Black Dog Institute | Teens & Screens

Adolescent screen use and mental health

Summary of findings from the Future Proofing Study

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Summary

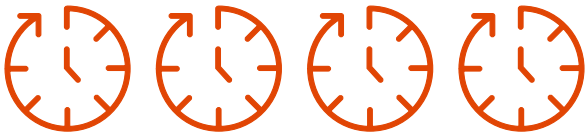
Screen-based devices form an integral part of adolescents' daily lives, used for education, entertainment, social relationships, creative pursuits, and much more. While public concern regarding the impact of screen use on adolescent mental health has increased in recent years, there is little conclusive evidence to demonstrate a causal link between adolescent screen use and poor mental health. The relationship between screen use and mental health is likely to be complex and multi-faceted, and ongoing research is needed to understand the interplay between different types of online activities and the individual circumstances of adolescent users.

This report contributes new evidence demonstrating the complex relationship between adolescent screen use and mental health. The data presented were collected in 2023 from 3,734 Australian adolescents participating in the Black Dog Institute's *Future Proofing Study*. Findings are presented across three broad areas: (1) the amount of time adolescents spend using screens each day, (2) the types of activities adolescents are engaged with while they are using screens, and (3) the relationships between different screen-based activities and adolescent mental health. The implications of these findings are discussed in the context of other research about screen use and mental health, and a range of recommendations for parents and carers, schools, and policymakers are provided.

Key Findings

28%

of adolescents report spending 4+ hours a day using social media



Adolescents report using social media most frequently to:

82% communicate with people they know in real life

70% scroll or view other people's content

More frequent use of social media to interact with people known in real life is linked with lower levels of depression and anxiety

More frequent use of social media to scroll or view other people's content is linked with higher levels of depression, anxiety, insomnia, and disordered eating

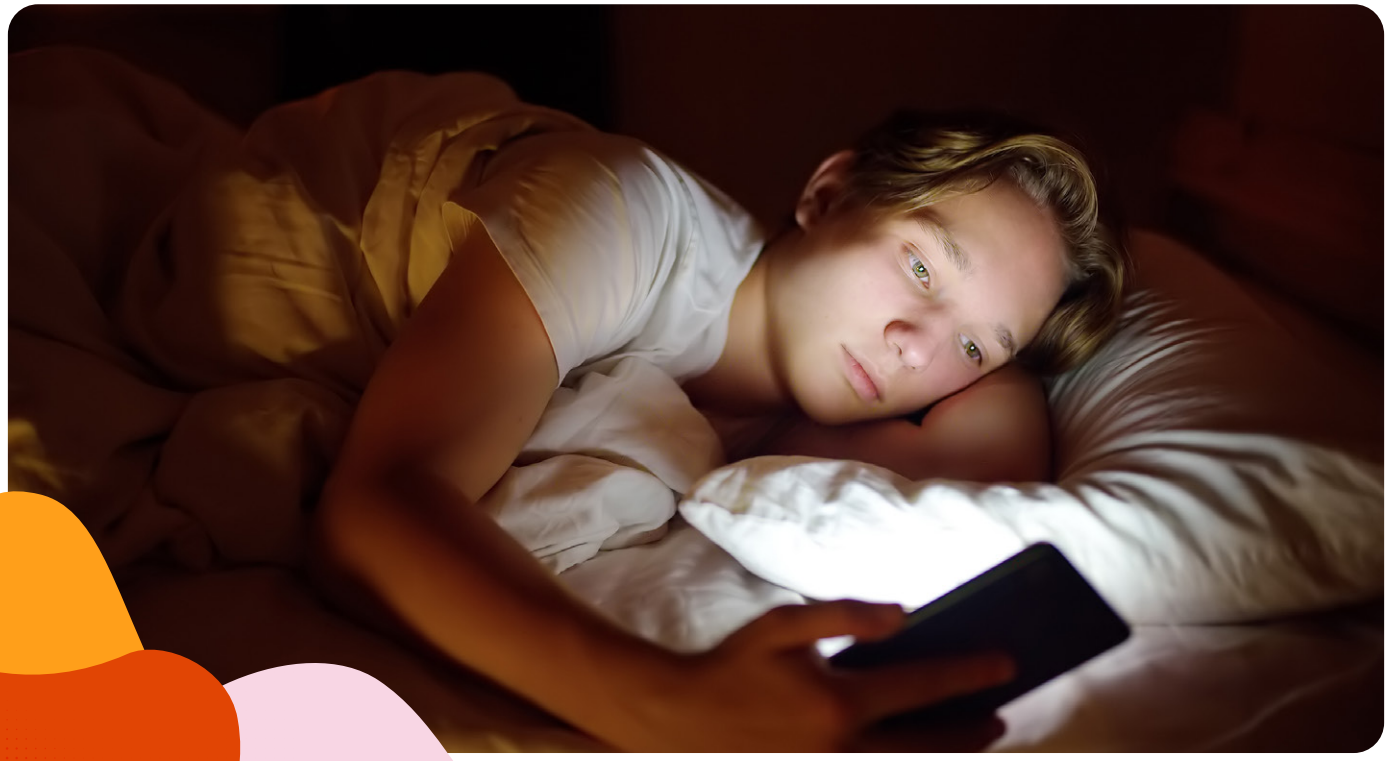
Higher daily hours of gaming **is not associated** with

Anxiety
Insomnia
Disordered eating

Higher daily hours of gaming **is associated** with

Depression
Driven by those gaming 6+ hours a day

Contents



The most connected generation of all time

In Australia, 97% of adolescents own a personal, screen-based device, and 50% have access to five or more devices [2-4]. The use of screen-based devices is integral to adolescents' daily lives, encompassing activities such as forming and maintaining friendships, education and information, entertainment, relaxation and recreation, creative self-expression and inspiration [1, 5-9]. Increasingly, adolescents inhabit a 'hybrid reality', seamlessly blending online and offline experiences [10-12].

The interface between big tech and adolescent development

Adolescents are developmentally primed to seek social connection, novelty, and immediacy which means they are particularly drawn to using screens to satisfy their desire for peer connection, with the benefit of real-time responding [4, 11, 13-17]. Unsurprisingly, this generation is specifically targeted by technology companies [4, 17-19]. A recent study conducted by the Harvard School of Public Health showed that advertisements aimed at children and adolescents brought in almost $11 billion USD across six popular social media apps in 2022 [20]. Technology companies leverage adolescents' developmental drivers with algorithms designed to capture and hold their attention, making it difficult for them to disengage [11, 16]. This brings unique challenges for adolescent identity and emotion regulation development, particularly as adolescence is the period in which mental health conditions like depression typically first begin to emerge [14, 21].

An intergenerational digital divide

The continuously evolving digital world in which adolescents spend much of their lives is largely unfamiliar to most adults, creating an intergenerational divide. This generational gap is exacerbated by stark differences in perceptions of the role of screen-based devices in adolescent mental health. The public (adult) discourse is often negative, blaming social media for all the mental health (and other) challenges adolescents face [22]. In a recent Australian survey, nearly 60% of parents and carers reported that they were concerned about their teenagers' use of social media. In contrast, adolescents themselves rated social media outside their top ten issues of concern, behind cost of living pressures, climate change, and other issues [23]. Many adolescents do not view screen use as a key factor in adolescent mental health challenges [24] and argue that social media is a valued source of information about mental health [25], a key means to reduce stress [1], a platform for social connection and peer-to-peer support [1, 25].

Section 1: Introduction

Given the central role that screen-based devices will continue to play in adolescents' lives and future careers, we urgently need to develop a detailed understanding of adolescents' experiences. This understanding will help us remain closely connected with adolescents, supporting them to maximise the opportunities offered to them via the digital world [3, 13] and enabling us to best protect their mental health in the process.

