



2 | Depression in adolescents



It has become increasingly clear that rates of depression among adolescents are rising. In this section, we examine how adolescents' lives have changed over the past 2 decades. Next, we use new data from Australia's largest study on adolescent mental health, the Future Proofing Study, to better understand what aspects of adolescents' modern lives might be driving rising rates of depression.

Adolescence as a time of growing social and emotional independence

Adolescence, the period between the ages of 10 and 19 (World Health Organization), is a time of significant physical, psychological and social development. It is also a time marked by a sharp rise in the onset of depression. When depression occurs during the teenage years, it can have a host of adverse consequences that derail a young person's academic, social and emotional development. For example, adolescents with depression miss up to 20 days of school each year (Lawrence et al., 2019), and are more likely to have poor quality friendships compared to those without depression (Field et al., 2001; Schwartz-Mette et al., 2020).

How has adolescence changed?

Adolescence has changed in many ways in the past 2 decades. How are these changes influencing adolescents' risk and resilience against depression? Data from around the world suggests that adolescents are taking longer to reach adult milestones. For example, fewer Australian adolescents are obtaining their driver's licence these days relative to previous decades (Household, Income and Labour Dynamics in Australia). This kind of change has occurred alongside similar declines in the number of adolescents working in paid roles, going out without their parents, having romantic relationships, and drinking alcohol ([Twenge & Park, 2017](#)).

Alongside a slower progression through adult milestones, there has been a concurrent rise in adolescents' exposure to adult (or at least developmentally inappropriate) content through digital media, particularly with the ongoing growth of social media platforms ([Uhls et al., 2017](#)). Almost two-thirds of adolescents report exposure to online content that depicts suicide, self-harm, drug taking, pornographic content, or violent material ([eSafety Commissioner, 2022](#)). Together, these factors paint a picture of modern adolescence as a time of fewer opportunities for practising maturity and independence in day-to-day life, coupled with increasing exposure to mature content in the digital world.

Next, we highlight how these changes may be coinciding with changes in key risk factors for depression.

Technology and changes in social interaction

Adolescence is considered a critical period for social development ([Blakemore & Mills, 2014](#)). Peer relationships become increasingly important during the teen years and poor peer relationships increase risk for depression ([Schwartz-Mette et al., 2020](#)). With the introduction of the iPhone in 2007, there has been a significant change in how adolescents socialise and engage with their peers relative to previous decades. Recent estimates indicate that adolescents spend, on average, 14.4 hours each week online ([eSafety, 2021](#)), and approximately one-third of teenagers now spend an equal amount of time interacting with their peers online as they do in person ([Rioseco & Vassallo, 2021](#)).

Online platforms offer adolescents a wide range of opportunities for social interaction, including chat groups, sharing and viewing video content, and social games. Adolescents from traditionally marginalised groups, such as those who identify as gender or sexuality diverse, report significant benefits in terms of finding supportive online communities and the ability to connect with other like-minded people ([Hanckel & Chandra, 2021](#)). For example, adolescents in these minority groups have been found to use online networks to explore their identities and engage with others in the community ([Charmaraman et al., 2021](#)). Furthermore, the internet has become the third most common place that adolescents experiencing psychological distress turn to for help, after friends and family ([Brennan et al., 2021](#)). These benefits make online forms of communication a critical new tool for helping adolescents form meaningful social connections and a support network they can tap into.

However, not all forms of online social interaction are beneficial. Four in 10 adolescents report having had negative online experiences with peers or people they don't know. These include being contacted by a stranger; receiving inappropriate, unwanted sexual or violent material; being deliberately excluded from social events or groups; receiving online threats or abuse; and having things said online to damage their reputation (eSafety, 2021). In approximately one-third of cases, these negative online experiences were an extension and amplification of bullying that occurred at school, and this was more common in younger (under 14) adolescents (eSafety, 2021).

Although online social interaction provides adolescents with many benefits to expand their social support networks, unmonitored technology access – particularly among younger adolescents – may also expose them to harmful interactions that increase their risk for mental health problems such as depression.

