

Written evidence submitted by CLOSER, UCL

1. About us:

1.1 CLOSER, the home of longitudinal research¹, is the UK's partnership of leading social and biomedical longitudinal population studies and works to increase their visibility, use and impact. Our partner studies² comprise national and regional studies from across the UK. CLOSER partner studies include the British Birth Cohort Studies, ONS Longitudinal Study, Millennium Cohort Study, the Longitudinal Studies of Young People in England, Growing Up in Scotland, the Avon Longitudinal Study of Parents and Children, Understanding Society – the UK Household Longitudinal Study, and more.

1.2 CLOSER has been funded by the UKRI Economic and Social Research Council (ESRC) since 2012 and is based at the UCL Social Research Institute.

2. Our reason for submitting evidence:

2.1 CLOSER represents multiple longitudinal population studies across the UK. These national scientific assets follow the same people and households over time, often from birth, collecting a wide array of data and information about study participants, which enable researchers and policymakers to explore people's complex lives and how changes in society affect health, community and education. CLOSER's strategic position in the research landscape and birds' eye view of the UK's longitudinal population studies makes it an ideal vehicle for identifying and communicating evidence to inform policy.

2.2 The UK's longitudinal population studies are recognised as vital sources of evidence on how early circumstances and experiences affect young people, providing insights into individual short and long-term change and the relationship between different elements of people's complex lives that cannot be obtained from any other data sources. They allow researchers to explore how different groups vary, and how and why people's lives change, enabling a greater understanding of the difference between causal relationships and correlation.

2.3 Several UK longitudinal population studies collect data about the lifestyles of young participants, including on screen time, social media use, and gaming. Data from longitudinal population studies has been used in research assessing the impact of screen time on development and wellbeing, including:

- Understanding Society³
- The Millennium Cohort Study (MCS)⁴
- The Avon Longitudinal Study of Parents and Children (ALSPAC)⁵
- Growing Up in Scotland (GUS)⁶

¹ <https://www.closer.ac.uk>

² <https://www.closer.ac.uk/timeline/>

³ <https://closer.ac.uk/study/understanding-society/>

⁴ <https://closer.ac.uk/study/millennium-cohort-study/>

⁵ <https://closer.ac.uk/study/alspac-children-90s/>

⁶ <https://closer.ac.uk/study/growing-up-in-scotland/>

2.4 Research using these studies' data has investigated the impact of screen time on child and adolescent mental and physical health, as well as how different levels and types of screen time are reflected in behavioural and educational development. Evidence from longitudinal population studies has proven particularly helpful in understanding the effects screen time usage in childhood can have as individuals grow into adolescence and adulthood.

A common criticism of existing literature is the widespread use of cross-sectional rather than longitudinal data in assessing the impact of screen time [1]. The use of longitudinal studies and, in particular, the ability to adjust for previously identified health or developmental issues, is especially important.

2.5 Our response focuses on the following questions in the call for evidence:

- What is the current understanding of how screen time can support and impact children's development and educational outcomes, including the effect on concentration and behaviour?
- What is the current understanding of how screen time can support or impact children's wellbeing and mental health, including the use of social media?
- How can schools and parents be better supported to manage children's screen usage, for example, through age-related guidance? Could the Department for Education be doing more in this area?

3. What is the current understanding of how screen time can support and impact children's development and educational outcomes, including the effect on concentration and behaviour?

- Traditional forms of screen usage can have detrimental effects on young children, whereas video gaming does not show the same impacts.
 - Watching television, videos, or DVDs for three hours or more daily has been associated with a small increase in conduct problems between the ages of five and seven years, after accounting for other child and family characteristics in the Millennium Cohort Study (MCS) [2].
 - In the same study, researchers found no associations between hours spent playing electronic games and conduct problems [2]. This could reflect a greater vigilance on parents' behalf towards enforcing age-appropriate content for games compared with TV. It may also show potential differences in the impact of different types of screen-based activity; there could be benefits to the engaged and often socially interactive nature of video games [3].
 - Researchers using data from Growing Up in Scotland found more serious implications from television viewing at a younger age. At age four, watching TV for 18.5 hours or more per week (approximately two hours 40 minutes daily) was significantly associated with behavioural and conduct problems, hyperactivity/inattention, peer problems, and lower prosocial behaviour [4].
- Later sleep onset is a particular concern on school days, as late school day bedtimes predict poorer academic and emotional outcomes across time [5].
 - Research based on longitudinal data has repeatedly found that increased screen time, particularly through social media usage, has a significant negative impact on sleep in adolescence [5] [6] [7].
 - Even after controlling for other variables, social media use remains significantly associated with late sleep onset and wake times in adolescents. Very high social

media users were found to be roughly 70% more likely than comparable moderate users to fall asleep later than average. Low social media users were least likely to fall asleep late [5].