An investigation by the Black Dog Institute

Since 2019, the Black Dog Institute has been surveying the mental health and well-being of thousands of adolescents in the largest Australian study to date of adolescent mental health, the Future Proofing Study [26]. Brief questions about screen use have been included in the study since 2019. However, in response to the significant increase in public concern about the impact of screen use on adolescent mental health, more detailed questions were added to the study in 2023. These new questions have enabled researchers to examine the specific ways teenagers use screens, and the associations of these patterns of use with mental health. This report presents a summary of findings from data collected across the 2023 calendar year.

The Future Proofing Study

The Black Dog Institute's Future Proofing study is now the largest and most comprehensive longitudinal study of adolescent mental health in Australia. Between 2019 and 2021, thousands of Year 8 students from Government, Independent, and Catholic schools in both metropolitan and regional areas across Australia joined the study. For six years, these students are completing confidential annual questionnaires covering a wide range of topics related to adolescent mental health and well-being.

Cross-sectional vs longitudinal analyses

The findings presented in this report are cross-sectional, offering a snapshot of a population at one point in time. This type of analysis is useful for:

Examining participant characteristics

Comparing differences between groups

Identifying connections and patterns for future research

It is important to note that a cross-sectional analysis cannot establish causality or capture trends over time. It cannot show whether digital technology use causes mental health symptoms in adolescents, or vice versa, nor whether there is any causal relationship at all. 'Correlation is not causation' [1]. Establishing potential causality or clearer directionality requires longitudinal research with data collected over multiple time points.

Sample characteristics

A total of 3,734 adolescents in school years 10–12 (mean age = 16 years) completed questionnaires about their screen use and mental health in 2023. See Figure 1 for characteristics of the participants whose data are presented in this report.

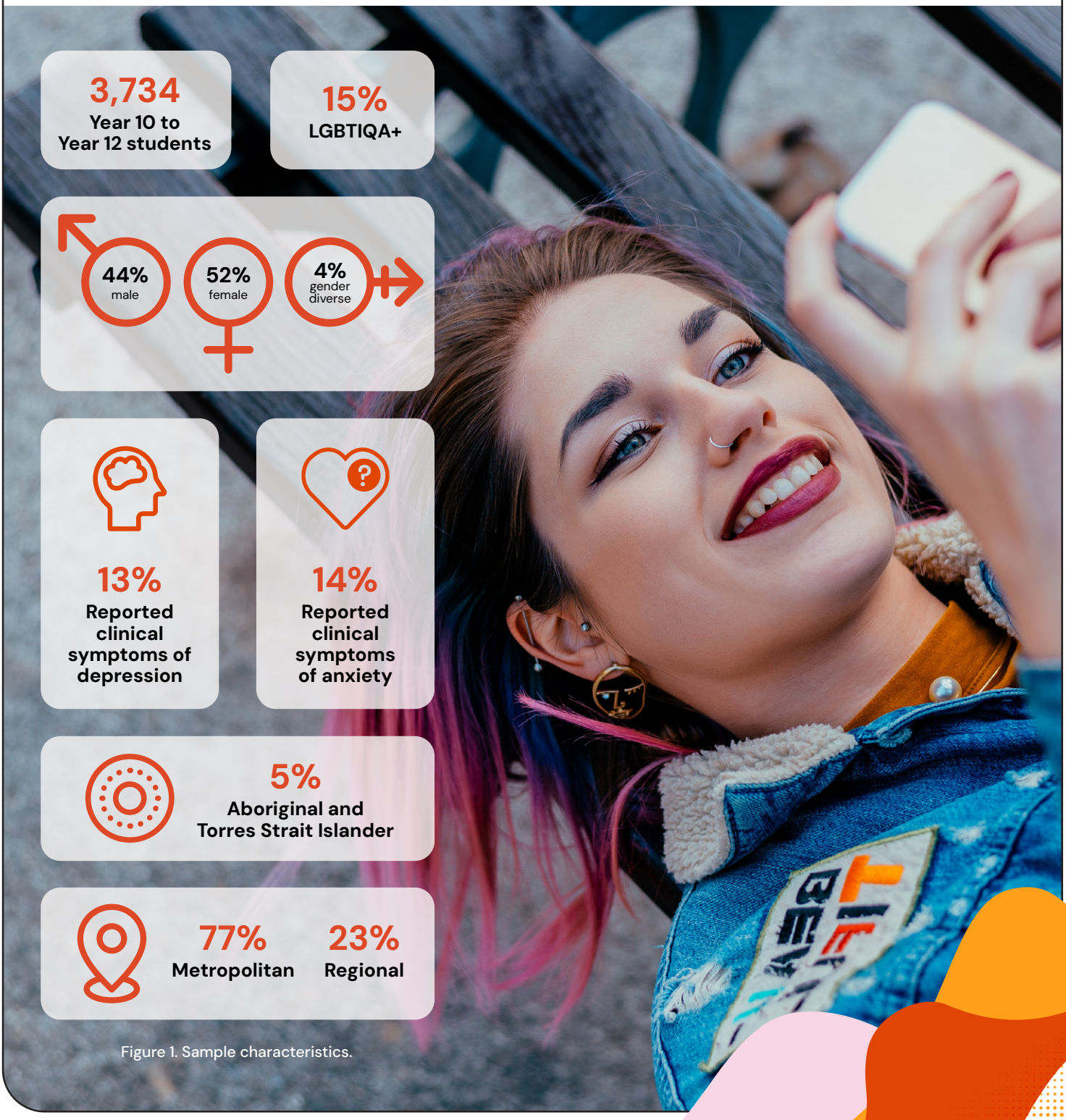


Figure 1. Sample characteristics.

What are adolescents doing on their screens each day?

To examine what type of screen-based activities adolescents are engaging with, participants were asked to respond to the following questions:

On a typical day, how long do you spend....

Watching TV, movies, or other video content? This includes streaming services, YouTube, etc.

Using social media apps? Add up all the time you spend on social media apps in a day. Social media apps include platforms like TikTok, Snapchat, Instagram, WhatsApp, Reddit, Discord and other forums, etc.

Searching the internet? This includes using Google, online shopping, looking up and viewing online content, etc.

Gaming? This includes games on computers, consoles, phones, iPads/tablets, etc.

Creating your own content? This includes videos, animations, coding, etc.

Data presented show the percentage of participants who reported engaging with each type of screen-based activity for at least 1 hour per day (Figure 2).

Participants most frequently reported using screens to watch video content (95%), use social media apps (93%), and search the internet (92%). Nearly 2 in 3 students (63%) reported daily gaming and almost 1 in 4 (24%) reported creating their own content.