A rise in adolescent loneliness

Data from the Young Australian Loneliness Survey indicates that 1 in 6 Australian adolescents experience problematic levels of loneliness, and that those who do are more likely to experience depression (Lim et al., 2019). Some have speculated that the shift toward digital forms of communication may have displaced face-to-face interaction among adolescents (Foulkes & Blakemore, 2021), leading to detrimental impacts on their mental health. Although we lack comprehensive data on the relationship between online social interaction and loneliness in Australian adolescents, data from the United States provides some clues as to the nature of this relationship. Specifically, findings from nationally representative adolescent groups showed that loneliness increased significantly between 2010 and 2017. Importantly, adolescents were found to have higher levels of loneliness if they had higher levels of social media use, but only if this was coupled with low levels of in-person social interaction (Twenge et al., 2019). These findings suggest that online social interaction alone may not be problematic. Rather, online social interaction may become a risk factor for loneliness and depression for adolescents who also have low levels of face-to-face peer interaction.

Disruptions in sleep

Sleep disturbances and depression often occur together in adolescents (Lovato & Gradisar, 2014). Worryingly, adolescents today are less likely to get sufficient sleep at night, with findings from a large adolescent cohort study in the United Kingdom showing that, on average, the proportion of adolescents getting fewer than the recommended 8 hours of sleep a night increased from 5.7% in 2005 to 11.5% in 2015 (Patalay & Gage, 2019). Sleep disturbances appear to be more common in adolescent girls than in adolescent boys (Hysing et al., 2013), although the reasons for this are not well understood.

Among the many possible explanations for insufficient sleep among adolescents is that an increase in digital media use, particularly at night, may be interfering with adolescents' sleep. Indeed, observational studies across multiple countries show that greater amounts of screen time are associated with a range of adverse sleep patterns in adolescents, including later bedtimes, difficulty falling asleep, and difficulty staying asleep (Hale et al., 2019). Although these correlational studies appear compelling, studies that have directly manipulated adolescents' screen use and then measured sleep patterns have not consistently found evidence for a direct causal link (Hale et al., 2019). This suggests that the association between screen time and poor sleep is more complex than it appears.

Concerns about a threatened future

Finally, several environmental and socioeconomic factors have converged in recent years in a manner that may be heightening adolescents' concerns about their future. Climate disasters like bushfires, floods, and extreme weather events are increasing in frequency ([Commonwealth Scientific and Industrial Research Organisation, 2020](#)). When asked directly, 78% of young Australians report that they are concerned about climate change but only 13% feel that they are listened to by leaders in government ([Australian Institute for Disaster Resilience, 2020](#)). A recent Australian study found that adolescents with persistent climate change worries throughout adolescence had worse depression symptoms at age 18–19 years ([Sciberras & Fernando, 2022](#)).

Changes in the labour market over recent decades have also meant that young people face increasingly tough competition for places at university ([Australian Government, 2021](#)) and for entry-level jobs ([Anglicare Australia, 2021](#)). This has coincided with increased pressure on adolescents to succeed academically in high school. Nearly half of Australian school students report feeling very stressed when they study, and 67.5% reported feeling very anxious even if they were well prepared for a test – this is substantially higher than the OECD average of 55.5% ([Organisation for Economic Co-operation and Development, 2017](#)). These levels of stress were exacerbated during the COVID-19 pandemic, when approximately one-third of students reported that the stress of study was so bad that it was having a major impact on their mental health ([ReachOut, 2021](#)).

When taken together, all these factors converge to suggest that a more uncertain future may play a role in adolescents' risk for depression.

In the previous part of this section we considered how the lives of adolescents have changed in recent years, and whether such changes may have increased risk factors for depression. In the following section we will look at data on the prevalence of adolescent depression to determine how it has changed over time.

Depression prevalence in adolescents

International epidemiological data indicates that adolescent depression has been on the rise over the past 2 decades

Depression is almost 3 times as common in adolescents as it is in children, with the most recent Australian estimates from 2013–14 indicating a prevalence of approximately 5% (Lawrence et al., 2015).