4. What is the current understanding of how screen time can support or impact children's wellbeing and mental health, including the use of social media?

4.1 Screen use and mental health

- There are nuances between *types* of screen use and their impact on young peoples' mental health.
 - At age 16, time spent on the computer has been shown to be clearly associated with an increase in anxiety and depression whereas there is little evidence of such associations with time spent texting or watching television [1].
 - Texting could be associated with social behaviour, which is related to the finding that increased time spent alone explained some of the relationship between screen time and anxiety and depression [1].
 - It is also feasible that some screen types may induce effects at lower levels of exposure than others, perhaps due to perceived levels of immersion, e.g., young people may be more likely to multi-task when watching TV, and texting is intermittent, while computer use may be more focussed and continuous [1].
- Longitudinal research on screen use has looked closely at social media. One key paper in this space found that higher social media use is related to poorer wellbeing in 10-15-year-old girls [8]. Another found that, among 14-year-old girls, greater social media use is related to online harassment, poor sleep, low self-esteem, and poor body image; in turn these are related to more depressive symptoms [9].
- However, based on longitudinal data, research has found that the relationship between social media use and life satisfaction over the life course is more nuanced than many assume.
 - Findings are inconsistent, vary substantially depending on how the data are analysed, and the effect sizes are small, with some researchers arguing that the effect sizes are "trivial" [10].
 - For example, one study looking specifically at the relationship between social media use and emotional problems, did not find any statistically significant pattern [11].
- Social media use has the greatest negative impact on life satisfaction amongst adolescents, with this group also seeing the greatest overall usage of social media [12]. However, this relationship is complex.
 - Both very low *and* very high social media users report lower life satisfaction ratings than those who use more moderately [12].
 - Another paper assessing participants aged 10 to 15 found that moderate to low use of social media (less than four hours per day) does not appear to have any significant association with life satisfaction changes, although heavier use was associated with deteriorating life satisfaction [13].
- **Policy recommendation:** any policy that seeks to address potential mental health harms arising from screen time must consider the different ways young people interact with screens, now and in the future. This is true both in relation to the various types of screen-

based activities, as well as the links between screen time and other factors, such as time spent alone.

- It is not unreasonable to teach young people to balance their screen use, particularly to employ appropriate protections for privacy and safety from online risks. However, given the lack of consensus in the longitudinal research community around the negative effects of screen time on young people, policymakers would be well advised to consider other predictors of poor mental health that may be more fruitful for policy interventions.

4.2 Screen use and physical health

- Among adolescents the duration of all screen-based behaviours is associated with less overall physical activity and shorter sleep duration.
 - In particular, the use of social networking sites and internet browsing was associated with lower overall physical activity and 5 to 10 fewer minutes of moderate to vigorous activity per day [6].
- However, the use of social network sites was associated with less time spent in sedentary behaviours.
 - This may be because adolescents spend time using social media via portable devices whilst engaging in light activity and are not necessarily sedentary [6].
 - This is a particularly important nuance for policymakers to understand. The sedentary nature of some types of screen time may be the mechanism by which screen use and anxiety and depression are associated, as sedentary behaviour has been shown to be associated with both [1].
- The context of screen use is important to physical health with relation to maintaining a healthy weight.
 - Research using data from Growing Up in Scotland has found children aged between four and ten with high/increasing obesity and increasing overweight trajectories are more likely to eat main meals in a setting involving mealtime screen use [14].
 - On top of this, obese and overweight children tended to have had access to bedroom screens at earlier ages [14].