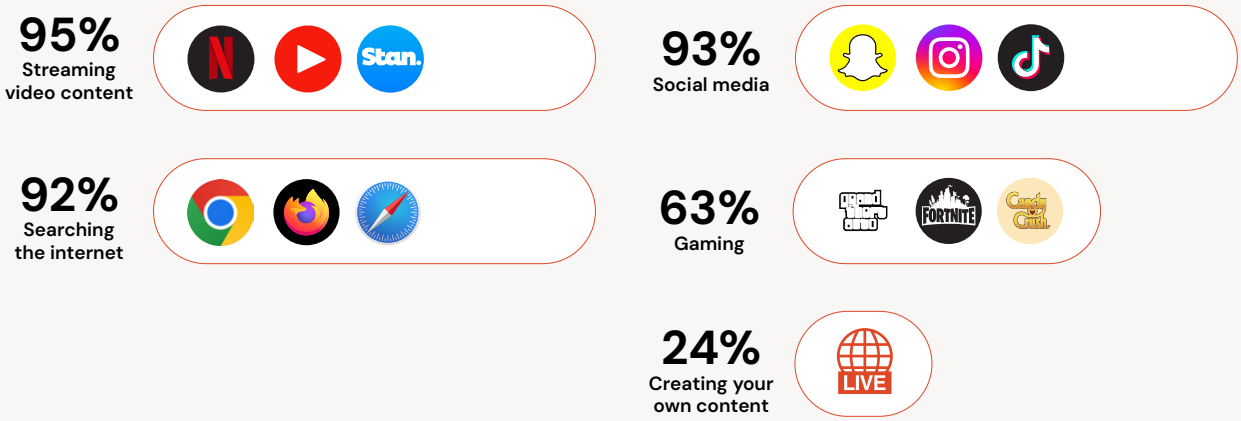


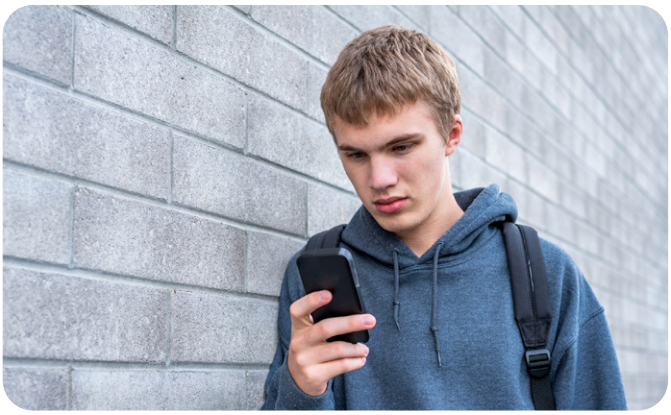
Figure 2. Adolescents who reported engaging with each type of screen-based activity at least 1 hour per day.

How much time are adolescents spending on their screens each day?

To examine the amount of time adolescents are spending on screens each day, participants were asked:

> *How long do you spend on screens on an average day? This includes phone, computer, iPad, TV, gaming, etc., not including schoolwork.*

On average, participants reported spending 3-4 hours on screens a day, outside of schoolwork (Figure 3). 89% of participants reported spending at least 2 hours a day using screens, while more than a quarter (28%) reported spending at least 5 hours a day using screens.



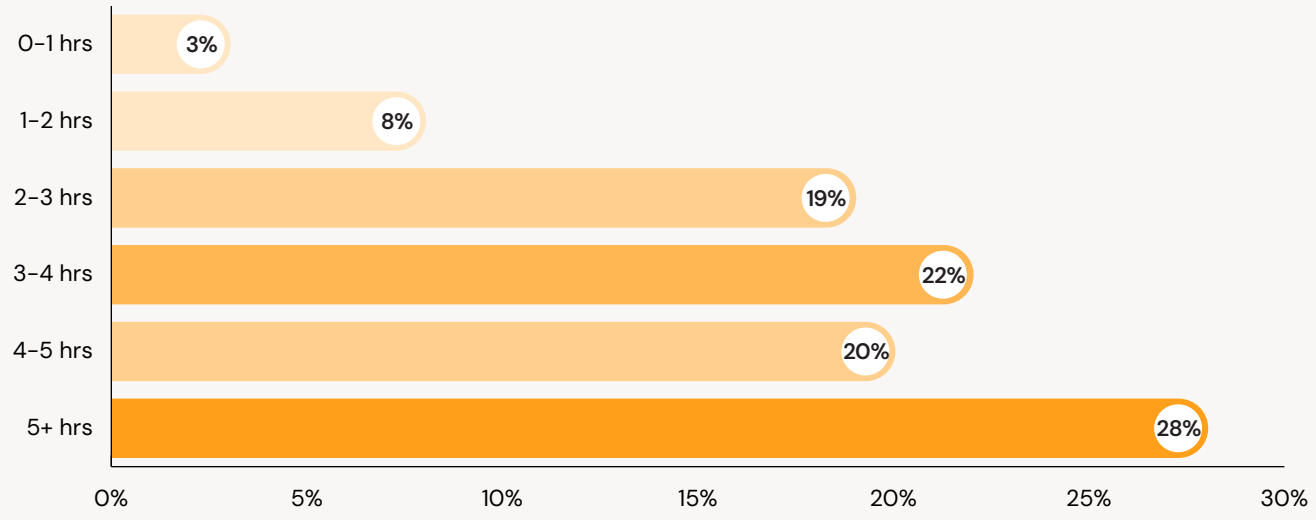


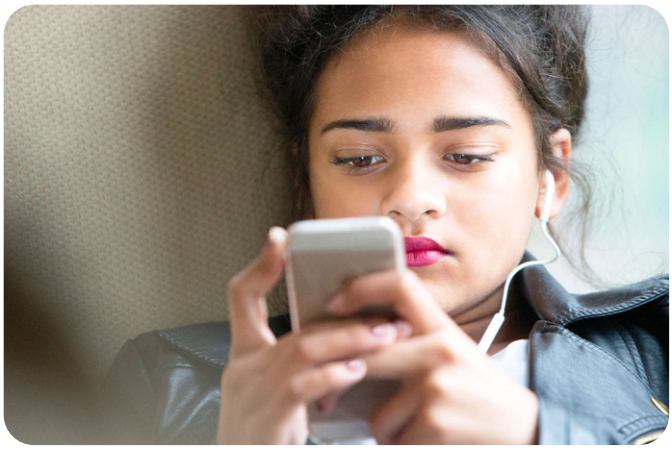
Figure 3. Participants' self-reported time spent using screens each day, not including schoolwork.

How much time are adolescents spending on social media each day?

To examine the amount of time adolescents are spending on social media each day, participants were asked:

> *On a typical day, how long do you spend using social media apps? Add up all the time you spend on social media apps in a day. Social media apps include platforms like TikTok, Snapchat, Instagram, WhatsApp, Reddit, Discord and other forums, etc.*

On average, participants reported spending 2-3 hours per day on social media (Figure 4). More than a quarter of participants (28%) reported spending 4 or more hours using social media each day.



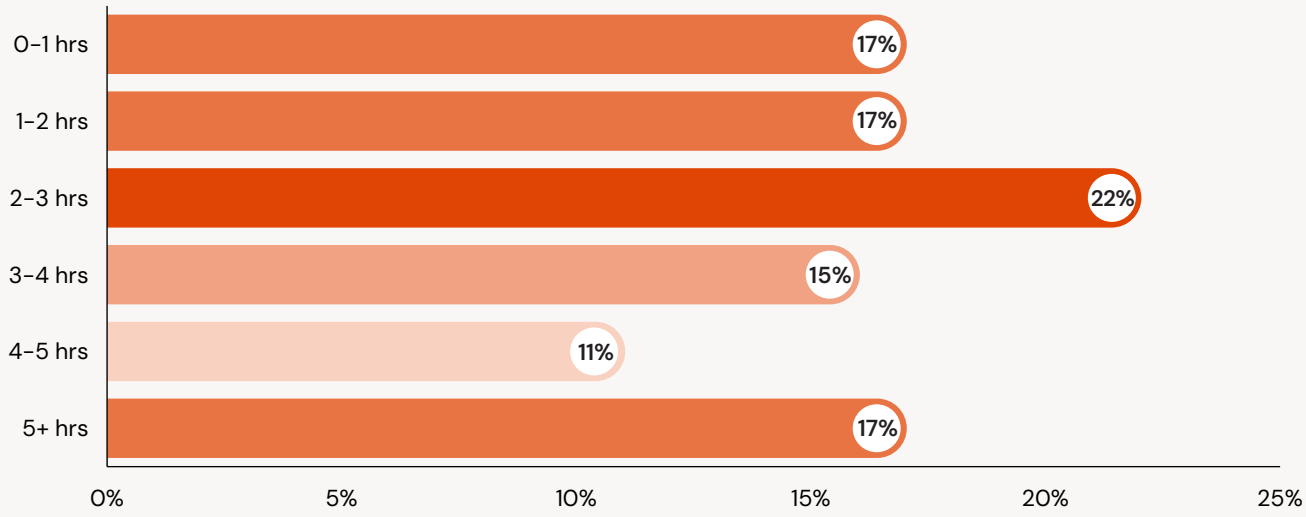


Figure 4. Participants' self-reported time spent using social media apps each day.