Worryingly, rates of adolescent depression appear to be increasing over time. The most recent data from the United States shows that, between 2008 and 2020, the percentage of adolescents aged 12–17 who reported having experienced at least one major depressive episode in the past 12 months more than doubled, from 8.3% in 2008 to 17.0% in 2020 (Figure 1). This increase was especially pronounced among adolescent girls.

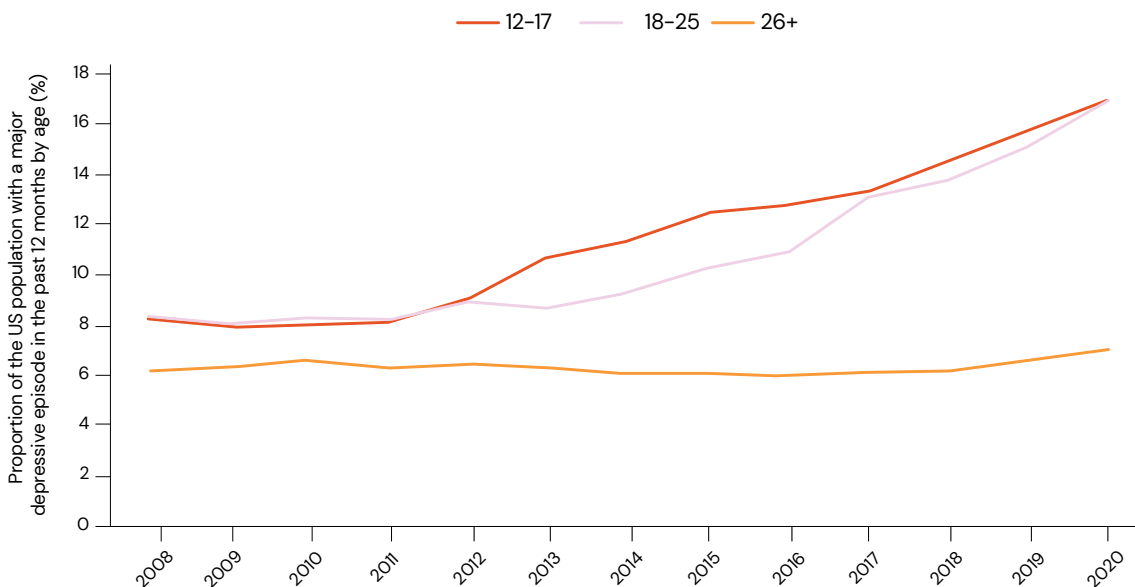


Figure 1. Proportion of the US sample that had experienced a major depressive episode in the past 12 months from 2008–2020, grouped by age.

Data sources: US Substance Abuse and Mental Health Services Administration.

Although we lack year-by-year data on adolescent depression in Australia, there is a similar pattern for rates of hospitalisation due to intentional self-harm – which can be an indirect indicator of depression (Figure 2). Adolescents themselves recognise the rising burden of mental health conditions, describing mental health as being among their top concerns (Brennan et al., 2021).