4.3 Gender differences

- Longitudinal research has found that gender is an important determinant of the impact of screen time and, in particular, social media on young people.
- The detrimental associations between high social media use and life satisfaction are more notable for girls than boys.
 - With regards to social media in the 10-15-year-old range, girls reporting very high usage scored substantially lower on life satisfaction than boys [12]. At age 14, compared to using social media less than once a month or never, using it most days was associated with 13% higher depressive symptoms in girls [3]. For boys, social media use predicted only small decreases in life satisfaction [10].
 - One explanation for this is that girls are shown to be more self-conscious and worry about negative body image and self-esteem more than boys. Girls also tend to 'ruminate' on their mood more than boys which may deepen and worsen their mood [13].
 - The additional stress of dealing with body image and self-esteem as a young girl that develops through adolescence may be compounded by the increasing use of, and exposure to, idealised images online via social media [13].

- Specifically for girls, there is a window of sensitivity to the negative impacts of social media on life satisfaction between the ages of 11 and 13. There is also an increase in this sensitivity for both sexes at the age of 19. Speculatively, the latter may be related to disruption in the social environment as young people move away from home and find new social networks [12].
- When assessing the impact of screen time and social media on girls, mediating factors must be considered to understand the full picture.
 - One study co-authored by Professor Russell Viner, the current Chief Scientific Adviser to the Department for Education, found that the association between frequent social media use and later poor mental health and wellbeing for girls is largely mediated through cyberbullying and inadequate sleep [7].
 - By contrast, cyberbullying, sleep and physical activity were responsible for only 12% of the effect of very frequent social media use on psychological distress among boys, suggesting that other mechanisms are responsible for the effect of social media use on later mental health for boys [7].
 - Once again, this study considers that the apparent sex differences might reflect higher baseline levels of anxiety and psychological distress among adolescent girls than boys [7].
- On the relationship between social media use and physical health, use of social networking sites at age 14 was associated with 15 fewer daily minutes of moderate to vigorous physical activity in girls, but not in boys [6].
- Playing video games can be beneficial to the mental health of adolescent boys.
 - One paper using MCS data found that, compared to those who never use them, playing video games is associated with around 25-30% *lower* depressive symptom scores in boys aged 14, but not in girls [3].
 - There is some evidence that more frequent video gaming is associated with lower depressive symptoms in boys who are less physically active, but not in boys who are more physically active. As such, adolescent boys who spend less time playing sports and active games may derive more enjoyment and social interaction from playing video games more frequently [3].

5. How can schools and parents be better supported to manage children's screen usage, for example, through age-related guidance? Could the Department for Education be doing more in this area?

Policy recommendations:

- While some research using data from longitudinal population studies has found that interventions to appropriately limit internet and social media use during childhood may help to improve mental and emotional health, a great deal of nuance must be associated with these efforts and the logic behind them.
 - In particular, policies should consider interventions to prevent cyberbullying or to put in place support structures to assist those experiencing cyberbullying.
- The most important lesson for any interventions to consider is that attempts to improve young people's wellbeing must pay close attention to gender.
 - This is true when considering a range of screen time factors outlined in this submission, including but not limited to: the type of screen time; the impacts on

physical activity and sleep duration; and the impacts on life satisfaction and mental health.

- Given longitudinal population studies have found that social media has unique negative and positive impacts on young people, with no clear-cut patterns across studies and recent eras, it would help for social media companies to support independent research. For example, if companies were to share granular user engagement data and participate in large-scale open science, more reliable insights into young people's social media use and its effects could be generated [10].
- In this submission we highlight the finding that mentally active sedentary behaviours, such as video gaming, can be protective from depression. Therefore, approaches that aim broadly to reduce sedentary behaviour or screen time can overlook these complexities and may not maximise the potential impact on mental health risks.
 - A more targeted approach to screen time may be necessary. For example, targeting high social media use could produce a greater effect on reducing depression risk than targeting video gaming, particularly in girls [3].
 - Research has also suggested that strategies to reduce time spent on specific screen behaviours, such as social networking and internet browsing, may be valuable when aiming to promote physical activity in adolescents [6].
 - With near universal integration of screens into the home environment, altering specific practices may be more readily actionable than reducing overall screen time. For example, specifically tackling mealtime screen use and bedroom screen access might be more effective actions [14].

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