Which social media apps are most popular with adolescents?

To explore the most popular social media apps used by adolescents, participants were asked to respond to the statement:

> *I use the following types of social media at least once per week and nominate which social media apps they currently use from a list containing:*
>
> *Facebook, Instagram, Snapchat, Twitter (X), YouTube, Reddit, TikTok, Other or I don't use social media.*

The most popular social media apps were Instagram (79%), Snapchat (74%), TikTok (67%) and YouTube (66%) (Figure 5).

Figure 5. Proportion of participants using popular social media apps at least weekly.

Instagram

Photo and video-sharing app known for its emphasis on visual content. Instagram offers features that enable users to share their life moments, artistic content, and longer video formats. It is widely used for personal expression, brand promotion, and influencer marketing.

Snapchat

Focuses on instant messaging where photos and videos, called "Snaps," disappear after being viewed. It includes features like augmented reality lenses, emphasising spontaneous, real-time communication and playful interactions among friends.

Tik Tok

A video-centric platform that allows users to create, share, and discover short-form videos set to music or sound bites. It is renowned for its viral trends and challenges, making it a hub for entertainment and creative expression.

YouTube

An online platform where people can watch, share, and upload videos on a wide range of topics, from entertainment and education to tutorials and personal vlogs. It allows users to subscribe to channels and like and comment on videos.

How much time are adolescents spending using the most popular social media apps?

To examine the amount of time that adolescents spend each day on the most popular social media apps, participants were asked:

> *On a typical day, how long do you spend using Instagram/Snapchat/TikTok/YouTube?*

Adolescents reported spending the most time each day on TikTok, an average of 2-3 hours, compared to 1-2 hours per day on Snapchat and YouTube, and 0-1 hours on Instagram (Figure 6).

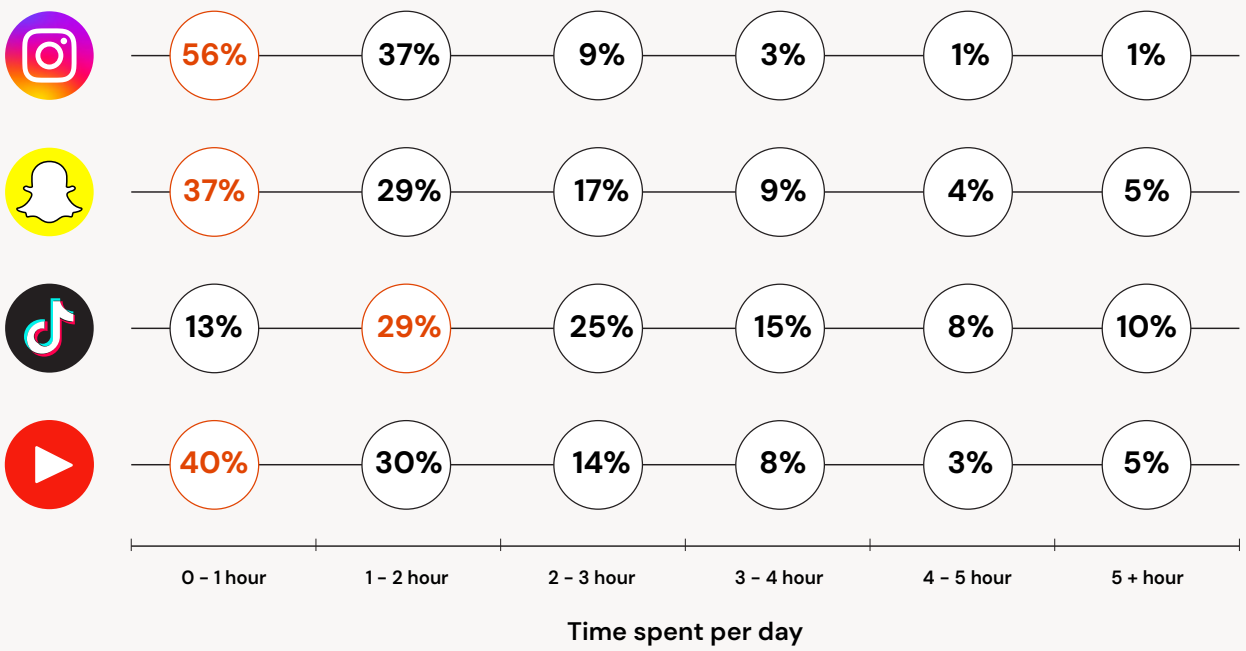
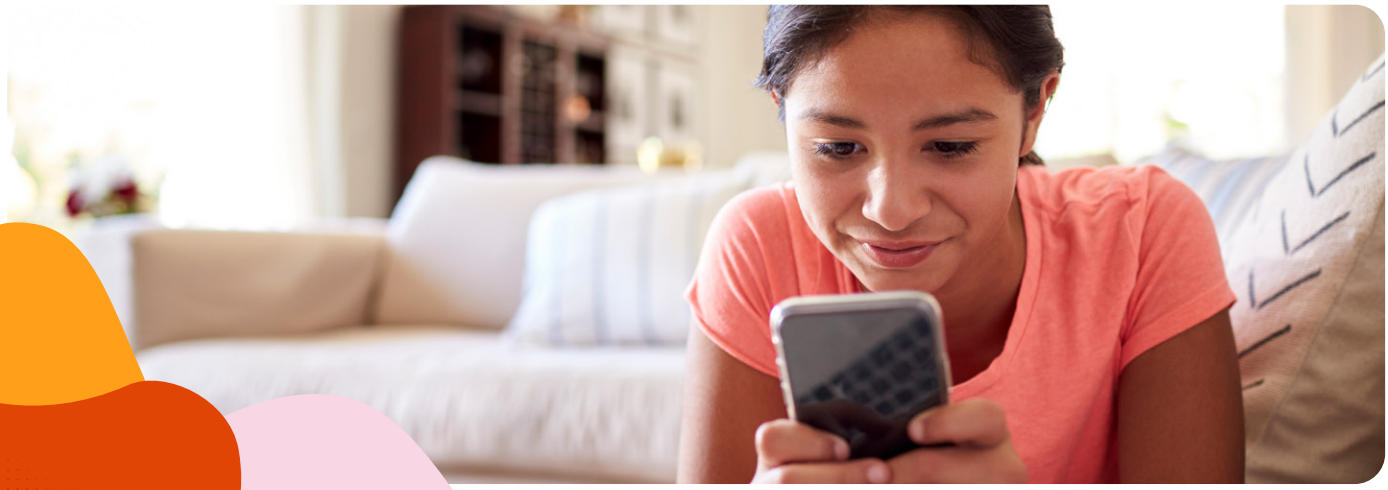


Figure 6. Hours spent each day on the most popular social media apps



In what ways are adolescents using social media?

To understand the different ways that adolescents are using social media, participants were asked:

What's the main way that you use social media apps?

Communicating with people you know in real life

Communicating with people you've met online

Sharing or posting content publicly (including images, videos, posting in public forums, etc)

Scrolling or viewing other people's content

82% of adolescents reported often or very often using social media to communicate with people they know in real-life. 70% of adolescents reported often or very often using social media to scroll or view other people's content.

Relatively few reported often or very often using social media to communicate with people that they've met online (17%), or to share or post content publicly (14%) (Figure 7).

Figure 7. Different ways that adolescents reported using social media.

How is screen use displacing other activities?

To examine the ways in which screen use might be displacing other important activities, participants were asked:

> *Does using a screen-based device, like a smartphone, ever stop or delay you from doing other things in your life?*

50% of participants reported that their screen use was displacing other activities. These participants were then asked to report which activities their screen use was stopping or delaying them from doing (see Figure 8).