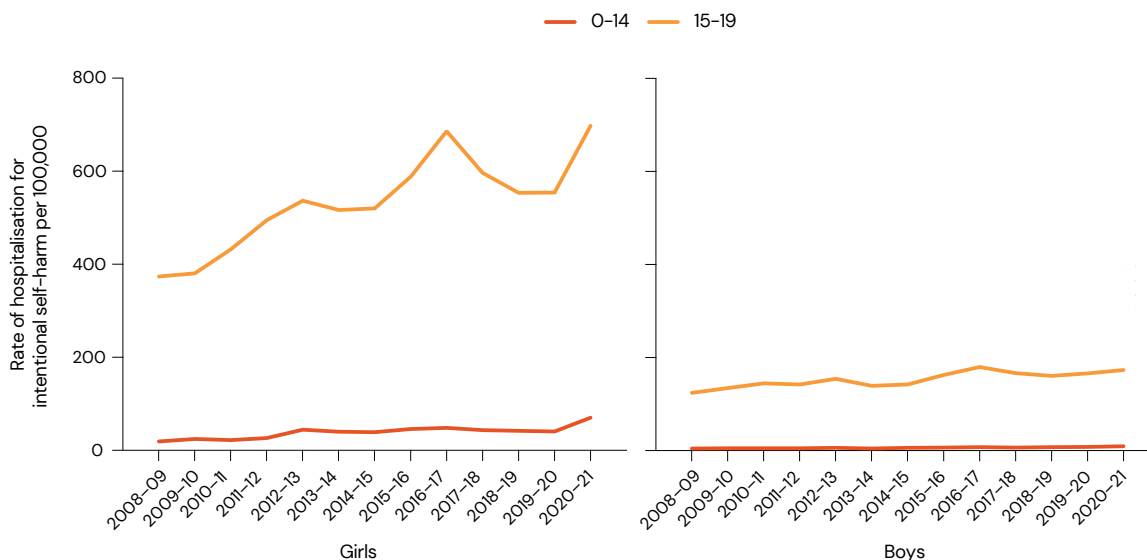


Figure 2. Rate of hospitalisation for intentional self-harm from 2008 to 2020–21 among girls (left) and boys (right) under age 20.

Data source: Australian Institute of Health and Welfare 2020–21 National Hospital Morbidity Database – Intentional self-harm hospitalisations.

There is also evidence to suggest that this steady increase in the prevalence of adolescent depression is overlaid by another more rapid increase in the severity of depressive symptoms among adolescents since the COVID-19 pandemic. Rates of clinically significant symptoms of depression among adolescents doubled globally during the initial wave of COVID-19 (Racine et al., 2021). This increase has been mirrored in data from Australian adolescents, with 19.4% of girls and 7.8% of boys aged 13–14 years reporting clinically significant depressive symptoms during 2020 and 2021 (Werner-Seidler et al., 2022).

In the first part of this section, we showed evidence that the prevalence of depression diagnoses (US data), as well as the prevalence of the severe consequences of depression, such as intentional self-harm (Australian data), have been increasing in adolescents since about 2011–12. In the next part of this section, we use new data from Australia’s largest study on adolescent mental health to understand whether the factors discussed earlier in this section (screen time, loneliness, sleep disruption and concerns about the future) are associated with depression among adolescents.

New insights from the Future Proofing Study

In 2019, the Black Dog Institute launched the Future Proofing Study, which is now the largest and most comprehensive cohort study of adolescent mental health in Australia. The study was designed to advance knowledge about the risk and protective factors associated with the onset of adolescent depression, anxiety, and other mental health conditions. A total of 6,388 high school students from 134 Australian schools are participating, with cohort demographics representative of the Australian adolescent population (Werner-Seidler et al., 2022).

Students complete annual questionnaires covering a comprehensive range of topics, including mental health, wellbeing, quality of life, resilience, sleep, schooling, peer relationships, bullying, technology use, early life experiences, and puberty. Students commenced the study when they were in Year 8 (mean age 13.9 years) and will continue to be followed up annually at school for 5 years.

In this report, we use baseline data from Year 8 students who took part in the study to better understand the factors that may be linked to rising rates of depression in adolescents. This data was collected between August 2019 and March 2022.

Proportion of adolescents with clinically significant symptoms of depression

In the Future Proofing Study, symptoms of depression were measured using the Patient Health Questionnaire for Adolescents or PHQ-A (Johnson et al., 2002), which is a widely used depression assessment tool. To determine clinically significant symptoms of depression, we used scores reflecting moderately severe symptoms or higher.

Across the sample, 15.1% of adolescents reported clinically significant symptoms of depression, with the proportions being significantly higher in girls (19.1%) compared to boys (7.6%). Approximately 12.5% of the sample identified as gender and/or sexuality diverse. Alarming, the rate of depression was significantly higher in these groups, with 43.5% of sexuality diverse adolescents, and 58.9% of gender diverse adolescents showing clinically significant symptoms of depression (Figure 3).

