults, i.e. parents, health professionals, and researchers, about the aspects researched and discussed in this qualitative systematic review. This requires a change of focus from matters relating to screen time and the neglect of basic needs to the socially and ethically more intricate and complex matters brought to the fore by adolescents, e.g. concerning social comparison, bullying, sexualization, self-worth, inclusion and exclusion.

Future research should therefore pay more attention to adult mediation in digital activities and the problematization of scholarly and professional perspectives of understanding digital media as an isolated phenomenon in adolescent experiences. Key questions include how and to what extent adults can understand and engage with adolescents' digital media use. This includes both communication and intervention strategies by health professionals, and how these impact adolescents' mental health. Additionally, future studies should examine the role of digital industries in shaping adolescent media use through marketing, algorithms, and platform design. These elements influence user behavior and ethics which are important factors related to adolescent mental health. Another potential area for future research could be to explore the relevance of digital media use to adolescents' mental health in non-Western contexts, investigating cultural, social, and economic factors that may influence these relationships. Future research should further investigate underrepresented groups and employ longitudinal and participatory methodologies to deepen understanding of how digital media use shapes adolescent mental health across diverse contexts.

## Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s44247-026-00238-z.

Supplementary Material 1

Supplementary Material 2

### Acknowledgements

We would like to thank senior lecturer Dr. Sakarias Bank, University of Skövde, for the inspiration to handle a review by using the digital tool Rayyan, and the interesting discussions of the need for systematic reviews in research, as well as senior librarian Dr. Krister Johannesson, University of Skövde, for excellent support with the search strategy.

### Author contributions

KC was responsible for organising the research including methodology, formal analysis, investigation, data curation, and writing the original draft; review, and editing. SN: investigation; roles/writing—original draft, especially parts of the discussion and review. MW: formal analysis; investigation; roles/writing—original draft and review. VL: formal analysis; investigation; roles/writing—original draft and review. RK; formal analysis; investigation; data curation; roles/writing—original draft and review. KH; formal analysis; investigation; roles/writing—original draft especially Table 2 and review. IE: formal analysis; investigation; roles/writing—original draft and review. ML was responsible for the methodology, formal analysis; investigation; data curation; and writing the original draft; review, and editing.

### Funding

Open access funding provided by University of Skövde. The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: this work was supported by the School of Health Sciences, University of Skövde, Sweden.

### Data availability

All the articles in the analysis are published and publically available.

## Declarations

### Ethics approval and consent to participate

Not applicable in this qualitative systematic literature review.

**Consent for publication**
Not applicable.

**Authors' information**
The research team is a diverse team with differing professional interests in several research areas, which, we believe, led to considerations of diversity, equity, and inclusion throughout each stage of the qualitative systematic review.

**Competing interests**
The authors declare no competing interests.

**Author details**
[1]School of Health Sciences, University of Skövde, Skövde, Sweden
[2]Skaraborg Hospital, Skövde, Sweden
[3]Department of Psychiatry and Neurochemistry, University of Gothenburg, Gothenburg , Sweden
[4]Department of Health Sciences, University West, Trollhättan, Sweden

Received: 26 June 2024 / Accepted: 7 January 2026
Published online: 13 January 2026

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