Figure 8. Activities displaced by participant screen use.

Is screen use linked to disrupted sleep in adolescents?

Given the established link between disrupted sleep and mental health [27, 28], participants were asked three questions about their screen use and sleep onset:

Last night, did you use a screen-based device, like a smartphone, in the 60 minutes before you went to sleep?

Did you go to sleep later than you wanted to because you were using a screen-based device?

How much later did you go to sleep?

Results are presented in Figure 9.

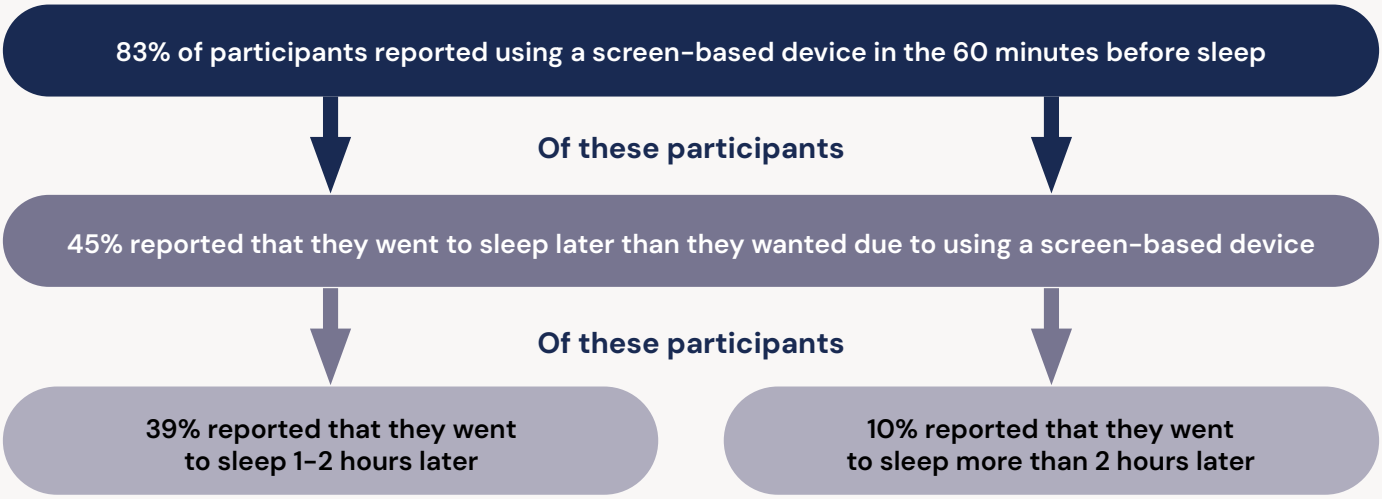


Figure 9. Impact of screen use on sleep

Is there an association between overall daily screen use and mental health?

To understand whether there is an association between overall daily screen use and mental health, we examined the relationship between self-reported daily screen hours and symptoms of depression, measured by the Patient Health Questionnaire-Adolescent Version (PHQ-A [29]) and anxiety, measured using the short form of the Spence Children's Anxiety Scale (CAS-8 [30]).

A significant association was found between higher overall daily screen use and higher incidence of both depression and anxiety (Figure 10). Specifically, we found that that 22% of adolescents who reported using screens 5+ hours per day met criteria for depression, and 21% of adolescents who reported using screens 5+ hours per day met criteria for anxiety. In contrast, among adolescents who used screens for less than 1 hour a day, only 5% met criteria for depression and 3% met criteria for anxiety.

As this is a cross-sectional analysis which examines data about daily screen use and depression/anxiety at a single point in time, we are unable to infer directionality in this association. It does not necessarily mean that extended screen use is leading to increased depression and anxiety. Rather, already depressed and anxious adolescents may be spending more time on screens each day. Indeed, many people report turning to their screens for distraction and support when their mood is low, a coping strategy that is now being called 'digital emotion regulation' [31].

Encouragingly, additional research conducted by our team has shown that while there is a significant cross-sectional association between screen use with greater depression and anxiety, these associations do not appear to hold up over time. When screen use is examined as a predictor of future depression and anxiety over a 12-month period, we find only a very small association between screen use and depression, and no association between screen use and anxiety [32].

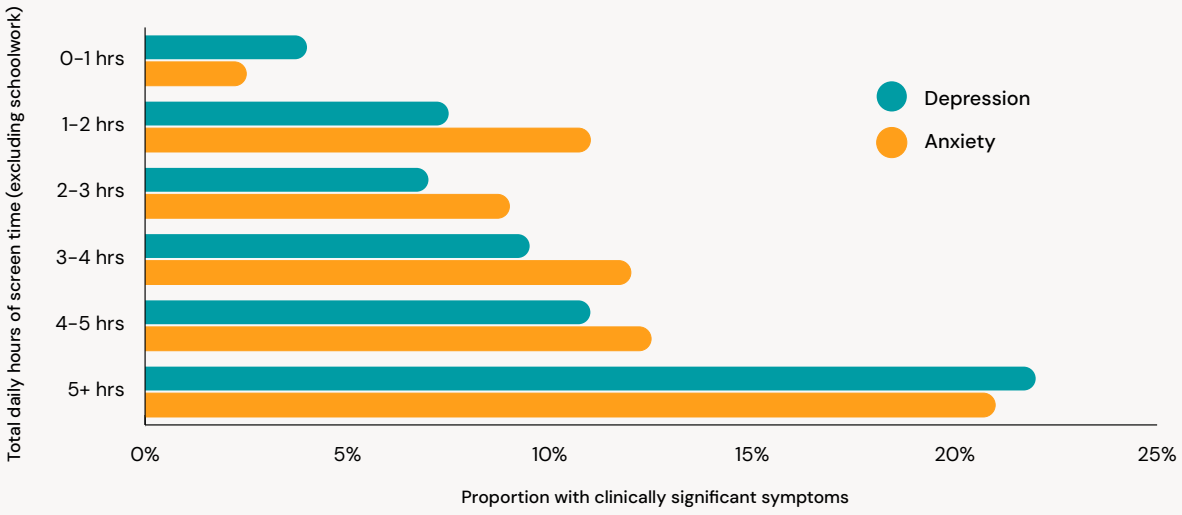
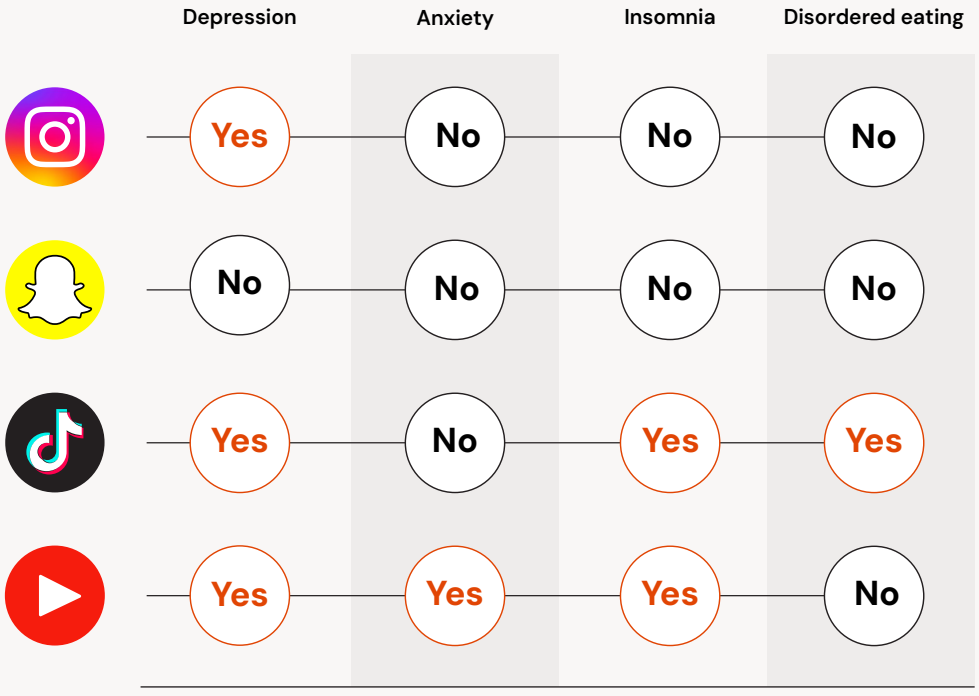


Figure 10. Cross-sectional associations between daily hours of screen time with depression and anxiety.