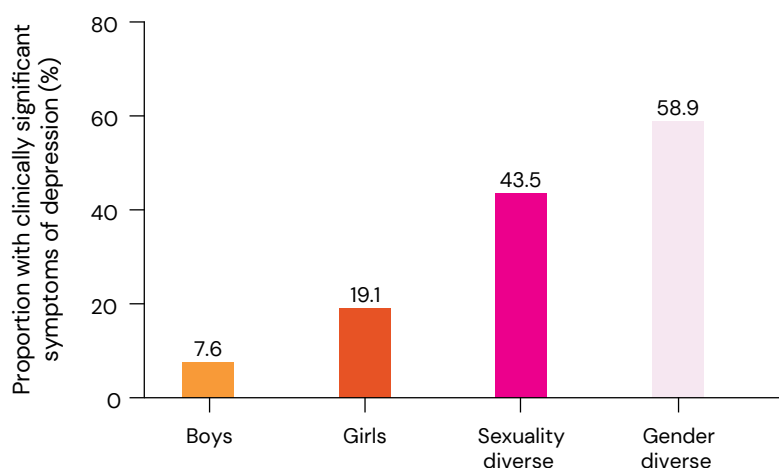


Figure 3. Proportion of Year 8 adolescents in the Future Proofing Study sample who reported clinically significant symptoms of depression on the PHQ-A.

A picture of the severe consequences of depression in adolescents

We examined the association between symptoms of depression and the severe consequences of depression, including self-harm, suicidal ideation, and suicide attempts in the past 12 months. We also examined the impacts of depressive symptoms on daily activities like being able to do schoolwork, participate in social and physical activities, and perform basic self-care tasks like showering and getting dressed.

The presence of clinically significant symptoms of depression was associated with a marked increase in rates of intentional self-harm (over 4 times the rate of non-depressed adolescents), suicidal ideation and suicide attempt in the past 12 months (both over 10 times the rate of non-depressed adolescents).

Adolescents with clinically significant symptoms of depression also showed greater difficulty with daily functioning. When compared with non-depressed adolescents, depressed adolescents were 3 times more likely to have difficulty participating in schoolwork and social and physical activities, and were 5 times more likely to have difficulty performing daily self-care tasks.

Further analyses showed that, among depressed adolescents, girls were significantly more likely to engage in intentional self-harm than boys, although depressed boys and girls did not differ in likelihood of suicidal ideation or suicide attempt (Figure 4).

Among depressed adolescents, no gender differences were found in functional impairments related to schoolwork, participation in activities, or in daily self-care.

In contrast, gender and sexuality diverse adolescents who were experiencing symptoms of depression showed significantly higher rates of self-harm, suicidal ideation, suicide attempt, and functional impairment related to schoolwork, participation in activities, and daily self-care, than cisgender and heterosexual adolescents who were experiencing depression.

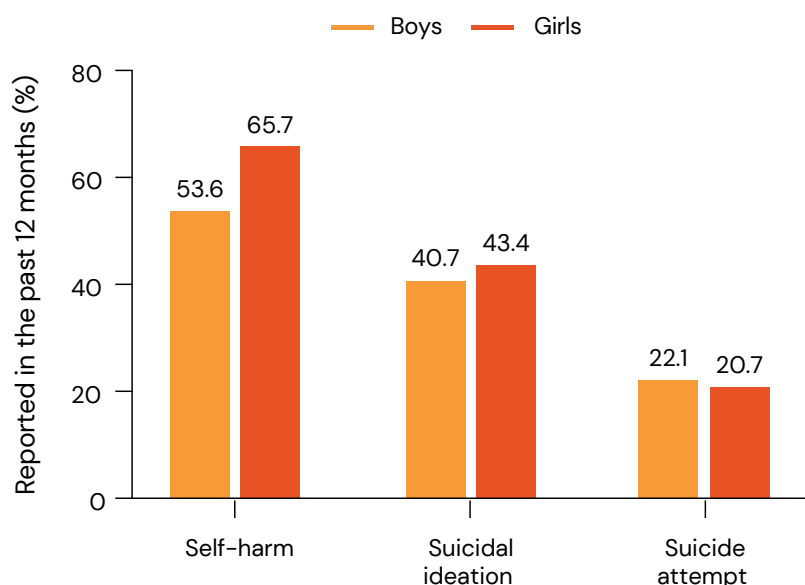


Figure 4. Proportion of adolescents with clinically significant symptoms of depression who reported self-harm, suicidal ideation, or a suicide attempt in the past 12 months. A greater proportion of adolescent girls than boys engaged in self-harm in the past 12 months.

Association between adolescent depression and screen time

We found that screen time and symptoms of depression were closely linked, with more screen time being associated with higher rates of clinically significant symptoms of depression in adolescents, and a more pronounced association evident in girls (Figure 5).

Our data showed that, compared to adolescent boys, a greater proportion of adolescent girls engaged in high levels of recreational screen time (4 or more hours a day).

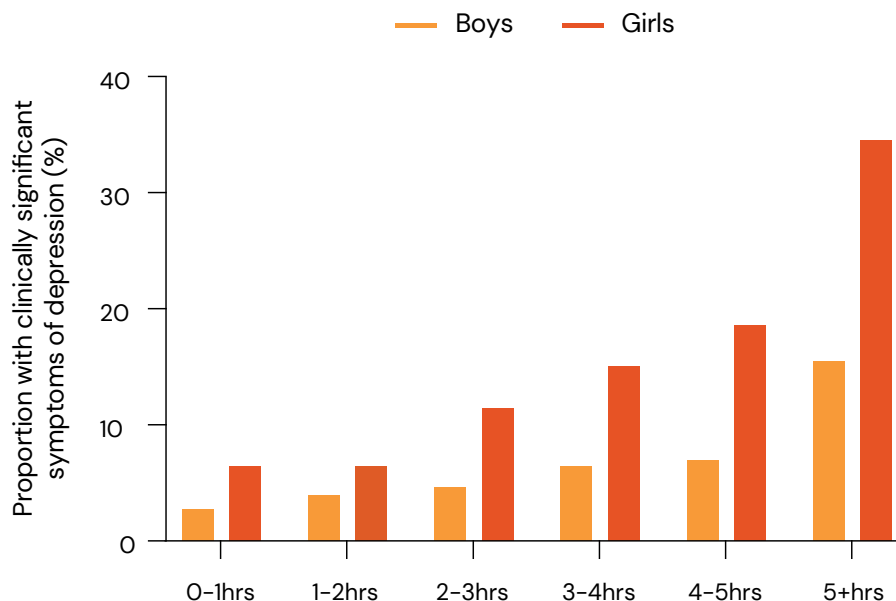


Figure 5. Proportion of adolescent boys and girls with clinically significant symptoms of depression (PHQ-A) plotted according to the average number of daily hours they spend on screen time. The relationship between greater amounts of screen time and depression was stronger for girls than boys.

What explains the stronger relationship between screen time and depression in adolescent girls?

Negative social evaluation from social media use?

One mechanism by which screen time may lead to greater depression in girls is through feelings of negative social evaluation associated with social media use. To explore this idea, we asked adolescents to rate the extent to which they experienced these feelings when using social media (e.g., *When I update my social media and no one comments on it, I tend to be disappointed*). We then evaluated whether increased negative social evaluation explained the stronger link between screen time and depression in girls.

We found evidence of a clear linear relationship between increasing levels of screen time and negative social evaluation in girls but not in boys. This emerged with as little as 1 hour of screen time a day for girls but was only evident at the highest levels of screen time (5+ hours a day) for boys.

However, further analyses showed that the stronger relationship between screen time and depression in girls remained, even when controlling for negative social evaluation associated with social media use. Feelings of negative social evaluation did not fully explain why screen time was more strongly linked to symptoms of depression in girls than in boys.

Erosion of positive social support networks?