Are there any differences in the time spent on popular social media apps and how these apps relate to mental health?

The four most popular social media apps used by participants were Instagram, Snapchat, TikTok, and YouTube. We conducted an analysis to examine differences in the time spent using these apps and mental health symptoms. This analysis controlled for participants' gender and socioeconomic background, important factors that are known to be associated with mental health [33, 34]. Mental health symptoms were depression, measured using the PHQ-A [29], anxiety, measured using the CAS-8 [30], insomnia, measured using the Insomnia Severity Index [35], and disordered eating, measured using the Screen for Disordered Eating [36].

Our analysis identified a significant association between higher daily hours spent using Instagram and greater symptoms of depression. We found a significant association between higher daily hours spent using TikTok and greater symptoms of depression, insomnia, and disordered eating. Finally, we found a significant association between higher daily hours spent using YouTube and greater symptoms of depression, anxiety, and insomnia. However, higher daily hours spent using Snapchat, which is used primarily for communicating with friends, was not significantly associated with any of the mental health symptoms examined (Figure 11).



Note: all associations are positive: higher hours, higher symptoms.

Figure 11. Associations between daily hours spent using Instagram, Snapchat, TikTok, and YouTube with mental health symptoms.

Are different methods of using social media associated in different ways with mental health?

Social media is a dynamic medium and the ways in which it can be used vary greatly between platforms and individuals. To learn more about the relationship between the different methods of using social media and mental health, we conducted an analysis focused on the two most common methods of using social media identified by participants: '*Communicating with people you know in real life*' and '*Scrolling or viewing other people's content*', together with symptoms of depression, anxiety, insomnia, and disordered eating. This analysis controlled for participants' gender and socioeconomic background.

Our analysis found that more frequent use of social media to communicate with people known in real life was significantly associated with *lower symptoms* of depression and anxiety.

Conversely, we found that more frequent use of social media to scroll or view other people's content was significantly associated with *greater symptoms* of depression, anxiety, insomnia, and disordered eating (Figure 12).

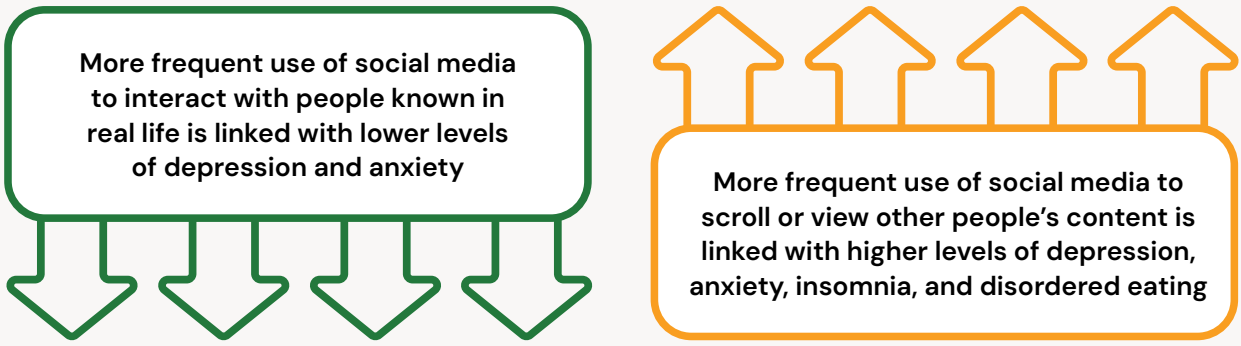
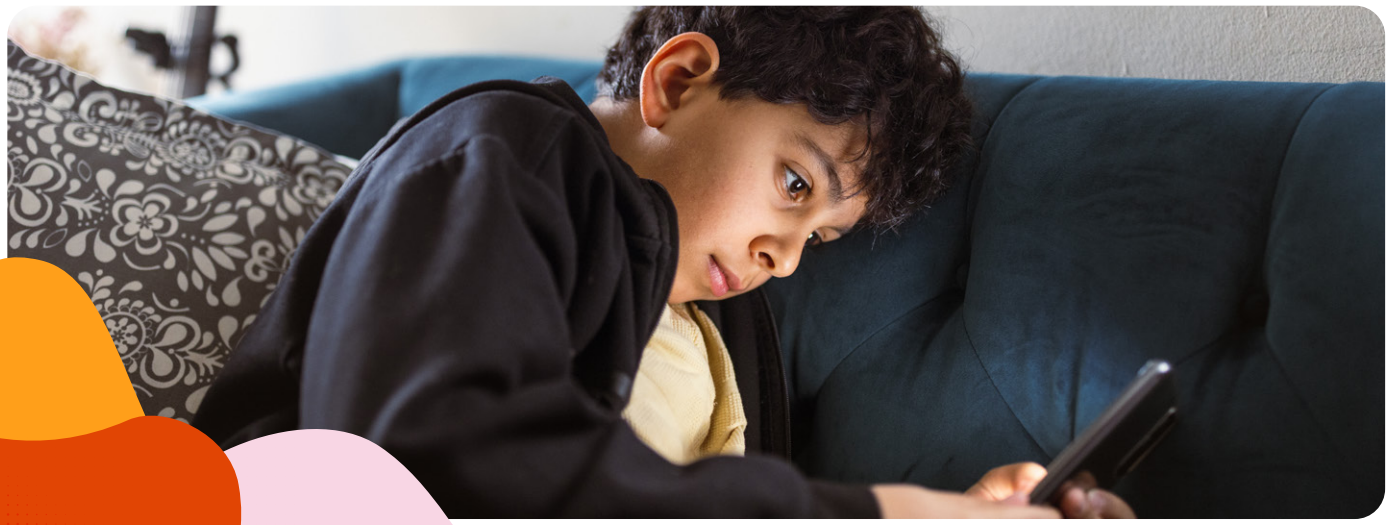


Figure 12. Associations between more frequent use of social media to communicate with people you know in real life vs scrolling or viewing other people's content and mental health.



Is there an association between gaming and mental health?

To understand the association between gaming (including games on computers, consoles, phones, iPad/tablet, etc) and mental health symptoms, we conducted an analysis examining the relationship between daily hours spent gaming and symptoms of depression, anxiety, insomnia, and disordered eating. This analysis controlled for participants' gender and socioeconomic background.

We did not find an association between higher daily hours spent gaming with anxiety, insomnia, or disordered eating. However, we did find a significant association between higher daily gaming hours and greater symptoms of depression (Figure 13). This association was largely driven by participants who reported gaming 6 or more hours per day, with a quarter of those gaming 6 or more hours per day meeting criteria for clinically significant depression.