Having a strong social support network to turn to during challenging times can protect adolescents from experiencing mental health difficulties. There is some evidence to suggest that, for girls, social support may play a more prominent role in mental health than it does in boys. For example, on average, women more readily use social support as a means of coping with mental health problems (Kelly et al., 2008) and girls are more likely than boys to experience depression due to interpersonal or social stressors (Hankin et al., 2007). At the same time, research has suggested that online interactions, even with close friends, are less intimate and meaningful than in-person interactions (Scott et al., 2022). It is therefore possible that girls might be more negatively affected by increased screen time because of how it changes their patterns of social interaction.

We examined three separate aspects of adolescents' social support networks that tapped into both positive and negative social interactions: positive support from friends, negative peer interactions, and loneliness. Our analyses showed that all three social factors were associated with screen time in both boys and girls. We also found that these social factors were associated with depression severity in both genders; however, associations were significantly stronger in girls.

Nevertheless, we found that the stronger link between screen time and symptoms of depression in girls remained significant, even when we controlled for these social factors. This indicates that social factors do not by themselves explain why higher levels of screen time are more strongly linked to depression in girls.

Cyberbullying?

Cyberbullying involves repeated hostile or aggressive acts online by an individual or group of individuals that is designed to harm others (Tokunaga, 2010). Increased time spent online puts adolescents at greater risk of experiencing cyberbullying (Zhu et al., 2021), and cyberbullying has a bidirectional relationship with depression; targets of cyberbullying often experience increasing depression, while those with depression are also more likely to engage in cyberbullying. Prior evidence suggests that girls are more likely than boys to be the target of cyberbullying (Eyuboglu et al., 2021). Accordingly, higher levels of screen time may be more strongly associated with depression in girls as it increases their likelihood of exposure to cyberbullying.

We found that increased screen time was associated with a greater likelihood of being the victim of cyberbullying, and that a higher proportion of girls (22%) than boys (15%) reported being the target of cyberbullying in the past year. Further, cyberbullying was associated with more severe symptoms of depression in girls compared to boys.

However, the stronger relationship between screen time and depression in girls remained even when controlling for rates of cyberbullying. That is, even if we removed the effects attributable to cyberbullying, there was still a stronger association between screen time and depression in girls.

Detrimental impacts on sleep?

Increased screen time has a negative impact on adolescents' sleep. In turn, sleep disturbances are a risk factor for depression in adolescents (Lovato & Gradisar, 2014). Accordingly, one possibility we considered is that higher levels of screen time may increase risk for depression to a greater degree in girls compared to boys because of differences in sleep.

To assess sleep difficulties, we asked adolescents whether they regularly had difficulty falling asleep or staying asleep. We found that a greater proportion of adolescents with high levels of screen use reported sleep problems than those with lower levels of screen use. We also found that a greater proportion of girls compared to boys had sleep difficulties.

Although sleep disturbances were associated with greater levels of depression across the sample, these were not more strongly associated with depression in girls than in boys. Further, even when controlling for sleep disturbances, the stronger link between higher levels of screen time and depression in girls remained. This indicates that sleep disturbances do not explain the stronger association between screen time and depression in girls.

If not these factors, then what? Some alternative explanations

In this section so far, we have examined several likely factors that could explain why screen time may disproportionately influence depression in girls. Our analyses show that none of these proposed factors, by themselves, fully explain the stronger links between the higher levels of screen time and depression that were observed among girls compared to boys. Simply quantifying screen time as a single measure of adolescents' online behaviour also limits any conclusions that can be drawn about healthy and unhealthy patterns of digital media use.

Another explanation to consider is whether the association between screen time and depression occurs in the opposite direction to what is typically assumed. That is, rather than being a consequence of higher levels of screen time, depression may actually lead adolescents to engage in higher levels of screen use. Digital technologies can have a powerful influence over our emotional state (both good and bad), and an emerging body of evidence suggests that adolescents may use digital technology as a means of regulating their emotions (Wadley et al., 2020). For adolescents who use digital media to play games or to actively engage with friends online, turning to digital technology as a means of regulating negative emotions may be an effective strategy. However, for adolescents who use digital technology in a more passive way (e.g., scrolling through images on Instagram), this strategy may be less effective in helping them regulate their emotions, and may in some cases make them feel worse, putting them at increased risk for depression. This is a hypothesis we will examine in detail as the Future Proofing Study progresses, with longitudinal data allowing us to explore causality in these relationships over time.

What do adolescents themselves say about their concerns?

Finally, we examined adolescents' top self-reported concerns by asking them: 'What issues are concerning you at the moment? These could relate to you, your community or the world. You can list up to three.'

Over 10,000 valid responses were received, which fell into the following top 6 categories:

1. School and academics (e.g., falling behind in schoolwork; getting bad grades)
2. COVID-19 (e.g., sport stopping again because of COVID; worried my grandparents will get the virus)
3. Social relationships (e.g., I feel like I don't fit in; being judged by my friends; people bully me)
4. Mental health and wellbeing (e.g., how my anger gets out of control; the pain in my chest due to anxiety; my parents being disappointed in me)
5. Family and home life (e.g., my family arguing and falling apart; my parents are stressed because they are running out of money)
6. Environment, society, and the world (e.g., climate change; overpopulation; poverty)

Overall, top concerns did not differ substantially between girls and boys, between adolescents from different geographic locations, or between adolescents attending different types of schools. Although school-related concerns topped the list overall, for depressed adolescents, the top concerns were more often about mental health and social relationships. This may indicate that, in the school context, providing support around peer relationships is more important for students experiencing depression. Unsurprisingly, top concerns also included COVID-19, as well as big-picture concerns about the environment, society, and politics. This likely reflects the growing political and environmental awareness in young adolescents today.

Perspective from the Black Dog Institute Youth Advisory Group

The Youth Advisory Group represents young people (aged between 12–25) who provide a valued and consistent voice to research projects focusing on youth populations at the Black Dog Institute. Each member has their own lived experience of mental health challenges. The group brings insights from their diverse experiences, not only from age, but also in cultural backgrounds, locations (including rural and remote areas), abilities and aspirations.

As a group of young people with lived experience of depression, we see that the influences, obstacles, and opportunities are broad.

High on the list of negative impacts on young people living with depression are things beyond our immediate control: the isolation of the COVID-19 pandemic; widespread misinformation and negative commentary about mental health on social media; a daily influx of bad news; and long waiting times to access support.

Finding solutions

We need a rapid reduction in barriers that are preventing access to care. This can only be done if there is more funding directed toward improving service delivery.

The time spent waiting to see a health professional is hugely distressing. We need reduced fees to ensure equity of access, increased funding to employ more healthcare workers, and shorter waiting periods to get help. We need standardised practices for young people, for them to be given resources and support while they wait to be seen by a medical professional. Even online interventions, or brief check-in calls, would go a long way to reducing distress while waiting for services.

Current approaches to service intake, which often involve categorising a young person's risk of causing harm to themselves or to others, are also unhelpful. Young people often fall through the cracks if they are assessed as being at a low level of risk when they first reach out for help. This means they don't get access to help until much later, and their distress becomes more severe. A more holistic approach to risk categorisation should be considered. This includes looking at functional impairment in addition to safety risks.

Schools are a vital part of the solution. Adolescents spend most of their time at school, which makes schools and peer groups one of the first places they turn to for support. More resourcing should be provided to schools to manage students' wellbeing. Importantly, we want to see a focus that extends beyond current counselling priorities, which frequently focus on completing schoolwork instead of providing holistic support. Young people would also benefit from more training in how to support their friends, including how to acquire the knowledge and skills to manage conversations about mental health.

It is also time to consider social media safeguards to limit the spread of false information about mental health. We saw how fact checks could work for information about COVID-19 vaccination, and how social media navigation guides were applied. Mental ill-health is the new pandemic, and it is an issue that deserves the same attention.

Building up a supportive sense of community and belonging offline is a key protective factor against depression. This face-to-face community has been significantly disrupted by social isolation during the COVID-19 pandemic. Investing resources in helping young people build connections within their communities is critical. This maximises the chances that if they do find themselves in need of support, there will be someone they feel they can turn to for help.

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