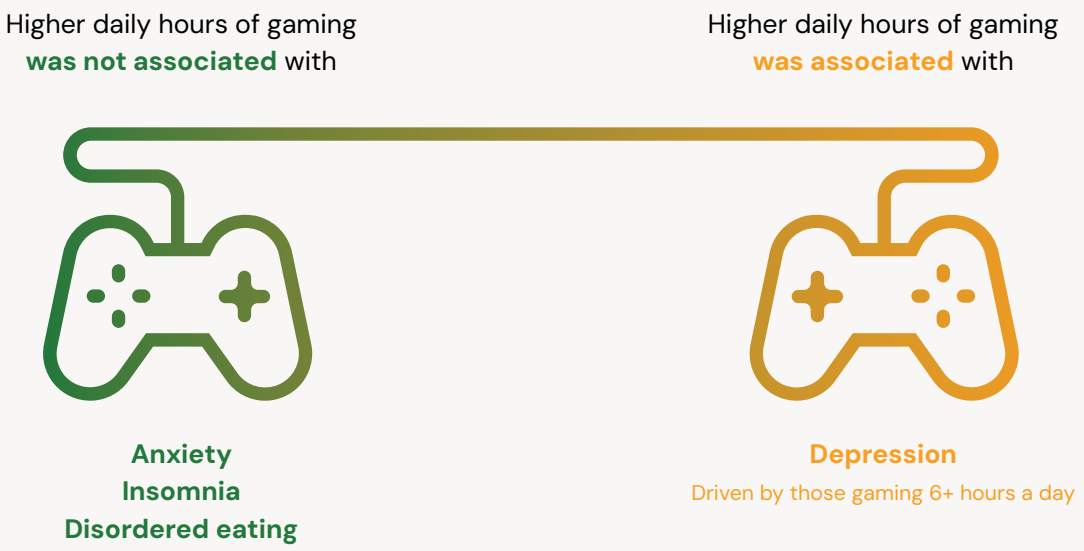


Figure 13. Association between daily hours spent gaming and mental health symptoms.

In this report, drawing on data collected in 2023 from 3,734 adolescents in years 10-12, we examined how many hours adolescents spend each day using screen-based devices, what activities they are engaged with during this time, and explored the cross-sectional relationships between patterns of screen use and mental health.

Our analyses showed that higher overall daily screen hours were associated with higher incidence of depression and anxiety. However, when we broke screen time down into different types of screen-based activities, a more complex pattern of results emerged.

Social interaction and mental health

Most notably, the use of screens to facilitate social connections was not associated with poorer mental health. In fact, using social media to communicate with people adolescents knew in real life was associated with lower symptoms of depression and anxiety. This was consistent with our findings about the popular social media app, Snapchat. Our analyses found no evidence of an association between higher daily hours spent using Snapchat and depression, anxiety, insomnia, or disordered eating. We hypothesise that this is because Snapchat is a messaging app primarily used by adolescents to stay in touch with their friends.

Further, when adolescents were asked to rate which activities were being displaced by their screen use, only 5% of the overall sample reported that their screen use displaced spending time with friends in real life, indicating that screen use is not significantly interfering with their in-person friendships. These findings align with other research that suggests adolescents' online and offline relationships exist on a continuum, rather than in a dichotomy [37].

Passive social media use and mental health

We found evidence to suggest that using social media to passively consume content was associated with higher mental health symptoms. Using social media more frequently to scroll or view other people's content was associated with greater symptoms of depression, anxiety, insomnia, and disordered eating. Likewise, higher daily hours spent on Instagram was associated with greater depression, higher hours on TikTok was associated with greater depression, insomnia, and disordered eating, and higher hours on YouTube was associated with greater depression, anxiety, and insomnia. These findings may be attributed to the design of these apps, which encourage users to passively consume content for long periods of time. For example, algorithms are used to deliver users targeted content, and features such as 'infinite scroll' are used to keep users engaged for long periods of time. Furthermore, these apps have been found to expose adolescents to a world of curated, performative, and idealised content [10], and in some cases, distressing or age-inappropriate content [38, 39].

Gaming and mental health

We found limited evidence of an association between gaming and mental health symptoms. Higher daily hours spent gaming was not associated with anxiety, insomnia, or disordered eating. These findings align with most research to date that show little evidence of an association between gaming and poorer mental health [40, 41]. While we did find that higher daily gaming hours were associated with depression, this association was driven by those adolescents gaming for 6 or more hours per day. As with all activities, there may be a 'sweet spot' or optimal balance with gaming. While gaming can provide benefits for most individuals, excessive playtime, particularly late into the night, can negatively impact sleep and next-day functioning [42]. This aligns with other studies which have found that heavy video game use was associated with more negative psychosocial adjustment, indicating a possible dosage effect [6].

A potential bidirectional link

It is important to note that these are cross-sectional analyses drawing on data collected at a single point in time. It is therefore not possible to infer the direction of these associations. Longer daily screen use or passive scrolling might not be causing greater mental health symptoms; it could be that individuals who are experiencing mental health symptoms are spending more time using screens, or they may be spending more time using screens to passively consume content on apps such as TikTok or YouTube.

Most likely, the association between screen use and mental health is bidirectional, meaning that mental health symptoms and screen use influence each other [43-46]. For example, if a young person is feeling down or stressed, they might spend more time on TikTok or YouTube to distract themselves. But the more time they spend on these apps, the more likely they are to encounter things that could make them feel even worse. And so, it could become a cycle where their mood affects their screen time, and their screen time affects their mood.

The complex relationship between screen use and mental health

Recent longitudinal studies investigating the association between screen use and adolescent mental health have reported a wide array of outcomes, including: weak negative associations [47-49], no associations [4, 17, 18, 32, 50, 51], weak positive associations [52-54], and mixed or complex results [24, 55-57]. This speaks to the complexity of the relationship between screen use and mental health.

In a recently submitted manuscript drawing on earlier data from the Future Proofing Study [32], the survey responses from 4,058 adolescents in Years 8-9 were analysed to investigate the cross-sectional and longitudinal associations between overall daily screen time and mental health symptoms over a 12-month period, considering the impact of maladaptive social media use and gender. While cross-sectional analyses showed significant associations between daily screen time and greater symptoms of depression and anxiety, these associations were not maintained over a 12-month period, with minimal long-term effects of screen time on depression and no significant effects on anxiety [32].

In summary, it is clear that a relationship exists between adolescent screen use and mental health, however, there is little conclusive evidence to demonstrate a causal link between adolescent screen use and poorer mental health [17, 32, 58]. The relationship between adolescent screen use and mental health is likely to be complex, nuanced, and multi-faceted [1].

What else do we know about screen use and adolescent mental health?

Adolescents are unique, use their screens for different purposes, and their online experiences are personalised due to algorithmically driven content. Consequently, the impact of screen use on adolescent mental health is highly individualised [24, 44, 45]. Despite this variability, research has identified several common themes which can provide valuable insights into the broader trends and effects of screen use among adolescents.

1. Age and gender do seem to matter

Developmental stage is relevant as younger adolescents often do not have the maturity and impulse control to regulate their screen use [59, 60]. Research also indicates that girls seem to be more susceptible than boys to the negative effects of social media on well-being [10, 13, 61]. Girls seem particularly susceptible when they are aged 11 to 13 years old, while for boys, it is when they are 14 to 15 years old [59]. These age ranges align with puberty and psychological changes in self-identity, and excessive social media use during these periods may be linked to lower self-worth [62].

2. Certain online activities can exacerbate mental health symptoms
Specific online activities may exacerbate mental health symptoms in adolescents, particularly in those who are already vulnerable. Some examples of these activities include:
Upward social comparisons (comparing oneself to others who are seen as superior, or more successful in some way) is common among adolescents, particularly girls, where the focus of the comparison is body image, material objects, or lifestyle [8, 15, 63]. For example, an experimental study found that adolescent girls who viewed digitally altered photos of girls' faces and bodies on Instagram reported having poorer body image compared to those who saw the original, unaltered photos [64]. In addition, young people with anxiety and/or eating disorders engage in more social comparisons than those without these conditions, and depressed adolescents report more unfavourable social comparisons on social media compared to their non-depressed peers [65].
Exposure to age-inappropriate or distressing content, which is easily accessible to adolescents online. Algorithms on social media apps have been shown to increase exposure to psychologically harmful content to susceptible individuals [58, 66] which is often related to disordered eating [58, 63], self-harm [60, 63], extremist ideas [67], and prejudice or discrimination [8]. In a large US study, girls reported that they mostly came across age-inappropriate or negative content on TikTok (38%) and less often on Snapchat (20%), YouTube (19%), and Instagram (16%) [8].
'Availability stress' (the social pressure to stay continually connected and available on friend and peer chat groups) can be particularly intense during adolescence [8, 25]. This 'hyperconnectivity' [68] has been particularly reported by girls, with findings that nearly one in three girls reported availability stress on Snapchat (30%) and messaging apps (28%), compared to lower rates on Instagram (23%), TikTok (21%), and YouTube (11%) [8]. This is potentially associated with compulsive use of screen-based devices (73) which can lead to addictive behaviours, withdrawal symptoms, and disruptions in daily functioning, at a time of significant neurobiological change where adolescents have heightened stress sensitivity and reactions to reward processing [65].
Infinite scrolling and excessive amounts of time spent on screens has the potential to displace other healthy and important activities including learning, social interaction, sleeping, and physical activity [69].
Online bullying [70] is a significant risk associated with social media use particularly given adolescents' developmental focus on social identity and inclusion. In one study, online bullying was especially common on Snapchat (37%) and Instagram (24%), relative to TikTok (14%) and YouTube (8%) [8].
Posting intimate or sexual images, videos or messages via screen-based devices is relatively common among adolescents exploring their sexuality and relationships, and can lead to significant emotional distress, feelings of shame and anxiety, particularly if these images are shared without consent, or used for online bullying [71-73].
The impact of screen use on sleep is significant given the established link between disturbed sleep and mental health problems [27, 28].

3. Online social connectivity offers adolescents opportunities to enhance well-being
Research has identified that online connectivity is beneficial to many adolescents when it functions to:
Encourage and strengthen existing offline relationships, helping adolescents to understand their friends' feelings better, and to feel more connected to their friends, especially amongst those who perceive their offline friendship quality to be high and who are readily accepted by their peers [1, 37, 74].
Reduce social anxiety [75] and improve sociability, making social engagements easier for some adolescents who find peer interactions difficult [1, 70, 76] .
Facilitate contact with family and friends living far away, hence maintaining and nurturing these relationships [60].
Enable connections with like-minded people locally and worldwide, reducing social isolation and loneliness [68, 77].
Provide opportunities for safe (often anonymous) selective self-disclosure [70], identity experimentation, and authentic self-presentations [25], reported especially by marginalised young people [8, 78, 79]. Related to this, many adolescents report that they feel more comfortable sharing personal matters online rather than face-to-face [76].
Support mental health. A number of studies have found that adolescents who experienced symptoms of depression turned to the internet for help and peer support [1, 25, 80], reporting that they found multiple educational resources about mental health readily accessible [1] and rapidly disseminated online [25]. Further, online forums have reportedly assisted adolescents to overcome their fears of seeking professional help, partly because they received reassurance from others who shared that getting help had contributed to their recovery [81]. Online access to mental health support improves health inequities, offering adolescents in remote and under-served communities access to digital mental health care and support networks [68].

In conclusion, screen use may act as an amplifier for existing vulnerabilities [14, 15], and adolescents can be impacted in both positive and negative ways online, even at the same time [8, 12, 82]. Further research is required to understand the nuances of the relationship between adolescent screen use and mental health [58, 60], with a focus on the interactions between different types of online activities, the individual and social circumstances of the user, and the particular developmental sensitivities of adolescence that increase risk for mental health conditions in the first place [65].

From individuals to platforms

Considering the central role screen use plays in young people's lives, it is crucial that adolescents are supported to navigate the online world of screens safely and positively. Potential interventions can be broadly categorised as:

- Individual approaches: for adolescents, parents/carers, and others who provide care and education for adolescents such as schools and health professionals.
- Systemic approaches: for technology companies, who can shape their platforms to prioritise youth well-being over engagement, and government, who can legislate and enforce this.
- Recommendations for both individual and systemic approaches are outlined below.

1. Recommendations for parents and carers

Balance online and offline activities

- Agree on technology boundaries at home (e.g., at mealtimes and bedtimes) [43].
- Promote alternative offline activities like sport, hobbies, and in-person social engagements [14, 44] .
- Prioritise and role model physical activity and good quality sleep (8-10 hours of sleep each night with consistent sleep-wake schedules) [35, 43, 83].
- Role model healthy screen use.

Continuously educate

- Learn and provide education for children and adolescents about the persuasive design of social media including algorithms and their possible influence on self-image, e.g., upward social comparisons [44].
- Encourage adolescents to critically analyse the sources of their information and discuss alternative perspectives, particularly on divisive issues.
- Be proactive about addressing sensitive topics such as online pornography, extremist material, body image, or self-harm content.

Mentoring, not monitoring

- Recognise the positives in adolescents' screen-based activities [14, 37, 44].
- Consider adolescents' online social connections to be as important as their offline connections.
- Connect with children and adolescents online and take an interest in what they are doing, e.g., playing video games or watching content together [43].
- Check in with adolescents regularly about their positive and negative online experiences.

2. Recommendations for schools

Provide digital literacy education

- Create continuous education for staff about the latest screen-based trends, tools, potential risks and benefits.
- Provide up-to-date K-12 education about ways to deal with cyberbullying, impact of digital footprints, respectful online communication, the persuasive techniques of algorithms, manipulation of images, how to refrain from social comparisons online, and the ways in which screens can enhance learning and well-being [84-87].

Provide support

- Create an environment where students feel comfortable to seek help if they encounter difficult issues online.
- Consider peer mentorship programs where older students guide younger students to navigate the digital world safely and responsibly.

Encourage critical thinking

- Discuss media bias, the reliability of courses, and the importance of fact-checking as a focus embedded across all subjects.

3. Recommendations for policy makers and technology companies

Policy co-design

- Any policy that aims to protect young people on social media should be co-designed with young people while also consulting broadly with parents and other caregivers, educators, mental health experts and youth organisations. It is critical to acknowledge that effective policy is the result of genuine co-design that values the importance of young people's experiences, agency, and voice in the development of policies that impact them.

Safety-by-design

- Mandate safety-by-design principles for social media platforms and use them to limit features such as infinite scroll, while requiring default safety settings for users under age 16. Conduct regular independent audits to ensure compliance, with penalties for noncompliance.

Algorithmic transparency

- Require that social media companies provide regular transparency reports on content being served by their algorithms to Australian users, similar to the transparency reports available in the United States. Provide real-time Application Programming Interface (API) access to Australian public health researchers to assist them to monitor and analyse the impact of algorithms on mental health and well-being.

User control

- Require social media companies to provide easily accessible features for users to customise their own feeds. Support these changes with an industry-funded campaign, tailored to the Australian market, to increase awareness of content customisation features and how to use them.

Verification of health content

- Require social media companies to collaborate with Australian health and mental health organisations to establish a model for verification of trusted evidence-based content, including content about self-harm, suicide and eating disorders, and to ensure that verified and evidence-informed health content is boosted and labelled.

Increase access to digital literacy education

- Fund and support regularly updated, comprehensive digital literacy research and educational programs for schools and communities.

Final note

Over the coming years, further data collected via the Future Proofing Study will allow for more nuanced and complex longitudinal analyses examining the impact of screen use on adolescent mental health over time. These findings will be made available as soon as possible. In the interim, it is intended that the findings in this report enhance early understanding of adolescents' screen use and mental health and inform the direction of future research in this area.

Resources

For families

https://www.esafety.gov.au/parents

https://schools.au.reachout.com/resources-for-parents-and-carers

For schools

https://www.esafety.gov.au/educators

https://schools.au.reachout.com/social-media

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